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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 1. SAN FRANCISCO, SATURDAY, JANUARY 2, 1909. Thirty-ninth Year.

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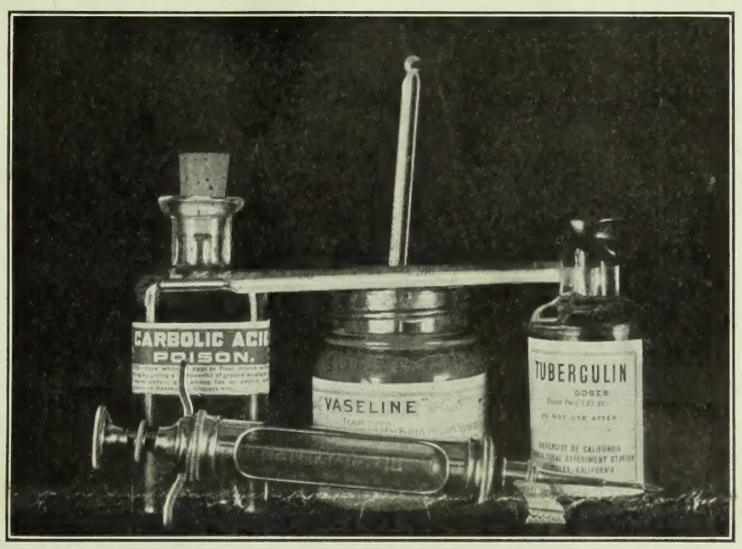
Tuberculin Test and Its Application.

The agricultural aspect of bovine tuberculosis is becoming clearer and the problem involved in it for the stock grower is commending itself to him more strongly. So long as the radical views which health officers at first voiced, were those brought to the attention of the animal owner they naturally awakened opposition and he felt compelled to take up a fight against what he believed to be unreasonable and sensational. More recently, since the importance to the grower of health in his animals and the demonstration, by the experiment stations and other agencies recognized to be working in the producers' interests, that health can be secured without prohibitive expense and without a general destruction of property, the stock owners are coming to look upon the tuberculin test and a subsequent procedure based upon it, as rational measures looking to their own protection and profit rather than as adverse to them.

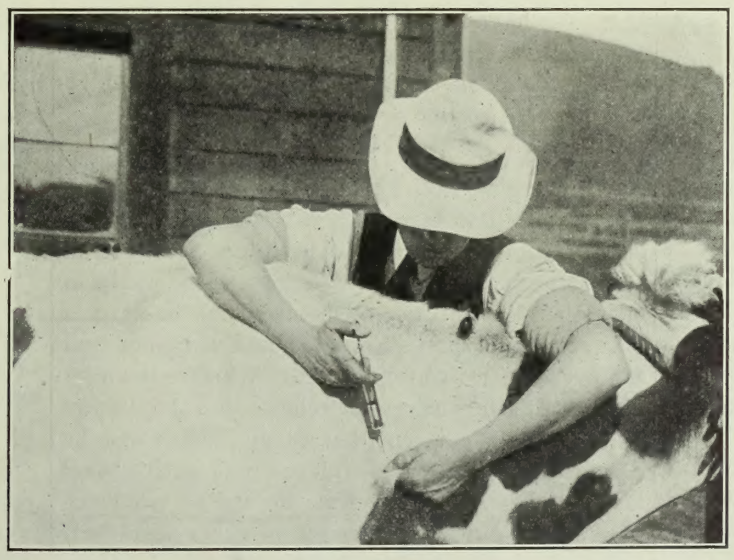
The California Experiment Station at Berkeley, through its veterinary division, has been for some time studying the occurrence of bovine tuberculosis locally and is now beginning to publish bulletins of information, advice and assistance which will enable our stock interests to advance toward the reduction of the disease in the up-to-date manner which has been suggested. The first of the series has just been issued. It shows that during the last four years Dr. A. R. Ward and Dr. C. M. Haring, who prepare the bulletin, have had made tuberculin tests of dairy cows in the various counties of the San Francisco bay region and in the Sacramento and San Joaquin valleys. In all, 1976 tests have been made, of which 543 (22.9 per cent) showed reactions. Only four herds, the largest consisting of 39 cows, were free from tuberculosis. A much smaller proportion of isolated cows were affected than those in herds. Of 71 animals, isolated, or in groups of five or less, only 6 (8 per cent) reacted. A more accurate statement of the prevalence of tuberculosis, as shown by this experience, would be one compiled from results of the tests of whole herds the first time they had been tested. In this case the figures show 1022 animals tested, with 326 condemned 31.9 per cent).

Tuberculosis was found in 82 per cent of the herds tested. This statement has been carelessly used by some of the papers. It does not mean that 82 per cent of the cattle were tuberculous, but that 82 per cent of the herds tested had some tuberculous animals in them. This is a very different statement, of course, but it still shows beyond controversy that the disease is so widely distributed that it causes a constant loss to stock owners and that they cannot afford to close their eyes to its presence. Every animal owner should send to the university for a copy of the publication and study it carefully. It tells not only of the disease, but gives in detail the ways in which it should be proceeded against so as to reduce it to the utmost with the least possible loss.

In this conenction we have in mind to show what the tuberculin test is and how it is applied, because that is a matter which every agriculturist should understand for the sake of general intelligence, even if he is not called upon to practice it. Popularly speaking, tuberculin is a fluid in which the germs of tuberculosis have been grown for sometime, but in which they have been subsequently killed by long boiling. After this boiling it is forced through a filter which removes all the remains of the germs and then is subsequently treated to prevent change in its character. Tuberculin may then be roughly described as the home of the germs from which all the inmates have been killed and dragged out. When this fluid is injected into animals affected with tuberculosis it causes a rise in the temperature of the animal which endures for a time and then disappears. The detection of this increased heat at the proper time is the purpose of the test. There is no evidence that it causes an increase in the rapidity of the disease in animals already tuberculous or that it is injurious to them in any other way. It does not even temporarily injure the quality of the milk.



A Tuberculin Test Outfit.



Manner of Injecting Tuberculin.

The test is simple in its application. It consists in taking the temperature of the animal with an ordinary clinical thermometer several times to determine its normal, injecting the tuberculin with a hypodermic syringe, and then taking the temperature at intervals of two hours between the eighth and eigteenth hours after the injection. Any one with intelligence enough to run a dairy profitably should be able to perform the labor of the test in a competent manner. The animals should be kept under under favorable conditions, and care needs to be taken to record accurate temperature readings. In interpreting the temperature records a careful consideration of the conditions under which the test is made and a knowledge of the sources of error is necessary.

The work necessarily has been and must be carried on by those having some knowledge of veterinary science. However, it is not necessary that the persons performing certain details of the test shall be trained veterinarians. An intelligent dairyman who will make a little effort to familiarize himself with the test and its limitations can use it on his own cattle with good results. It is only through the co-operation of breeders, dairymen and veterinarians that there is hope of immediately improving the extremely undesirable conditions which at present exist. When the majority of the dairymen understand the use of the test and the importance of isolating diseased animals, there will be far better prospects of eradicating the disease than if skilled veterinarians are considered indispensable. The expense of employing a professional to perform every detail of the test, is not only often prohibitive, but in many localities no qualified licensed practitioner is available.

The Agricultural Experiment Station of the University of California offers to any dairyman of the State who will avail himself of it the opportunity of learning and perfecting himself in details of using the tuberculin test. Not only can information be obtained, but under conditions to be personally arranged between the inquiring dairyman and the veterinarians of this station, it will undertake to supply free tuberculin and give direct assistance in interpreting the temperature records.

The engravings used herewith, taken from the bulletin to which we refer, show the outfit needed

(*Continued on page 14.*)

Pacific Rural Press

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FRANK HONEYWELL - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., December 29, 1908:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.98	12.53	16.37
Red Bluff	.20	4.37	9.79
Sacramento	.04	3.59	6.92
Mt. Tamalpais	.49	8.07	8.17
San Francisco	.28	4.09	8.03
San Jose	.09	2.86	8.01
Fresno	.00	1.38	3.41
Independence	.00	1.80	3.37
San Luis Obispo	.00	3.84	5.59
Los Angeles	.00	4.09	5.00
San Diego	.02	2.25	3.03

The Week.

The New Year comes in with rather a scowling face. The temperature has been low, but according to observation it has affected mankind rather than plants. A man gets cross when he is chilly, and his spirits rise when there is a clear sky, even if the frost is sharp; the plant doesn't seem to have chilblains, but it droops under a bright sky and a sharp frost. Therefore, so far as we have seen, the man has been worse affected than the plant, and so long as we have plenty of both land and sea fogs this condition will probably continue.

The rainfall is scant in most places, considerably below the normal and the prophets are generally too busy and the contract rain-makers driving good trade with the gullible. As for prophets, we always select a bright one; if you get a whack from misfortune you simply double the weight of it by anticipatory moaning. Misfortune cannot be averted by preliminary howling such as the bad boys work upon the teachers. So we are for fond anticipation every time because that doubles pleasure just as the other kind doubles woe. And we take for our weather prophet one who gives reason why badness will not come. Mr. L. E. Blochman of Santa Maria, who has been so good a farmer that even oil ventures have smiled upon him, has not forgotten to keep his eye on the weather as he has for many years past. Of his observations he kindly writes as follows:

"This season's weather is a little discouraging for cattlemen, but farmers are mostly able to plow as yet. According to my viewpoint, it is to be one of the type of late-opening spring seasons of which we have quite a number. It might be construed as a possibly dry one but for the fact of the absence of northeast winds in this locality and heavy rains south early in the month—heavier at Yuma than at San Francisco. This condition never happens in a dry season, as the continental high barometer from Utah to Point Conception is so prevalent in dry and half-dry seasons as to shut off southerly incoming rains. Whilst distant forecasting is a great uncertainty, years of observation ought to count for something toward a reasonable assurance of general rain probabilities, and that is the justification for my forecasting."

Thus Mr. Blochman fixes the outlook all right and we have nothing to do but to march forward confidently into it.

Next week the legislature will assemble in Sacramento, and judging by the abundance of propositions which are coming forward in the press and current discussion there will be a busy time and a peerless opening for statesmanship. California seems to be pressing forward strongly toward higher standards of living and in the promotion of undertakings which promise to protect the people from individual greed and ambition and to help all toward the attainment of greater prosperity and the State itself to fuller development and progress. In the latter line we particularly like the present attitude of those who have been working in several lines for the improvement of the interior rivers both for navigation and for reclamation. These great arteries are of immense value to the development of the whole State. There was a meeting in Sacramento last week in which three associations joined and arranged for continuous joint action, the next meeting to be held on January 11 in Sacramento. The general purpose is to agree upon some plan to interest the Federal Government in the Sacramento valley project, which includes irrigation, reclamation and navigation. It was proposed that a commission be appointed by the President and Governor to outline a plan of co-operation between the Federal and State governments for these purposes. It was decided to ask Governor Gillett to request President Roosevelt to name a commission of three from the Federal departments to act with a like number to be appointed by the Governor to draw up a plan for developing the entire valley along these lines. This looks broad and promising. We have had too much patchwork hitherto. It would be even broader and better if the San Joaquin problem were included, as it should be and must be sooner or later.

We are glad that Mr. William R. Wheeler has been induced to lay down his work as assistant secretary of commerce and labor at Washington and return to California to take up leadership in adjusting the unfortunate issue which has arisen between California producers and shippers and the overland railway lines. Mr. Wheeler is a successful San Francisco merchant and he knows what the trade is entitled to and what can be done to get it. He is also developing agricultural lands and gives all the time he can to residence upon them and has possession of the agricultural point of view. He has therefore a broad education from experience in various producing and trade undertakings, as well as the advantage of creditable and successful participation in national affairs. He will ascertain just where justice lies in the issues which arise and will know how to open the way to the supremacy of justice and that is what reasonable men are longing for.

Mr. Wheeler will naturally give most attention to the especial lines of shipping which are represented in the firms and associations which form the organization which employes him, and no doubt our agricultural associations can affiliate therein. It is, however, only indirectly an action in behalf of the whole people, as it should be. In a recent letter to the attorney general of the State Mr. H. D. Loveland, one of the existing board of railway commissioners, wrote his conviction that "there should be some authority vested in some one of our State commissions by which such commission could undertake in the interest of all the people of California to become a party to these deliberations and controversies if such arise." The attorney general replied that under the existing lay there is no way that his commission can enter the field. Mr. Loveland is, however, quite right. There should be some duly certified representative of the whole people who could act in the regulation of such matters, and if Mr. Wheeler had good laws and the whole people behind him, he would be in a position to accomplish more. However, as things are, he is the best man to do the best he can.

We do not know much about cocktails away from the poultry yard, but from what is currently reported there is one good thing in them, and that is a modicum of California cured fruit. Maraschino cherries and pickled olives are chiefly mentioned in this connection, and since the cocktail chemists have begun to leave them out it is said that shippers have noticed a change in the market, and the matter has assumed an aspect so important that it has been taken up by officials of the Southern Pacific Company. Unless the demand for cherries and olives picks up before long, it is said to be probable that shippers and growers will take some action to restore the popularity of these fruits. Just how they can do this is not quite clear to us. They can, of course, call for more fruit in the cocktails they order, and presuming that they will thereby get less whisky it could be commended as a sort of local option factor in the temperance question. But we imagine that fruit growers do not call for many cocktails, and how many railroad men take the cocktail route we do not know. And then when it comes to eating their own fruit the growers could do that at home and save the added charges of all the middlemen in the gilded palaces of Bacchus. The proposition is to lift oneself by his own bootstraps for the grower to take action to get his product disposed of that way, and possibly make him think he had accomplished it. On the whole, the less California fruit growers know and care about the fruit contents of cocktails the better probably. The growing demand for Maraschino cherries and olives in the culinary and catering arts is likely to far surpass any lack which change in bar-tending fashions may cause. Get all the cherries you can into formula preparations, bed them in whipped cream, sprinkle them in frosting. Promote all such commendable uses and let the cocktail industry alone.

United States Forester Pinchot is taking reasonable ground on the Christmas tree problem. He says that the native forests supplied four million this year, but that fact does not paralyze him as it does some of his sentimental followers, who seem to have more regard for a tree than for the children. "The number of trees cut this year," he said, "is insignificant when compared with the consumption for other purposes for which timber is demanded. The clearing of an area equal to a good-sized farm should not be the subject of much worry when it is remembered that for lumbermen alone it is necessary to take timber from an area of more than 100,000 acres every day of the year." This is warrant for the hope that Christmas cheer will not be reduced to the use of steel-wire Christmas trees, which we see some reformers are advocating. For heaven's sake don't start a kid on a love for nature with a bogus tree. Again, the forestry service is exactly

right in claiming that Christmas trees ought to be grown especially and that the Christmas tree business will become a recognized industry, and as much care will be given to it as is given now to the growing crops of timber for other uses. We are not sure but that some of the glorious estimates which are now serving the eucalyptus planting interests could be quite as safely used in Christmas tree growing prospectuses. Think of that a little!

The tariff hearings are over and the Congressional committee is probably at work on its clearings—from the multitude of claims presented to it. The California member of that committee will have to look sharp or he may be robbing Peter to pay Paul. It is reported that the grape-growers of California have sent a letter to Congressman Needham asking that in the revision of the tariff an effort be made that California wines are permitted to enter Canada on the same footing as French wines. The Californians also urge that the tariff on grapes be reduced to Canada, which offers a good market for California table grapes. These propositions are good as they stand, but one is apt to forget that one reason why the California barley interest is increasing so fast is because it is protected against Canadian barley, with which it could not formerly compete in the markets of the central West. If we go to trading with the Canadians to free our wine they will naturally insist that we free their barley. The grape men should not be trying to work protection and reciprocity also; the latter is apt to kill the former. As for the temperance people, they get it in the neck both ways. If the Canadians drink our wine we shall drink beer made from Canadian barley; if nothing is done, each will take his own liquor.

Queries and Replies.

That Alfalfa Nurse Crop Again.

To the Editor: I intend to put some alfalfa in and was intending to sow it with barley or after the barley had come up. Having been here only for a short while, I asked quite a number of farmers around here their opinion, and nearly all told me not to do it. They could not give me a satisfactory reason, same saying, the barley would choke the alfalfa; some that the alfalfa sowed now would free out. Now I know that in Germany we usually put alfalfa or any other clover in with another crop, about March; some with barley and oats, some with wheat or rye, which has been sown the previous fall. I known that because I have done it myself. There we do not know anything about choking or freezing of alfalfa or clover, and I do not see why it should do so here, where the climatic conditions are much more favorable. The only thing I think is against it is the drying out. If I sow my barley in January and the alfalfa in February or March, we might not get enough moisture to bring the young plant up. But in that case we would have a remedy too. Having a cover crop of barley we could easily irrigate without being afraid of baking the soil. Having a nice crop of barley and making it to hay, one would increase the yield of that field considerably without hurting anything. —German Farmer, Yolo county.

Although your theoretical considerations in favor of sowing alfalfa with barley seem to be very reasonable, it is a fact that California experience indicates that the nurse crop should be done away with entirely. The chief reason for this is that the growing barley takes moisture from the alfalfa, causes it to start feebly and does not promote the deep rooting of the seedling plant which is desirable for a good stand. It is possible that the reduction of light may also restrict the leaf action, which would also tend to the limiting of root growth and general thrift in the plant. It is also possible that by the use of irrigation and cutting barley soon enough these objections might be reduced to a minimum; or possibly removed. The only way to determine this would be to try it, and as you have such a strong conviction in favor of the nurse crop, it would be desirable that you should test it out for yourself. Others have found it undesirable and have secured a better and stronger stand by giving the alfalfa the full possession of the land.

Irrigation by Percolation.

To the Editor: I wish to ask your advice on a matter of irrigation. My ranch is ¼ by ½ mile in area. Along the shorter side there is a ditch, and out of this ditch runs a lateral the length of the place. The ditches both have no outlets, and water does not run in them. The idea is that they shall be kept full of water, and irrigate the land by seepage. The main ditch is rather unsightly, but I fear to do away with it, because, from the contour of the land there is no other way to irrigate a portion of the place at all, as the land is highest along this main ditch—too high, however, to be reached by flooding from the ditch. There is a vacant spot, 420 feet long by 130 feet deep, where I will put the dwelling and buildings. As I said, it is the highest ground. I have put down a well on this spot, 8 inches diameter, 140 feet deep. It ends in gravel. I have never had a big centrifugal pump on it, and do not know the volume of water to be had. It has been suggested that I fill up this ditch, relying on the water I will take from the well to use for irrigating trees and a garden on the home spot, and to water the vineyard. Again, I have been advised to put in six-inch tile, leaving the joints open, and what water leaks through these joints will do the work. The former owner of the place says to keep the ditch open and keep it filled with water, and it will sub-irrigate the whole vineyard down to the end, half a mile away.—Owner, San Joaquin.

As nearly as we can judge the situation from your description, and it seems very clear, we should conclude that the former owner of the place is right concerning the keeping of a filled ditch for irrigation by underflow, rather than trusting to loosely laid tiles. The latter are apt to become filled by roots of all sorts, which will go to them from long distances for the sake of moisture, and will enter and fill the tiles, so that it might not be long before you would have to dig them out and re-lay; in fact, you might have to do this at rather frequent intervals. You would also get freer movement of water from the open ditch than from tiles, and rather free movement is necessary when you are counting upon reaching such a considerable tract of land. It will, of course, depend much upon the soil and subsoil as to how satisfactory this system of underflow will prove. It is usually not a very satisfactory and even method of distribution, because some parts will get too much and some too little. You will certainly have to use surface irrigation for some of the shallow rooting plants which you may wish to grow.

Heat and Plants.

To the Editor: How much heat will the leaves and blossoms of a fruit tre stand without injuring them in any way. Please give as complete information as you can.—Grower, Santa Clara.

We cannot tell exactly how much heat fruit blossoms will stand, but we have known them to go through a heat of 100 degrees in March without injury. How much more they will endure we do not know. As for the leaves, it depends upon the kind. Walnut and apple leaves, for instance, may be seriously injured by a temperature of 120 degrees, while pear, peach, plum, apricot and grape may not be injured at all, providing the tree has moisture enough to compensate for the rapid evaporation at such temperatures. This is shown by the fact that these fruits are being successfully grown in places in California where such high temperature is reached.

Grape Vine Knot.

To the Editor: I understand that you published a remedy for black knot on vines some time ago before I began to keep my copies of the RURAL PRESS. I would be very thankful if you would print it again, as I am bothered considerably with that disease.—Subscriber, Fresno county.

As you have resolved to reform and will henceforth keep every copy of the RURAL and make good use of the index, we will gladly comply with your request. The treatment consists in removing the knots with knife, chisel or hatchet, as seems most convenient, and painting the wound with Bordeaux mixture. This treatment has prevented the recurrence of the knot at that spot, but as for preventing its outbreak generally, nothing is at present known.

The Bordeaux mixture can be made in this way: Dissolve 4 pounds of copper sulphate (blue stone, blue vitriol) in 25 gallons of water in a barrel, suspending it in a coarse gunny sack near the surface of the water. In a wooden pail slack 6 pounds of fresh quick lime in sufficient water, then pour in another barrel and add enough water to make 25 gallons and slowly pour the two solutions simultaneously into a larger cask or tank from which it is used. Of course you can make any smaller or larger amounts by observing the same proportions of lime, bluestone and water.

Cane Sugar and Grape Sugar.

To the Editor: Why is it that commercial sugar cannot be produced from the California grapes if they contain from 24 to 32 per cent of sugar, as I am informed? It seems to me that this industry could be developed on extensive plans if such sugar manufacturing is possible.—Enquirer, Stanislaus county.

The reason why commercial sugar is not produced from grapes is because the sugar in the grape is glucose and not sucrose, or cane sugar. The sugar in the beet and the cane are identical, but not so with the grape. Glucose is a low-priced article, because it can be readily produced artificially from the starch of corn and other grains. There is less demand for it than for cane sugar because it is not so sweet.

Age of Nursery Trees.

To the Editor: What difference does it make in planting an orchard whether the nursery trees are one or two years old from bud?—A Subscriber, San Jose.

It makes all the difference between success and failure in most cases. The slower growing trees, like apples, pears and cherries, can be better used as two-year-olds than can the rapid growers, like the apricot, peach, almond, etc. If you are sure of moisture and are willing to do extra work in cultivation, you can make two-year-olds go, as, for instance, in suburban garden planting, but nothing is so good as a well grown yearling with all the common deciduous fruits.

Pecan on Walnut.

To the Editor: Can the pecan be grafted or budded on the black walnut? The California black walnut grows very vigorously here, while the pecan is of a much slower growth and is a long time coming into bearing.—Reader, Mills.

We hold that it cannot be done. Who objects to the statement?

Horticulture.

UNIVERSITY DISTRIBUTION OF VEGETABLES AND FRUIT.

For many years, as our older readers know, the Agricultural Department of the University has distributed for trial seeds and plants of varieties recently introduced, in order that their local value or worthlessness may be determined. It is not intended that such introductions shall take the place of standard varieties in the regular planting, nor do they take the place of the seed trade in any way. They are merely to be tried on the side, to see if any of them are worth planting for regular supply. Nor are they offered, as the seeds in the congressional distribution are, as free gifts to friends of the lawmakers. The applicant is required to pay a sum for what he is inclined to experiment with which is about equal to the price which seedsmen charge for standard varieties. All the details of the method of distribution can be had by sending a postal card request for the "seed circular of 1908," to the Director of the Experiment Station at Berkeley.

As these new varieties may represent in some cases important additions to our horticultural lists, it seems timely to give descriptions of their behavior during the preliminary trials which the University horticulturists have made of them, in order that the reader may judge for himself of the desirability of his entering the co-operative effort to which the University invites all growers.

Large White Bush Squash.—This variety is a selected form of the ordinary White Bush Scallop squash, and is much like the parent form, except that the fruits grow to a much larger size and are also borne in greater profusion. The stock has been rigidly selected for the two qualities just mentioned, and this year, the third selection, the type seems to be quite fixed. The variety known as the Mammoth White squash appears to be identical with this, but is offered because a comparison has shown our selection to be certainly superior in point of productiveness. The seed has been saved from typical, well ripened fruits, none of which had a diameter of less than nine inches.

Selected Danvers Yellow Globe Onion.—A series of onion experiments conducted on the central station grounds at Berkeley has forcibly brought out the fact that the Danvers variety differs widely with the different seed stocks which are upon the market, and that the various strains have very unequal merit. This occurs because of the varying amount of care which is expended in the endeavors to breed true to type and size by the different seedsmen. It is the practice of the average seed grower to grow seed from bulbs somewhat deficient in weight. As a result of this, there is bred into the seed an inherent tendency to produce bulbs of medium or small size, and the evil of this trait is very apparent when we recognize that all the fertilizing which onions receive is with the idea of effecting an increase in the size of the individual bulb, and thereby the tonnage per acre. It follows, then, that seed bred from only fair sized bulbs will require a greater expenditure of fertilizers in order to secure onions of marketable size, than will be the case when the seed is obtained from a stock bred intentionally to secure goodly dimension of bulb.

The point where the seed which we are offering differs from that which can be obtained from seed firms, is that our strain is bred for size, in addition to form and color. The seed is the progeny of bulbs which have been selected for three generations for a combined excellence of form, coloring and size, particular attention having been paid to the latter feature.

Sutton's Black Seeded Brown Bath Lettuce.—To assist the people of California in making their choice of a lettuce variety, we grew at Berkeley last year about fifty of what we considered the best kinds. The idea was to ascertain which possessed the greatest merit, and to then grow seed of the selected varieties for distribution. Under trial it proved that there was a very considerable difference between the varieties, and no difficulty was experienced in picking out one or two varieties which were undoubtedly superior to all the others. This year we are only offering seed of one of the various types which were tested, the Cos, or so-called Romaine lettuce. Compared with the cabbage type, the Cos lettuce is hardier and less susceptible of frost, it shows more ability to withstand drought, and is also less liable to sunburn, the last two features making it better adapted to hot and dry localities, while the first is one which especially recommends its use as a late kind. Sutton's Black Seeded Bath is an exceedingly fine lettuce, growing to an immense size, and is to a certain extent self-blanching.

Carter's Daisy Pea.—Carter's Daisy is a pea of dwarf habit, rarely growing higher than thirty inches, is a prolific bearer, and the peas are of the wrinkled type and of delicious flavor. The variety is essentially a pea for the home garden, and as such we offer it.

Sutton's Champion Scarlet Horn Carrot.—This carrot, seed of which we first imported four years ago, has shown up so well when contrasted with many other varieties which we have had under trial, that we have no hesitancy in saying that it is one of the very best kinds for the home garden which has come before our notice.

In growing vegetables for one's own table, quality is the desideratum most desired. In carrots the French Short Horn is usually taken as the standard of table excellence, but Champion Scarlet Horn seems to have all the good qualities and best features of the French Short Horn plus quantity. This is our feature offering among vegetables, and in this fine carrot we are sure we are introducing a most desirable addition to the vegetables for the home garden in California.

East Indian Musk Melons.—The station is indebted to Mr. Hari Ram Gorowala, director of the Gwaliar Farming Syndicate, Quetta, Beluchistan, India, for a collection of seed of musk melong varieties which are of striking excellence in his country. They belong to the late maturing, long keeping class which we have come to call winter melons in distinction from the cantaloupe group. They are usually stored for a time after maturing, in order to acquire the qualities which the native growers most highly esteem in them, and they are so different from the varieties which are commonly grown in this country that some experimentation will be required to determine how one can best handle and use them.

New Apples Approved in Humboldt County.—We are indebted to Mr. Albert F. Etter of Briceland, Humboldt county, for a generous offer to supply our correspondents with scions of several new apples which he has found notably good in his careful tests on his place at Ettersburg, in southwestern Humboldt county, which is becoming an important apple growing region. Mr. Etter is a plant breeder who is achieving striking results in original work. He describes the varieties offered as follows:

Mank's Codling.—Medium size, clear yellow with blush cheek in sun; flesh white, fine grained, very firm and never gets mealy; abundant acid, juicy and ranks high as a kitchen fruit; also good dessert fruit but rather tart. Season, August 15 to October 1. Tree dwarfish, compact, upright and a good bearer. Recommended for gardens where space is limited.

Reinette Ananas.—Below medium size; deep yellow, resembling a small light-colored orange; very juicy, acid and high flavored; never becomes mealy. Splendid sort for canning, preserving and kitchen use generally; also fine for cider and dessert, though rather tart. Season, September 20 to January 1. Tree a good grower with very symmetrical spreading round head; a good bearer. Ought to be desirable for home use in the warmer parts of California.

Northfield Beauty.—Resembling Jonathan in tree and fruit, but ripens with Gravenstein; quality high but not as acid as Gravenstein; keeps and holds flavor well for an early apple. Should be a desirable apple for either home use or market as a dessert fruit.

No. 80 (Spy × Reinette).—A winter apple; quite acid and very desirable for kitchen use; striped with red and of the size of the Baldwin. Tree a good grower and bears well.

Hyde's King.—Very desirable for wider trial in California; large, bright yellow with blush cheeks; resistant to spring frosts and among the best keepers; flavor very good, but it does not remain as well as with some varieties, remaining apparently in prime condition weeks after the flavor declines; tree thrifty in growth and bears heavily; fruit does not sunburn easily and hangs unusually well to the tree.

We have given enough to enable readers of the Pacific Rural Press to see whether they desire to try any of these things or not, and if they do they are invited to send for the detailed circular of distribution mentioned at the beginning of this statement.

Citrus Fruits.

THOUGHTS SUGGESTED BY THE COLD SPELL.

Written for the Pacific Rural Press
By Mr. Thomas C. Wallace.

During the winter we always have cold spells of more or less severity, and the recent cold wave in the citrus belt is now a subject of discussion. That this is a sort of annual discussion makes it no less interesting, as the points that arise are not by any means settled in the minds of growers. It is true that the element of excitement noticeable in the earlier years of orange growing in California has given way to calmer thought, as the results of such cold as we have are observed to be less significant than formerly thought. It is also true that the bulk of the citrus properties are now on higher lands than many of the old groves occupied, and many of the colder regions have been permanently abandoned and turned to alfalfa and other farming for which protection from cold is not needed. On well selected orange lands the recent cold wave has not materially damaged the fruit or the trees, and even on many orchards considered in the "cold streak" no harm has resulted. There are many theories advanced for methods of protection, all of which may have some basis of fact, but generally they are not well understood and formulated. For instance, the theory that running water over the soil will protect the trees is without sound foundation, though there are haphazard experiments which seem to point proof of it. It is, however, true that an orchard, the soil of which is not well stored deep with water, will suffer from cold that will do no harm to trees in soil from which they can fully supply themselves with water. The reason for this is that the low temperature causes a more rapid transpiration of moisture from the leaves and fruit, which induces a loss of warmth. This allows an easier penetration of cold, even to the extent of congealing the sap within the cell as well as without the cell walls. If, however, the tree can draw water from the deeper soil, which is warmer than the surface in continued cold weather, to replace the waste, such low temperatures as our winters experience do no appreciable harm. If, therefore, a soil is dry an irrigation will greatly help to save the trees from cold. As I have pointed out previously in these columns, there are many trees in which artificial pans in the soil have been formed, and in such the storage of water is limited to the depth of the pan, and these orchards commonly suffer from any severe cold wave, and are not saved by temporary surface saturation. In fact, saturation of the surface of a soil the drainage of which is checked by a sub-pan, is a positive detriment, as it drives the air out of the soil and estops rather than helps the absorption of water by the trees. Irrigating the orchard after the cold spell is on a par with locking the door after the horse has escaped. There is another point of interest for growers to think of. It is known that the more concentrated the cell sap the higher temperature required to freeze it. This shows that feeding the tree with the important ingredients of nourishment is one of the means of assisting it to withstand low temperature. The opinions on smudging are varied between those who hold it as effective, those who ridicule it as useless, those who think that its office is in the protection of the trees from the rays of the sun in the early morning to prevent rapid thawing, and those who have no special opinion, but just resort to it for fear it may be good. Smudging with smoke is of very ancient

date, and was known to Pliny and practiced in Peru before the time of Columbus. The office of the smoke is to check radiation of heat, which takes place as the cold settles and displaces the warmth which arises from the ground and the plant life. This checks the cold wave and preserves the warmth. Here again is food for thought. If the soils are well supplied with organic matter, the heat arising from its decomposition raises the temperature of the atmosphere in the orchard, which takes more and longer continued cold to force out, so that an orchard well supplied with organic material will resist a longer spell of cold than a bare mineral soil. Again, this is an argument in favor of cover crops, which give off much heat, and so long as they do not seriously interfere with the water supply for the trees, are an advantage, and not a detriment as some have supposed. If the soil is well supplied with deep water there is nothing to fear from the loss of such moisture as is absorbed by the cover crop. From my observation, I favor co-operative smudging, which should include practically the whole section or orchards in the district. This could probably be done exclusively on the roads, and without entering the orchards with apparatus, and the cost of it would be individually light if conducted on a community plan. It is not necessary that the smudge shall be smoke, as any kind of fog will effect the same result. The trouble with smoke is that the material used for fire may contain more or less compounds which, not being consumed, may settle on the fruit, and, as making smoke pre-supposes imperfect combustion, some material that will create a fog that will not deposit a smut is essential for clean smudging. The results of too much cold on an orchard are observable in the wilting of immature growth which has not hardened to stand winter weather, and the falling of fruit. The first fruit that falls is that which is weak from any defect which would have consigned it to the cull box in the packing house. Good fruit on a healthy tree seldom falls as the result of cold, except the soils are deficient in water to enable the tree to maintain or promptly restore turgidity, on which the useful effects of watering frozen plants is based. A temperature low and continued long enough to free an orange on a tree will not usually cause it to fall if other conditions of the tree are perfect. An orange on a healthy tree may be frozen quite hard and remain on the tree until dried up to a condition of skin and punk, so when the grower sees his oranges fall as the seeming result of cold weather, he may be sure that there are other defects to remedy in his orchard.

Agricultural Science.

THE POSSIBILITIES OF PLANT IMPROVEMENT IN CALIFORNIA.

By Dr. G. W. Shaw of the University Experiment Station at the State Farmers' Institute on the University Farm at Davis.

It is the intention in this paper to endeavor to press home the importance of a line of Experiment Station work in California which, in the light of modern agricultural development, bids fair to have a more far-reaching effect upon the producing power of our farms than almost any other single line of effort.

It is doubtful if there is any one agricultural problem of greater importance to farmers than the improvement of their general and special crops, whether this be done through the introduction of higher producing varieties or the development of more productive strains from those now being grown, or through improved culture. Vilmorin, the noted French savant, who has done so much for the improvement of the sugar beet, states that "no limit can be fixed as to the improvement which may be expected from care, thought and selection. The gains of the last dozen years may surely be taken as the forerunner of better things."

The subject is of vital commercial importance from the fact that it cost no more to grow the better sorts of farm crops than the unimproved, while the increased production due to the use of the improved seed results in an increment of profit. It further awakens in the grower more interest in all phases of crop production, extending all the way from selection of seed to the marketing of the crop.

The constantly increasing extension of areas devoted to agriculture has led to a constant demand of improved sorts of plants to meet the peculiar conditions of soil and climate in each new region. We are coming more and more to realize that all plants are not adapted to all sorts of conditions.

Another very potent reason for this character of investigation is resident in the constantly increasing value of farm lands on which are grown general farm crops of corn, wheat, oats, barley, alfalfa, beans, etc. The increase in the value of the lands has been such that it is urgently necessary to increase the production per acre and improve the quality of these crops in order to secure a greater return for the investment.

With the advance in botany and chemistry in their application the agriculturist today, if he does not find at hand plants of the desired characteristics, proceeds to develop a plant to suit the conditions. It may take a period of 5, 10 or 20 years to accomplish the particular thing desired, yet how short a time is this when measured against the resulting benefits to mankind!

On account of the very large number of people interested in the production of the general farm crops in any system of diversified agriculture, which is the only system under which soil fertility can be permanently maintained, the results of such improvement will have a very far-reaching effect. The importance of this character of work is fundamental as regards the individual, the State and the Nation, because the production of such crops is the basis of the Nation's prosperity.

Those who have earnestly and intelligently undertaken the improvement of any plant for a period of ten or twenty years are unanimous in their belief that an increase of at least ten per cent can be expected with absolute certainly within a period of twenty years, and that this can be secured at a cost of less than one per cent of the value, and in many cases at even much less. This increase in productiveness is entirely apart from that secured through the adoption of better methods of tillage, and entirely independent of the trial of new varieties from other parts of the world, in which there are as great, if not greater, possibilities than in the improvement by selection alone, and certainly in this direction we may expect to get the earliest return.

Possibility of Securing Results.—For the improvement of already existing types two methods are commonly relied upon:

1. Variation in the plants induced directly or indirectly through environment.

2. Varieties induced by crossing different variety or species.

The former method has given by far the most important economic results, although the latter requires the higher skill of the breeder's art.

But the question comes, what evidence have we to offer as to the possibilities of valuable economic results? The answer is that this lies in results which have already been obtained through the medium of independent workers and also a number of the Agricultural Experiment Stations. It is pertinent to the occasion to pass in review a few of these achievements as they have affected both the yield and quality of the product.

Perhaps the most noted example of improvement in quality is furnished by the sugar beet, which through persistent and continued selection and scientific grooming has been gradually developed to a delicate, high-bred pedigreed root frequently under our favorable climate carrying twenty per cent or more of sugar, this development having been accomplished from a four per per cent original basis. A most striking example of the flexibility of living forms of matter when subjected to systematic and persistent selection.

The effect of this achievement has been to change the entire aspect of the world's sugar supply to such an extent that the bulk of this has been shifted from the cane to the beet root, until today two-thirds of our sugar is from the beet.

The development of a high starch-content potato by Cimbals, a German, is another marked achivement in the direction of improvement of the carbohydrate ingredients of plants. In this case the yield was raised from 96 cwt. per acre to 224, and the starch content from 15 to 26 per cent; that is, a production of over 58 cwt. of starch per acre. The starch yield per acre was made four times as great—a very important factor in Germany, where potatoes for the manufacture of denatured alcohol distilleries, starch factories and other industrial uses are sold on the basis of starch content.

Sea Island Cotton.—Cotton has long been one of the staple crops of this country, but it is only in comparatively recent years that it has received any very systematic attempt at improvement. At the outset the sea-island cotton imported from the West Indies was a perennial unsuited to the duration of the season of the sea islands of South Carolina and Georgia, where it seldom matured fruit. Through the continued selection of seed from early maturing plants and through better methods of culture this valuable cotton has now been thoroughly adapted to the new environment. Not only is this true, but under this painstaking work the quality and length of fibre has been increased and the proportion of seed to lint decreased. The fibre from unselected plants is only 1¾ to 2 inches long, while that from selected plants is 2½ inches long and much more silky in texture. The value of this will be appreciated when it is known that these long fibre staples from the rigidly selected plants command a much higher price than that from the general crop, the finest grades selling for 50 to 60 cents per pound, as against 15 to 30 cents for ordinary sea island. Another point of particular significance to agriculture is that the practice of careful selection of seed has grown up with this industry, and today may be said to be inseparable from it. Who will undertake to estimate the added wealth to the Nation or State if this was the universal practice with other crops?

Work with Cereals.—There might be mentioned cases where a change has been brought about in the odor and color of plants and the development of relatively disease-resistant strains. Further, the increase of the hardness of the winter wheats has vastly extended the area over which they can now be grown.

Without any attempt to figure the value of such improvement of plants as mentioned above through the modern application of experimental agronomy, let us examine a few others as to the financial side a little closer in search for an answer to the question, Does it pay the State and Nation to invest in this character of work?

Some of the most striking examples when measured by the economic importance have been obtained in the Middle West, where the States were the first to realize the importance of this line of investigation, and early and continually appropriated money for its uninterrupted prosecution, and they are now reaping a rich harvest from a comparatively small outlay, in a number of instances $1 expended creating an added wealth of $1000 to the State's resources. They have now been prosecuting the work for a sufficient length of time so that new varieties are rapidly coming forward, and from the general work of plant introduction and improvement which promises to add annually tens of millions of dollars to their products.

Minnesota No. 13 corn, which was the first new variety distributed in that State and which has been an important factor in extending the northern zone of the dent corn belt to the northward, has certainly added millions of bushels to that crop. Improved Glyndon wheat (No. 163), the product of a single selected plant, now covers millions of acres annually and adds a dollar or more per acre to the value of the crop. No. 169 wheat, a later distribution, adds two dollars per acre to the value of the crop and has already covered a million or more acres.

Primost flax No. 25 has added $3 per acre, or 25 per cent, to the value of flax in Minnesota and has reached an acreage of tens of thousands.

These breeding and testing stations have also aided in introducing Manshury and Oderbrucker barley, brome grass, various types of alfalfa, durum wheat, Swedish oats and other plants of value which are taking prominent place in adding to the value of the staple field crops of the Northwest.

[Next week the financial aspects of plant improvements will be discussed.—EDITOR.]

TREES

SEASON 1908-9.
ORDER NOW FOR FUTURE DELIVERY.

If your trees are purchased from the Fancher Creek Nurseries they will be true to name, well developed, with good roots.

FOR 25 YEARS we have been engaged in growing reliable nursery stock. Our thorough knowledge of every branch of the business makes it possible for us to raise and deliver stock that meets the demands of this country, and gives satisfaction to growers.

Last season we did the largest business in our history. This year our stock of DECIDUOUS, CITRUS and ORNAMENTAL TREES, GRAPE VINES and ROSE BUSHES is more complete and better than ever.

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Deciduous Trees and Grape Vines.

Winegrowers, Take Notice

I am now receiving orders for

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imported from France. Guaranteed to be first choice, and free from suckers.

Orders should be sent before the first of November to insure the arrival in time for planting.

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TREES STANISLAUS NURSERY
Pormerly Analy Nursery, of Sebastopol.
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PRICE LIST ON APPLICATION.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds: 609 J. St., Sacramento, Cal. Send for catalogue.

AGRICULTURAL REVIEW.

HORTICULTURE.

T. A. Murray of El Dorado county has an order from the government for 40,000 of his strawberry plants.

The first three pools of oranges from the Oroville citrus section sold in the East at good prices, netting the growers $2 per box f. o. b.

Berry growers from Bend, Tehama county, perfected the organization of a marketing association last week. Sixteen berry growers have already signed up.

Congressman Needham is endeavoring to secure a tariff on citron shipped into this country. In southern California there is considerable of this fruit raised.

Sacramento valley will make the finest display of dried fruits at Seattle next year ever attempted by any community. Already over one carload of fruit is pledged for the display.

A $4000 addition to the Redlands Growers' Cash Association building has been commenced. One of the improvements to be made is a fruit cooling room which will do the work in nature's way.

Three new walnut associations are to be formed in Orange county soon to handle the next season's crop. Orange, Tustin and Capistrano are the towns where the associations are to be formed.

It is stated that the Limoneira Co. of Santa Paula will set out 200 acres to lemons the coming season. This company already has 400 acres in full bearing lemons and 200 acres of young trees.

The supervisors of Santa Clara county have appropriated $1500 to be used to assist in a campaign to exterminate thrips in that county. These little pests have caused great loss and the effort to be made to eradicate them will be thorough.

Down in the Imperial valley the Brawley Fruit Growers' Association has rented its packing shed, which has the distinction of being the largest cantaloupe packing shed in the world, to the H. Woods Co., and the members will ship as individuals through this company.

An experimental cold storage car has been built by the Agricultural Department at Washington which is capable of producing a temperature of 15 degrees below zero. The car will be sent to California and Florida to conduct experiments with fruit by cooling it immediately at the orchards.

According to the county statistician, Kings county goes heavy on raising peaches, there being 257,600 bearing and 114,700 non-bearing peach trees there, the total number of fruit trees of all kinds in that county being 593,100. Over 8000 acres are devoted to grapes, mostly of raisin varieties.

According to H. F. Stoll, secretary of the Grape Growers' Association of California, nearly all of the wine grape growers in the leading sections of the State have joined his organization. In the upper San Joaquin valley many thousands of acres are represented in the organization. In San Bernardino county, southern California, 17,500 acres of grapes were signed; in Fresno county he has made a good start and expects soon to perfect his organization there.

A new use has been found for the apricot pit kernel, which has become such a large factor commercially at Winters. On Christmas day a prominent family giving a dinner there used the apricot kernel for dressing and it was found to be most excellent, and from this a number of others are coming to use the pit

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Orange and Lemon.
Nursery Stock and Alfalfa.
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LIME & SULPHUR SOLUTION

The well known REX LIME & SULPHUR SOLUTION manufactured by the California Rex Spray Company, at Benicia, is no longer an experiment. Of the thousands of customers that used it last year, we have scarcely a single report but what is in its favor.

It is the best known insecticide and fungicide; is a tonic to the tree; is prepared on scientific principles; is absolutely uniform; every barrel that is made at the factory being of just the same strength, namely, 33% solution, Baume test; is free from sediment; is ready for use in the orchard without having to be boiled; one barrel of 50 gallons makes 600 gallons of the strongest spray, and is by far cheaper, at the reduced price at which it is offered this year, than any farmer can afford to make a home-made, imperfect solution.

Ask your dealer, or address:

CALIFORNIA REX SPRAY CO. Benicia, Cal.
YAKIMA REX SPRAY CO. N. Yakima, Wash.
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BONE AND BLOOD FERTILIZER
'FERTILIZE FOR PROFIT.'

It's the results that count in farming and our Fertilizers produce POSITIVE RESULTS, that show in the QUALITY of the products as well as the QUANTITY. Orange and other fruit growers and farmers all over the Coast highly recommend our fertilizers as producing the grandest results in quantity, quality of products, and profits.

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who have used our goods once, will always come to us for their fertilizers. We are making a special study of plant life and are therefore in a position to manufacture fertilizers that exactly meet the requirements of each plant. Let us know what you intend to plant, and we will name your special compositions. Write for our new booklet "The Farmers Friend," for 1909.

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Grafted Walnut Trees

On Black, Soft-shell and Resistant Roots.
Seedlings, Citrus, Deciduous, Berry Bushes, etc.

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Large Stock—All Varieties
Hardy and Selected Rapid Growers
Write for free illustrated booklet.
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Ready To Ship

10,000 Superlative Raspberry, 2 years old

10,000 Plum Farmer Raspberry, 1 year old

50,000 Crimson Winter Rhubarb, 1 year old

100,000 Strawberry Plants

5,000 Penderosa Lemons

Also Trees, Seeds, Bulbs, Etc., Etc., Etc.

WHOLESALE AND RETAIL.

Send for Catalogue—Ready.

A. MITTING, Nurseryman
17 to 25 Kennan St., Santa Cruz, Cal.

TREES

Peach Trees

In connection with our large assortment of Nursery Stock, we have a surplus of extra choice, bright, thrifty, well-rooted stock in Muir, Lovell, Phillip and Tuscan Cling and Elberta Peaches, all grades, including 4 to 6, 3 to 4, 2 to 3 foot and 18 to 24, 12 to 18 and 6 to 12 inch stock.

Shipments made promptly.

CAPITAL CITY NURSERY CO.,
Salem, Oregon.

EUCALYPTUS EXPERT RETURNED.

Mr. R. S. Webb has just returned from Australia with an abundant supply of seeds of the various Eucalypts, together with practical information from the forests, the mills and the manufacturers of Australia. He is now in charge of the Eucalyptus nurseries of

AGGELER & MUSSER SEED CO.,
113 N. Main St., Los Angeles, Cal.

CRIMSON WINTER RHUBARB

Now is good time to plant pedigreed plants only.
$1.50 per doz; $6 per 100; $40 per 1000.

All kinds of small fruit and berry plants,
J. B. WAGNER, Pasadena, Cal.
The Rhubarb and Berry Specialist. Dept. I.

for cooking purposes. Other experimental work is being done with the pits with a view of increasing their value, which already is quite a boon to the growers.

Thirty-three million dollars is the value of the California fruit crop marketed during 1908. Oranges and lemons brought $24,375,000. Deciduous fruits was the next largest item, amounting to $8,325,000, which does not count the apple crop valued at $1,075,000. The past year noted the largest crop of fruit ever raised in the State, though prices were not as good as in 1907.

AGRICULTURE.

The Alameda Sugar Company has made contracts with farmers of Lodi to plant a large acreage to sugar beets the coming season.

It is stated that six thousand acres of land in district 70, Sutter county, will be planted to sugar beets the coming season. The crop will be sent to the Hamilton sugar factory.

The U. S. Plant Introduction Gardens at Chico are soon to receive ten carloads of bamboo from Japan. This shipment is the largest ever brought to this country and all will be planted and experimented with to secure the best varieties for commercial purposes.

The celery crop in the southern part of the State is maturing slowly, although planted at the usual time. Some growers will not commence to harvest till next month. The demand in the East is heavier than usual, and as the acreage is short the growers will have a good season.

LIVE STOCK.

Heavy shipments of beef cattle and mutton sheep are being made from Yolo county to San Francisco.

San Diego county produced during the past year 600,000 pounds of butter, valued at $180,000. There are in that county 250 dairies and four creameries.

It is announced that the R. H. Timm dairy of Dixon, Solano county, has been equipped in model style and the product from there will be put up and sold in the Bay cities as certified milk.

The stockmen of Tehama county are to hold a meeting at Red Bluff today to organize an association for the county. One of the objects of the organization is to have the stock interests work in harmony with the forestry service on public grazing lands.

Frank A. Garcia, the pioneer sheep owner of Fresno county, died there last week, aged 60 years. At one time he had a sheep camp on the present site of the county court house. In those days Fresno was not in existence and Millerton was the county seat.

A company of Los Angeles men has purchased the Sargent cattle ranch of 7800 acres, located near the San Joaquin river northwest of Stockton. The land is now largely overflowed, but the new owners propose to buid 25 miles of levees and reclaim the land.

At its regular meeting, January 4, the city council of Marysville will pass an ordinance regulating the sale of milk in that city. The new law provides for cleanliness in the dairy, washing the cows' udder and teats, proper straining of milk, and also regular testing of cows for tuberculosis and lumpy jaw.

Seay and Hollaway have contracted with Henry Miller to construct a barn 56x68 feet on his farm just south of Gilroy known as Reeve ranch. One side will be comfortably stalled for horses, the other for calves, the center being arranged for hay.

Tulare Register: A. S. Avila, a dairyman of this neighborhood, received a cream check for $306.75, and being asked how many cows had helped him to get the money he said there were 31. This is nearly $10 per cow. We mention this not because it is better than other dairies can show, for perhaps others can beat it. The point that we want to make is that this earning was during a season of the year when feed is short.

Superintendent Waugh, of the Parrott Grant, in Butte county, received by Wells-Fargo express from New York last week two stallions and two mares of Percheron draught stock, direct from La Perche, France. They are of the full-blooded type and will be used for breeding purposes.

The Tehama County Live Stock Association recently passed resolutions asking that stock taken up as estrays be advertised in local papers, that stock going to and from range on the public highways be not subject to the estray laws, and that railways be required to furnish cars for shipment in reasonable time.

Dr. James Withycombe, head of the O. A. C. experiment station, says to dairymen: "Oregon is destined to be a great dairying State, probably the greatest in the nation, but before we can reach this distinction the dairy herds of Oregon must be characterized by a larger percentage of special-purpose diary cows."

The Press says the Imperial Valley Milk Co. will erect at Brawley a building 30x50 feet as the beginning of its plant which will handle dairy products. A skimming station is to be installed at once, and later it is planned to enlarge the plant into a creamery and cheese factory, and possibly a condensed milk factory. The company proposes to furnish cows to ranchers on small payments and to generally foster the development of the dairying business in the northern end of the valley.

In his biennial report to the Governor, State Veterinarian Charles Keane says that the sheep-dipping department reports 2,981,621 separate animals dipped, of which 1,589,505 were dipped by State inspectors and 1,392,116 by the federal inspectors. Of these animals dipped more than once there were enough to make 5,224,975 dippings altogether. The sheep enter winter quarters in fine shape, but it will take several years to show the great value of the work done in the past two years. In the cattle tick eradication the following territory and counties have been cleaned up and released from quarantine: Merced, Nevada, Kern, Tulare, and Kings counties. Fresno and San Bernardino counties have been placed on half quarantine, while provisional jurisdiction is effective in Santa Barbara, Ventura, Los Angeles and Riverside counties.

MISCELLANEOUS.

The seventeenth annual National Irrigation Congress will be held at Spokane August 9 to 14 next.

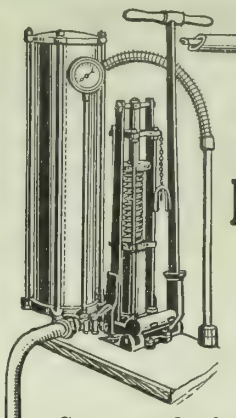
The Las Aguilas rancho in San Benito county was purchased last week by W. B. McCreery from the Donnelly estate and J. F. Dunne.

Two hundred thousand Chinook salmon eggs were sent from Tehama recently to the government of Argentina, the fish eggs being from the government fish hatchery on Mill creek.

The Monterey Packing Company has just closed its work for the season after making the most successful run in its history. Over 1000 tons of sardines have been packed and canned since about August 1.

DOLLAR STRAWBERRY PLANTS
Have you any cents (sense)? then plant the Dollar for profit. Strong, healthy runners from new plantation, $3 per thousand.
A. H. BRYDGES, Loomis, Cal.

CHOICE WINTER PEARMAIN APPLES.
50 lb. box, 4 tier, $1.00; 4½ tier, 75c.
F. O. B. Family orders solicited.
W. H. HANNIBAL, R. D. 1, San Jose, Cal.



More Money For You

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UNCLE SAM'S FARM.

James Wilson, Secretary of Agriculture, in his twelfth annual report to the President, presents in review the wonderful progress made during that period in the United States; of the enormous wealth, running into billions, created by the farmer and improvements secured in the working and perfecting of soil. The report in part is as follows:

The farm value of all farm products of 1908 reaches the most extraordinary total in the nation's history—$7,778,000,000. This is about four times the value of the products of the mines, including mineral oils and precious metals. The farmer contributes 87 per cent of the raw materials used in those manufacturing industries which depend mostly or considerably upon agricultural materials, and these industries use 42 per cent of all materials used in all industries.

The gain in value of farm products in 1908 over 1907 is $290,000,000 and would have been much larger had not the prices of cotton and hay been low. The value of products in 1899, the census year, being taken at 100, the value for 1903 stands at 125; for 1904, at 131; for 1905, at 134; for 1906, at 143; for 1907, at 159; and for 1908, at 165. During the last ten years the wealth production on the farms of this country has exceeded the fabulous sum of $60,000,000,000.

Individual Crops.—Greatest of all crops is Indian corn, whose production this year is 2,643,000,000 bushels. The value of this crop is $1,615,000,000. This crop is worth this year nearly as much as the great crops of cotton, hay and wheat combined. Compared with the averages of the preceding five years the quantity is 2 per cent higher and the value 43 per cent higher.

It seems likely that the cotton crop is one of the highest three ever produced, but with a value next to the highest or perhaps more, although the farm price of cotton this year is below the price of last year by more than one cent.

For the first time in the history of this country's agriculture, the value of the cotton crop, including seed, has apparently exceeded the value of the hay crop, which has heretofore held second place.

The greatest hay crop in history has been gathered this year, 68,000,000 tons, or 12 per cent above the average of the preceding five years. Its price is $2 per ton less than it was a year ago, but still the farm value of the crop is $621,000,000, or 6 per cent above the five-year average.

Wheat is 1½ per cent above the five-year average in production and 2 per cent above in total value. The 660,000,000 bushels of this crop are estimated to be worth $620,000,000 to the farmers, or $66,000,000 more than the most valuable wheat crop heretofore produced.

Although the oat crop suffered from drought the value is $321,000,000 for 789,000,000 bushels, or 10 per cent above the five-year average value and 9 per cent below the average product.

The barley crop, 167,000,000 bushels, is 13 per cent above the five-year average and its value, $86,000,000, is 23 per cent above. Both have been exceeded only once.

Rye remains in the notch that it has occupied in production in recent years, but its value, $22,000,000, is 17 per cent above the average.

The largest crop of rice ever raised, 32,000,000 bushels, is this year's with a value of about $18,000,000, the crop being 29 per cent above the five-year average, and its value is 23 per cent above.

Foreign Trade.—The exports of agricultural products in the fiscal year 1908 were valued at $1,017,000,000, an amount greater than for years except 1907, the reduction of $37,000,000 under that year being chiefly due to the falling off in value of cotton exports.

The natural increase of the population of the United States, native born of native parents, that is, by excess of births over deaths, is now regarded as about 1¼ per cent per year, or about 12½ per cent for ten years. It is about 8 per cent for ten years in Europe, excluding Russia and Turkey. Therefore it is inferred that no one need fear that the farmers will ever be unable to provide for this country's population, the assumption being that the disturbing element of immigration will eventually cease.

Wage Increase.—From 1895 to 1906 farm wages increased in a greater degree than general prices did. The percentage of increase of prices of all commodities, as indicated by Bradstreet's index, was 36 per cent, while the wages of farm labor by the month for the year or season without board increased 38 per cent, and with board 41 per cent; wages by the day in harvest without board increased 46 per cent, and with board 55 per cent; the wages of ordinary labor by the day without board increased 56 per cent, and with board 61 per cent.

Trade and Production.—During the last twelve years the yearly average agricultural balance of international trade in favor of this country increased from $234,000,000 to $411,000,000, or 76 per cent.

The number of national forests is now 182, and the total area 168,000,000 acres. At $2 per thousand feet stumpage the timber standing in these forests is worth $800,000,000. These forests now contain one-fifth of the standing merchantable timber in the country.

The fire record shows gratifying results. The loss for the calendar year 1907 was less than half that for the previous year, which in turn was less than in any preceding year. The ratio of loss to value of timber protected was only about 4 cents to $1000.

The amount of timber sold from the national forests was 386,000,000 feet, and the receipts from timber sales were $850,000. The grazing privileges yielded last year an income of nearly $1,000,000.

The work of reforesting naked areas in the national forests goes on. Last year tree seeds were sown broadcast in 27 forests in eight States to test the usefulness of this method. In the government forest-tree nurseries, about 700,000 young trees were planted out. Over 2,000,000 trees will be ready for planting in 1909.

Statistics show that tuberculosis in animals is on the increase. A recent estimate, based on the meat inspection and the records of the tuberculin test, shows: Beef cattle affected, 1 per cent; hogs, 2 per cent; dairy cattle, 10 per cent. The financial loss to stockmen and dairymen because of this disease is estimated to be fully $14,000,000 per annum.

There are 15 State agricultural high schools and forty others receiving State aid, 115 State and county normal schools preparing young people to teach agriculture, and sixteen privately endowed colleges and over 250 public and private high schools and academies giving instruction in agriculture. Over 2,000,000 people are reported as having attended the farmers' institute meetings during the year.

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The Botanist.

SINGULAR CALIFORNIAN OAKS.

Written for the PACIFIC RURAL PRESS
By WILLIS L. JEPSON.

There has come to me recently a small collection of acorns from the foothills of Tuolumne county. The nuts are remarkable for bearing a sort of irregular ruff or broken ridge about one-third the way from the apex. Otherwise they are smooth. They plainly belong to the species Valley oak (Quercus lobata) being the long, slender acorns characteristic of that tree.

The peculiar markings on the nuts are suggestive of artificial mutilation with a knife when young. I have seen somewhat similar effects produced upon various species of gourds artificially constricted or carved when young. But the sender of the material, Mr. J. A. Hammond, writes that the acrons are alike all over the tree, and I have at present no suggestion to make in the way of an explanation of the peculiar ridges. A study of a larger series of nuts, or of the development of the acorns, would probably throw some light upon the phenomenon.

Near Fair Oaks, Sacramento county, grows an oak tree, very singular in its fruit. This tree, which is on the Meader ranch, I have not seen; it was called to my attention by Prof. B. Babcock, of the University of California, early last year. In the fall one of my forest botany students, Mr. W. B. Parker, brought an excellent collection of the acorns. The tree belongs to the Blue oak (Quercus Douglasii) species. The acorns are remarkable for the excessively developed cups, which are three or four times as thick as usual, the scales being more or less replaced by numerous very small buds. The nuts are a little more pointed than the average in the species, but are otherwise normal. I am told that the nuts are alike all over the tree. An explanation of this peculiarity can in all likelihood be had only by developmental studies.

On the Calhoun ranch, west of Windsor, Sonoma county, grows an oak tree remarkable for the form of its crown, which is shaped like a gigantic toadstool, being about 25 feet in height and 40 feet in diameter. Foliage was received for identification and I determined the species to be Blue oak. During the autumn a collection of acorns from the tree was received. These acorns are not those characteristic of the Blue oak, but are essentially identical with acorns derived from an Oregon oak (Quercus Garryana) tree. The explanation of this contradiction in characters is most easily explained by assuming the tree to be a hybrid, and this I believe to be the most rational explanation.

Such trees as have been described above are of the greatest biological interest in connection with studies of the forest botany of the State. They are really scientific assets, and should on no account be destroyed. As our forest resources are developed it will inevitably happen that detailed and exhaustive studies in hybridization and in selection will be made upon our timber trees. All individuals then which have a peculiar scientific value should be jealously preserved for scientific studies.

University of California, Berkeley.

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Fruit Marketing.

THE CALIFORNIA FRUIT EXCHANGE.

To the Editor: In answer to your request for information of the methods of the California Fruit Exchange, we have the pleasure of enclosing you a separate memorandum which will give you in a general way the answers to your questions. The statement is a very careful exposition of our Exchange. There are some features not under discussion therein that might be well worth considering:

First, the growers by maintaining and increasing the size of this Exchange will always be sure of having an avenue to market their fruit, free from monopoly and completely under the control of the growers. This is an exceedingly valuable point and one to be considered above the cost of operation, etc.

Another feature is the question of cost of operation. A growers' organization that handles less than five hundred cars will have a hard time to make a very satisfactory showing, but after a co-operative organization has reached a thousand cars and over the question of dividend is more easily solved by reason of the fact that the large expenses are already covered in the handling of the first five hundred cars, and after that it is a matter of additional clerical help, which is small as compared with the income; in other words, one thousand cars can be handled with a slight cost over five hundred, outside of the additional cost of telegrams, clerical help and brokerage.

Another feature in connection with the Exchange that appeals to shippers of fruit who desire impartial handling of their products is that the Exchange is non-speculative and does not buy in any manner whatsoever, thereby insuring that all shippers will receive the same attention and fruit will be distributed to the market that will pay the highest price without fear or favor.

If the above, in addition to the memorandum attached, is not sufficient for your purposes, please advise and we will be very glad to give you any further data you may desire. W. C. WALKER,
Sacramento. General Manager.

THE PLAN OF OPERATION.

The following is the statement to which Mr. Walker refers:

One of the most prominent co-operative organizations in the State is the California Fruit Exchange, organized May 1, 1901. It now operates in practically all of the deciduous fruit centers of California. From 1901 until February, 1907, this organization worked under the association law of California, but owing to the increase of business it was deemed best to reorganize the Exchange into a stock company, the Exchange maintaining all of the co-operative features as were originally intended.

The by-laws are so arranged that none but a bona fide fruit grower can become a stockholder and no one individual, association or corporation can hold more than ten shares each, thus making it an organization controlled and owned by growers exclusively.

The Exchange is composed of various co-operative associations formed on a membership basis. There are many advantages gained by these local associations working together, such as obtaining supplies at cost by purchasing collectively. The expense of an association is defrayed by loading charges and profit on supplies. At the end of the season, should an association show a profit above the cost of operation the same is divided among its members. Practically all of the associations have paid a dividend at the close of the season.

The grower is charged 7 per cent of the gross proceeds of sale of fruit, which is to cover operating expenses, etc., of the Exchange. Should the Exchange show a profit at the end of the year the same is divided as follows:

"Half among all growers who have signed contracts and shipped consistently with this Exchange during the season when this dividend has been earned, based proportionately on the gross amount realized by the fruit of said shippers, and the other half to be a further dividend on the stock issued."

From the above it will be seen that the grower, no matter whether a stockholder in the Exchange or not, will receive a dividend on his season's shipment, provided, of course, he signs an agreement to market his fruit for Eastern shipment through the Exchange exclusively. The object of such an agreement is to enable the Exchange to figure on the season's requirement as regards shook, etc.

The California Fruit Exchange is represented by salaried agents in the principal markets of the United States and Canada. Fruit is sold in carlots to the wholesale trade only. There is very little cash f. o. b. business. However, a great many orders for shipment are filled. These cars are shipped subject to inspection on arrival. Rejections are comparatively few, as they aim to load good, marketable fruit for reliable trade only.

The price covering the various fruits is made by the Sacramento office. The prices are governed, to an extent, by the auction markets; supply en route and the prospective shipments.

About 50 per cent of the Exchange shipments were sold at private sale; the balance were distributed among the various auctions.

"WICKSON'S CALIFORNIA FRUITS."

The San Francisco Chronicle of December 26, in reviewing the book, says:

The fourth edition of Professor E. J. Wickson's "California Fruits and How to Grow Them" has just been issued by the PACIFIC RURAL PRESS. As the plates of the third edition were destroyed in the great fire, the opportunity was taken to rewrite the entire volume and greatly extend it. From the date of the first edition, in 1889, Professor Wickson's book has been the standard, and, in fact, the only comprehensive work on California horticulture. The present volume describes the industry as its exists today in the light of twenty years of additional and continuous observation by one eminently qualified to see accurately and describe clearly, and whose position near the head, and lately at the head, of our agricultural college and experiment station, has necessarily made him familiar with all phases of our horticultural industries in all parts of the State.

The volume is beautifully printed and illustrated by the Kruckeberg Press. Any extended review of a work which has been for years the acknowledged authority in its subject is unnecessary. It is sufficient to say that the present edition excels its predecessors in all important respects, and will give to the inquirer about all the information which he is likely to need in regard to the selection of varieties, choice of location, methods of propagating, cultivating, protecting and harvesting any fruit or nut that is commercially grown in California. Not the least of its good qualities is the excellent topical index, which enables the inquirer to turn at once to the page which gives the desired information.

Recent editions of this work have found sale in all fruit-growing countries of the world, and the present edition deserves and will receive a wider circulation than any former edition has attained. (San Francisco: The PACIFIC RURAL PRESS. Price $3.)

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Also PALMS, DRACENA, ROSES, ERICAS, CAMELLIAS, AZALEAS, RHODODENDRON, FRUIT TREES and BERRY BUSHES.

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Albany, Oregon, and they'll be right.

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Live Stock and Dairy.

A FUTURE DAIRY SECTION.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES.

According to authorities Holland has been famed for its dairy products as early as the ninth century. Motley, the historian, referring to this country, speaks of oxen of 2000 pounds in weight and of the immense production and exportation of butter and cheese, in the seventeenth century. The influence of the Holland cattle has been felt in a great many countries. In the seventeenth and eighteenth centuries more or less of the blood of Dutch cattle was carried into England and Scotland and exercised some influence on the milking qualities of the old Leeswater and Ayrshire breeds. From Holland the first cattle imported into this country are supposed to have been sent to the Mohawk valley about 1621. The wide reaching effects of the constant and unceasing efforts to improve these cattle has been facilitated by their native environments. So we can look to unusual succulence and productiveness of the pastures which grow largely on reclaimed dyke lands for a certain amount of the improvement in the dairy cattle. These unusual pasture conditions have a worthy rival for honors in the great delta region of the San Joaquin and Sacramento rivers of this State. That conditions on these reclaimed islands were similar to those of Holland has been known for a number of years. In fact, this reclaimed area as a dairy region first sprang into prominence as the home of the great Julian DeKol belonging to the Riverside herd of the Pierce Land and Stock Company. This noted herd of Holsteins, which has since been sold, pastured and thrived on Rough and Ready island on the San Joaquin river near Stockton. These reclaimed islands afford the Holsteins conditions similar to those of their native land.

While this region is yet in its infancy as regards its dairying possibilities, every year we see more dairy animals gradually finding their way into this wonderfully fertile area. Only recently a large herd has been gathered on one of the islands near Antioch. It now numbers about one hundred head of milking animals, and such good returns have been forthcoming from it the first year that the owner expects to double its number before long. The owner of this herd is a man well along in years, who has spent the best part of his life farming on these islands. He has finally gone into the dairy business after having been a producer of potatoes, beans, onions and asparagus at different times. Anyone familiar with these islands and the immense crops obtained from them, knows that good returns must be forthcoming from a dairy herd in order that it may exist here. So it is interesting to note that this herd, as well as those on other islands, are gradually being added to; more land leased and put into pasture and the products of the dairy slowly but steadily becoming an important item of the region. It will not be surprising therefore if this section becomes an important dairy district. True, there are several dairies and creameries at the present time on the borders of this great region, but we are referring to the delta islands in particular. It is only a few years since a large dairy moved from its location in the outskirts of Oakland and Berkeley to the edge of this reclaimed area.

Proximity to market is only one point the dairyman must consider. Proper and sufficient pasture is the most important, and it is this advantage these reclaimed lands have that promises to make them a dairy center of the future. The transportation facilities for the shipment of milk or cream to San Francisco or other bay cities are exceptional. The rivers offer cheap transportation by steamer direct to the city. A special steamer, commonly known as the "milk boat," was under contract to deliver milk from a certain dairy on the river to a company in San Francisco by a stated time. By this means the evening's milk was delivered to consumers in the city the following morning. Another method of shipping that is employed makes use of both the water and railroad facilities. The milk or cream is collected by launches and delivered to the creameries or to the railroads for shipment to the city. So we see that this region is afforded ample transportation facilities by water or rail to the market centers. This section is surrounded we might say by railroads, but will shortly have still another railroad outlet when the long planned Sacramento Southern "cut-off" of the Southern Pacific Company is completed. It is now in course of construction from Sacramento to Antioch, running on the east of the Sacramento river, tapping the dairy sections of this part of the region, crossing the San Joaquin river just above Antioch, thus the lower islands will also be afforded more shipping facilities.

When we compare the shipping means of this possible dairy section with the average transportation given other important dairy sections, we can justly say that it is more than fortunate. While the shipment of his product does not cause the island dairyman the worry and annoyance other dairymen often have to put up with, he has other troubles. Occasionally he suffers from too much water, which seldom happens to his brother dairymen in the alfalfa districts that depend on canals for their water.

The luxuriance and wonderful growth of pasture grasses and the varieties of fodder that can be grown in this region should make it a very promising dairy section. It is eminently the Holstein cow's kingdom, and while other dairy breeds seem to do well, here we naturaly expect to see the black-and-whites in the majority.

It is an interesting country, this island region of nearly a thousand square miles, in easy shipping distance of the metropolis of the tSate, and we evpect to see some interesting dairy developments coming from it in the future.

A DEVON CROSS FOR RANGE CATTLE.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES.

The average range cattle of the coast have been generally bred from time to time to Short-horn or Hereford stock, as fancy suited, without due consideration to the particular range they were to occupy. The range conditions are things we must not overlook in selecting stock or grading up herds for different ranges in this State. In speaking of range cattle we refer, of course, to cattle grazed on the open ranges for the production of beef. Certain cattlemen who graze their stock during the summer months in the Sierra Nevada mountains had been formerly breeding to Short-horn bulls for a number of years with good results. One year when new blood was necessary, one of the larger herds was supplied with Hereford bulls. At that time I was well acquainted with the range conditions and had seen the stock driven out of the mountains in the fall in very fair condition. The following year I was naturally surprised to see Hereford bulls coming into the timber with these herds. On inquiring as to the reason for the change of breeds, knowing that they had formerly been strong adherents of the Short-horns, I was informed that the cattle had not been doing as well as they had expected. The fact of the matter was that the former season had been a trying one for all classes of stock in the mountains. The slight falling off in the stock had been due to these conditions rather than any failure on the part of the Short-horn blood to meet the range requirements. It was a Hereford year and the Hereford bulls were prominent in the mountains where formerly the Short-horn had rsigned. The men knew the conditions of this range and the heavy climbing necessary for feed and water. It was not many years, however, before a Short-horn year arrived and Short-horn bulls were leading these same herds into their mountain range. What these cattlemen were aiming at was better grazing qualities and more ruggedness in their herds. For this range country I believe they would have had good results from a Devon cross. The infusion of Devon blood into these herds would have added much of the desired qualities. Several herds in California that had heavy range conditions to meet were materially strengthened by the use of a few Devon bulls on grade Short-horns.

The Devons are not for the rich pastoral and arable sections, but for heavy hill and mountain ranges where the country is rough and broken and feed not very plentiful. Their active habits and grazing qualities are of the highest order, due to their muscularity and the inheritance of the grazing habit. They readily obtain a good livelihood on lands where the heavy-bodied breeds would probably fail, and when feed is plentiful they fatten rapidly. They lay on flesh evenly and smoothly and the meat is of excellent quality.

Devons are highly prepotent, owing to their inherent vigor and to the long period during which they have been bred pure. I know of a number of herds grazing on heavy ranges that would be benefited by the Devon blood. As in any other grading up process, the best blood is none too good, so to get the best results from a Devon cross we want a pure-bred animal that is a fair type of its breed. They have given satisfactory results to the few who have tried them and certainly are worthy of consideration.

The Lucerne creamery at Hanford during the month of November last made and sold 95,396 pounds of butter at 33.77 cents per pound.

THE "ELECTION" RESULT THAT CONCERNED
SEPARATOR MAKERS

It wasn't the "dire calamity" of the possible election of Bryan which caused the Pennsylvania manufacturer of "jobbing" cream separators to "warn" his employes to parade and vote for Taft—in a State with nearly half a million Republican majority.

It wasn't the hope of Bryan's election which caused the "Iowa" manufacturer of "mail order" cream separators to offer to take on all the employes the other man might let go—because he was already laying off and cutting down the working hours of his own men.

The ELECTION which actually concerned them both, and which had ALREADY taken place and had ALREADY worked "dire calamity" to their separator ambitions—"mail order" and "jobbing" alike—was the overwhelming tidal wave ELECTION on the part of 1908 cream separator buyers to choose the IMPROVED DE LAVAL CREAM SEPARATORS, regardless of the claimed "cheapness" of one and the red paint and "talking points" of the other.

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SHORTAGE OF BEEF CATTLE.

As a warrant for investment in the improvement of beef cattle and of devoting time and lands to the production of good specimens, the review of the situation as recently prepared for the Breeders' Gazette must be looked upon as very strong. The following are the leading features of it:

In ten months of the current year there is an approximate shortage of 1,000,000 at the principal primary receiving points of the country west of and including Chicago. This shortage is on a basis of comparison with the same period of 1907 when the movement was normal. It has been recorded despite the fact that liquidation has been running its court in the West consequent on disintegration of open range and fenced pastures herds, and despite rummaging by speculators through the South for cheap cattle last spring when attractive prices at St. Louis and other Southern markets justified the search. That this contracted supply of beef has not caused a famine was due to industrial depression and the marketing of 2,000,000 more hogs than in 1907. What will happen with increased consumption incidental to returning prosperity and a deficient hog crop may be conjectured. It is a condition not a theory that faces the country at present. The initial stage of a bare spot has been reached that promises to enhance greatly the value of all cattle especially breeding stock.

Prediction was made several months ago in these columns that the annual fall glut of Western grass cattle, a feature of stock-yard trade for two decades past, would be conspicuous by its absence this year, and results show that the forecast was justified. The advance of approximately $1 per hundredweight in cattle values during the first two weeks of November would have been impossible had the usual quota of Westerns been at killers' disposal. It is a situation novel to the owner of native cattle, who, since rangers became a price-making factor, has experienced hardship at the market while the Westerner was cleaning up. Early subsidence of the movement of grassers this fall means that the crop of beef made on grass and corn in the corn belt will be cashed in owing to attractive prices at a time when it is usually in the feed lot. As the country has made no preparation for winter feeding on the usual scale an acute shortage between mid-winter and the time grass becomes a market influence next summer is inevitable.

In the stock yards talk of $9 and even $10 cattle some time during the next six months is audible. The purchasing power of the consumer will be a factor but that power is constantly broadening. In commission circles where volume of supply rather than prices is essential to trade prosperity strenuous effort has been made recently to approximate probable production of the next six months. Instead of resorting to the old-time method of instituting inquiry by mail, commission men have sent investigators through the country in automobiles, to travel highway and byway, and their reports are invariably of the same tone. A Chicago man who returned from a tour of Iowa last week said:

"I believe the corn belt has not been as bare of marketable cattle in twenty years. Where I could find trainloads formerly, carloads are scarce now. Ida county, Iowa, is one of the best feeding sections of the United States, but I did not find more than twenty loads in decent shape in the whole county. There seems to be plenty of light cattle, but a year is needed to get that kind ready and owners are making no pretense of doing anything but carry them through the winter for grazing purposes next summer."

[It is quite true that beef cattle on this coast have not commanded the prices they should in view of this condition east of the mountains, but that is another story and dependent upon local conditions which stock growers should combine to correct. We hope some well informed reader will take up the discussion of that aspect of the case.—Editor.]

California Short-Horn Sale!

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ON

JANUARY 5th, 1909

Write for Catalogue, MRS. J. H. GLIDE, SACRAMENTO, CAL.

Write for Catalogue, HOWARD CATTLE COMPANY, 641 Mission St., SAN FRANCISCO.

SHORT-HORN SUPREMACY.

Lord Polwarth of Scotland, in the course of some thoughts on Short-horn cattle which he recently transcribed for the Breeders' Gazette, gives the following significant paragraphs:

That the Short-horn has a great place in the future as in the past I have no doubt. It has been proved all over the world to be the breed which bears within it the most certain power of doubling, yea quadrupling, the value of native races. It has done so in the past and it remains with our breeders to maintain in its integrity the valuable legacy left us. The spread of the breed over the world is a matter of congratulation and of importance, for the time may come when under special and careful restriction an interchange of breeding animals may be possible to mutual benefit. The breeders in America, whether in the North or South, have purchased many of the best animals bred in this country and their skillful management along with climatic influences may yet prove of recuperative influence. All the same, we in Great Britain will endeavor to maintain in its integrity and purity the fountain head of pure blood handed down by our ancestors.

The breeder of the future, wherever he be, must not forget the great aims and methods of the past. Fashion and trade may call for new types, but many of these may prove transient and the sound old pedigrees still prove necessary. Nothing is more remarkable than the way in which they rejuvenesce by the re-introduction of the same blood long separated. There is somewhat of a dislike at the present time to inbreeding, and while it undoubtedly has its perils in unskillful hands, there is no other way of really fixing a type or of obtaining one than the harmonious blending of kindred blood, always on the condition of sound constitution on both sides. The breeding of the future no doubt has difficulties which the earlier breeders had not, but on the other hand the material is now widely spread and is under such diverse conditions as to facilitate breeding with more or less consanguinity to advantage.

The Standing of the Short-horn in This Country.—If the values obtained at such representative sales as those of the various beef breeds which have been recently held at the Chicago International are indicative of their relative value as producers—and no impartial judge can say that such is not the case, as it is claimed for these sales, both by the management and the breeders themselves, that the individuals offered are good representatives of the respective breeds—there can be no doubt but that the Short-horn breed of cattle, animal for animal, is the best investment.

A comparison of the values obtained shows the Short-horn in the lead with an average of $403.70 per head, the Aberdeen Angus second with an average of $209.50, and the Herefords bringing up the rear with an average of $160.

ALFALFA FOR HOGS.

Some people may think Californians are apt to get conceited over their abilty to produce alfalfa. If any one should charge our readers with that attitude of mind show him what Governor Hoard says about alfalfa in his Dairyman, for he speaks from the point of view of an unprejudiced man who is trying to establish the plant under rather inferior conditions in Wisconsin. He says:

The man who desires to make the cheapest pork, the finest pork and produce hogs that shall be in the best possible state of health and vigor must include alfalfa in his calculation. This has been the conclusion of the senior editor of this paper for years, and wherever thorough going tests have been made they all confirm that judgment. For instance, the experiments at the Kansas station confirm it. At that station a gain of 800 pounds of pork was made from a ton of alfalfa hay and about the same amount from an acre of alfalfa pasture. One hundred pounds of alfalfa hay in another experiment saved 96 pounds of corn. At that rate an acre of alfalfa hay yielding four tons would produce 1000 pounds of pork. In another experiment 170 pounds of fresh green alfalfa fed to hogs was equal to 100 pounds of corn, where it took six pounds of corn to produce a pound of pork. Figuring that 8000 pounds of alfalfa hay, or four tons would produce 1000 pounds of liveweight, as it did in some cases, an acre of alfalfa hay fed in this way would yield $64 worth of pork at four cents a pound, while an acre producing 10 tons green weight would produce $80 worth of pork.

Reasoning from these figures, as well as from our own experiments, we are convinced that not one farmer in a hundred who grows alfalfa has any adequate idea of its economic value in producing pork. With the high prices of corn, as they are likely to exist for a long time, it is mighty important that dairy farmers address themselves to the alfalfa question. In all the Kansas experiments it should be understood that they were conducted with corn and alfalfa fed together.

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APPLE POMACE FOR HOGS.

We have some apple pomace and other apple wastes in the regions where commercial apple growing is large. A Vermont apple grower writes of his experience to the Rural New Yorker. He gives rather a higher value to the stuff than the analysis would indicate and the reader should notice that he only commends rather small feeds of it in connection with other foods, as follows:

Seven years ago we began drawing apple pomace from the cider mill and put it in the silo for the cows; they did so well on it that we commenced feeding it to the hogs, and found that they would eat quite a little of it. We tried different ways of feeding it; one year we mixed it with the swill, which is a very satisfactory way of feeding it, but makes lots of work where there are very many hogs. Our present method of feeding is to feed twice a day, first putting the pomace in the troughs and then in half an hour giving them their swill and grain feed. Fed in this way they will eat everything up clean. At present we are feeding 45 shoats that will weigh about 125 pounds each; they eat from five to six bushels of pomace a day, besides their milk and grain. Brood sows will live on it, and with a very little milk once a day will lay on flesh.

We consider it worth as much to feed as good corn silage. Some advise feeding from 30 to 35 pounds a day per cow. After quite a little experimenting we have found that 20 to 24 pounds a day per cow will give better results than if fed more. Apple pomace is much easier to keep than corn is; just put it in a pile anywhere that it will be handy to feed and protected from the weather; draw and put it on the pile as soon as it is made, for it will spoil fast if left exposed in warm weather. When in a pile it will settle together like a cheese and can be sliced off just like cheese. In feeding it do not use a fork, as that will loosen the top of the pile and leave a lot of loose pieces that will mold very fast Slice it off the top of the pile with a shovel, going over the surface once in two days, and you will have a valuable feed that all kinds of stock will like and do well on.

[The reader will notice that he counts apple pomace as about as good as corn silage. But corn silage has not a very high standing as hog feed and can best be used with dry feeds like grain, etc. Apple pomace must be handled in the same way to be satisfactory.—EDITOR.]

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Apiculture.

FARMERS' INSTITUTES FOR BEEKEEPERS.

Special Report for PACIFIC RURAL PRESS.

The beekeepers of the San Joaquin valley, representing three of the principal counties, gathered in the lecture room of the Fresno Chamber of Commerce for the first of a series of Agricultural Institutes under the auspices of the University of California on Wednesday and Thursday, December 16 and 17. There have been some other special purpose Farmers' Institutes held by the university in the State and those have been held along horticultural, viticultural and dairy lines. The results of this attempt at a distinctive Agricultural Institute for Beekeepers were very gratifying, there being in attendance at Fresno a goodly number of representative beekeepers, some coming from as far away as Tulare and Hanford. All seemed interested, and much profit was gained by the interchange of ideas the discussions stimulated.

The first afternoon was devoted to the bee disease situation. Many obscure facts in regard to recent advances in our knowledge of the several diseases of bees were cleared up and the matter of practical and effective treatments was freely discussed. Mr. J. T. Dunn, Inspector of Apiaries for Fresno county, reported having found some forty-six apiaries in his county infected with foul brood. In all but four or five cases burning of the infected colonies was resorted to. Where treatment by shaking was practiced, eradication was not found to be nearly as complete as where burning was practiced. In the course of the season's work some seven or eight hundred diseased colonies were destroyed and the 20,000 colonies of the county are now practically free from disease. Only one case of paralysis was noted during the summer. Mr. Dunn has accurately located each apiary in the county and made a record of it. This is real constructive work that should be done by each inspector in his county. Such records are not only of inestimable value for accurate work, but constitute some basis for work in the event of the change from an old to a new inspector, as sometimes occurs.

Mr. Fred M. Hart of Hanford, Inspector of Apiaries for Kings county, made a report of conditions in his field. In general the 7000 colonies of bees in Kings county are in good condition. The bee paralysis, which has been very bad for several years past, was much lighter this year. The cause is not known, but Mr. Hart cited that the pear blight was also much lighter this year, and suggested a possible relation between the two, since it is not known exactly what is the cause of paralysis among bees.

Mr. H. G. Brown, Inspector of Apiaries for Tulare county, spoke of the general beekeeping conditions in his county as being good. The beekeepers of Tulare county are organized and the reflex influence of such organization has been very noteworthy in facilitating the work of the county inspector of apiaries. Mr. Brown urged the complete inspection of colonies as the only fair way to form an accurate estimate of the exact condition of the colony in question. He further recommended second and third inspections late in the season, in view of the treacherous way in which disease is liable to break out suddenly without previous warning. In giving bills of health for bees he merely states the conditions of the bees at the time of his inspection, which, in his estimation, is all that he can be responsible for.

There was much discussion of the rights of beekeepers to move their bees and the relation of such moves to the inspection work. It was generally conceded that all moving of bees should be immediately reported to the inspector in whose field the moving occurs. The State law explicitly provides that bees moved without a bill of health from one county to another should be reported as moved immediately to the County Inspector of Apiaries into whose field the bees in question are moved. The need of cooperation among inspectors and the great need for State supervision and supplementing of the inspection of apiaries was plainly brought out in these discussions, as well as the need of investigations into the causes and propogation of several maladies of bees.

At the Thursday morning session the discussion of the previous evening of organized efforts among beekeepers was discussed quite freely. A resolution was passed to the effect that each county of central California of which the Institute was representative should be urged to follow in the footsteps of Tulare county and organize within the next month or six weeks local beekeepers' associations. This resolution further provided for a future meeting of representatives of the several counties of central California to be held sometime during February for the final organization of a central California beekeepers' association in affiliation with the State and National associatoins.

The following are among some of the other resolutions passed:

Resolved, That we appreciate the efforts of the University of California in sending Mr. Ralph Benton to hold an institute at Fresno for beekeepers.

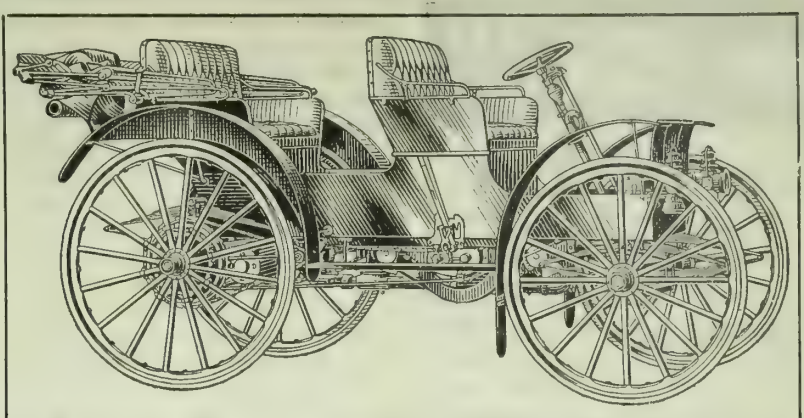
That we appreciate the work being done by Mr. Benton at the University, and that we urge that every facility and assistance be given Mr. Benton in his work.

That we request the University to print the excellent paper by Mr. Benton on the "Bee Disease Situation in California."

That we recommend that the work in apiculture at the University be recognized as an important branch of agriculture, separate and co-ordinate with the other branches of agriculture.

That we recommend that the Experimental Apiaries and School of Agriculture be established on the University Farm at Davis along the broad lines outlined by Mr. Benton.

That the University establish similar experimental and teaching work as soon as possible upon the Kearney bequest in the vicinity of Fresno.



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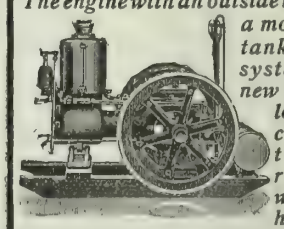
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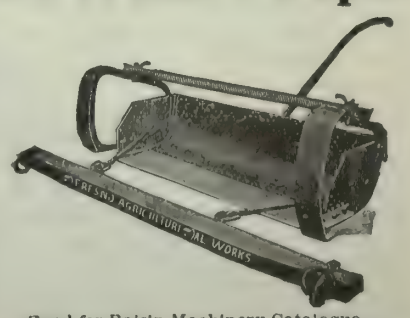
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San Francisco, Calif.

TUBERCULIN TEST AND ITS APPLICATION.

(*Continued From Page 1.*)

to make the test and the way they are used. The outfit consists of a veterinary hypodermic syringe of at least 6 cc. capacity, such as is commonly used to inject liquid vaccine. The same should be provided with a number of short, stout needles, well reinforced at the base.

At least two fever thermometers will be needed, and where more than five animals are to be tested a larger number should be provided. Guaranteed clinical thermometers can be purchased at any drug store. A string should be tied around the thermometer and fastened by a rubber band. At the other end of this string should be attached a small bull-



Manner of Taking the Temperature.

dog clamp or wire hook. After inserting the thermometer in the rectum the clamp is fastened to the long hairs at the base of the tail so that if the thermometer is thrown out it will not be broken by dropping to the ground. Thermometers, especially for veterinary purposes, made of thicker glass and with a ring in the end are convenient.

A small bottle of strong (95%) carbolic acid is necessary, to be used in disinfecting the syringe before beginning the test, and to disinfect the needle point before injecting each animal, is essential. Vaseline is desirable, to facilitate inserting the thermometer, although lard may be substituted. Between the times of taking temperatures the vaseline jar is a safe and convenient place to keep the thermometer, a shown in the engraving.

The injection should preferably be made in the evening, eight hours before the morning's milking. It is usually made in the side of the neck where the skin is thin and loose. A fold of the skin is taken in the left hand, and the syringe point inserted in the pocket thus formed, and the dose injected. When a cow is restrained in a stanchion the position of the operator shown insures the greatest security from interference or injury by the movements of the cow.

The temperatures are taken by the use of the thermometer, as shown in the engraving, at about the 8th, 10th, 12th, 14th, 16th and 18th hours after injecting, and continue in those cases showing a rising temperature. Where an animal shows a rise above 102.5° F., it is well to take the temperature at more frequent intervals. In hot weather it is essential that the injection be timed so that the 8th to 16th hours will occur in the cool part of the day.

When tuberculin is furnished by the University Experiment Station the temperature record sheets may be returned as soon as the test is completed, and an interpretation of the results will be made. In case of a reaction (indicating the presence of tuberculosis) there must be a rise of 1.5° F. or more above the normal temperature as determined on the preceding day. The interpretation of the temperature record of the animals showing a rise of less than 2° F. requires care. The elevation of temperature usually comes on gradually, although in the more pronounced reactions, where the temperature goes above 105.5° F., the rise is frequently abrupt. This should usually occur between the 8th and 16th hours. It should remain practically at a maximum for two hours or more, and gradually subside. When the temperature reaches 104° F. or more, and is maintained for some hours, the animal is certainly regarded as tubercular, if no fever was shown before the injection. Erratic elevations of short duration do not indicate a reaction.

REPORT OF STATE DAIRY BUREAU.

The State Dairy Bureau of California has submitted its report covering the past two years to Governor Gillett. The members of the bureau are J. A. Bliss of Alameda county, F. W. Andreasen of Humboldt county, and M. T. Freitas of Marin county. Wm. H. Saylor, as the secretary and chemist, is in charge of the work of the bureau. The report deals with the work of the bureau during this period in enforcing the dairy laws, and has also an interesting feature in the way of statistics in relation to the dairy industry. Although the bureau has had only three inspectors employed, who only averaged about half of their time in its service, the report states that over 2100 inspections have been made of dairies, creameries and cheese factories to investigate the sanitary conditions under which they are maintained. The chemist and secretary, which offices have been consolidated as a necessary economy, through the meagre support that the bureau receives from the State, analyzed 690 samples of dairy products for the detection of adulteration in violation of the dairy laws. Eighty-four cases have been prosecuted in the courts against parties for violating the laws, a number of them being against dairymen for maintaining unsanitary dairies, and others for selling adulterated dairy products, chiefly in those cities and towns that have no local control in the matter of adulteration.

The report shows a remarkable increase in the production of butter in the State during the year that ended September 30, 1908, when it amounted to 48,468,585 pounds. This is more than double what was produced ten years ago, according to former figures, issued by the bureau, as conveyed in the following table:

	Pounds.
1898	23,691,028
1899	24,868,084
1900	28,793,859
1901	29,701,202
1902	31,528,762
1903	34,786,289
1904	35,636,969
1905	41,961,047
1906	44,044,578
1907	44,599,211
1908	48,469,585

The report credits this growth in the industry to its rapid introduction in the irrigated districts of the State. It picks out nine counties and shows that while as late as the year 1900 they only made a total of 4,129,882 pounds of butter, they last year made a total of 19,759,352 pounds, or 40% of the product of the State. These counties are Fresno, Kern, Kings, Merced, Sacramento, San Joaquin, Stanislaus, Tulare, and Yolo. Fifteen years ago, says the report, these counties purchased most of the butter their people consumed. Today they are the big butter shipping counties.

The change in the relative importance of the counties, as given in the report, shows an interesting feature in the recent development of the industry. In 1897 the ten biggest butter counties were all on the coast, as follows, in the order of their production: Marin, Humboldt, San Luis Obispo, Sonoma, Monterey, Santa Barbara, Mendocino, Los Angeles, San Mateo, and Del Norte. Today only four of these old dairy counties are left in the list of ten. In place of the others are six counties in the irrigated sections. These are Stanislaus, Fresno, Merced, Tulare, Kings, and San Joaquin. Humboldt maintains her supremacy in butter production by only 300,000 pounds, being hard crowded for first place by Stanislaus county. The new county of Imperial comes into the last report as an important dairy county, having turned out 1,165,763 pounds of butter.

Cheese and condensed milk production are making no headway, according to the report, which it claims is due to the better inducements that butter production offers, through quicker returns, and the fact that it leaves on the farms the skim milk which dairymen value so highly for calf, hog, and poultry feeding.

Prices for butter and cheese have been higher during the past two years than have ruled for fifteen years past. The average wholesale price for fancy creamery butter on the San Francisco market for the year ending September 30, 1907, was 30.1 cents, and for the year ending September 30, 1908, 27.8. For cheese, the average in 1907 was 14.2 cents, and 12.9 cents for 1908. The State Dairy Bureau estimates that the dairies of California turned our products for the year ending September 30, 1907, to the value of $24,416,731, and for the year ending September 30, 1908, $25,224,151.



The Poultry Yard.

THE NEW YEAR IN THE POULTRY YARD.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

Again the seasons have rolled around and the poultryman's busy time is at hand. His first job should be to balance his poultry accounts and find out where he stands. Has he secured a good egg yield in the three months of maximum prices just ended? Has his poultry as a whole netted him a fair profit? And if not, why not? Now is the time to find the solution to this question and to guard against the mistakes of the past year and to start aright.

Poultry profits are largely dependent upon the fall and winter egg. The poultryman who fails to secure this desirable commodity cannot claim success in the poultry business, and now is the time to begin working for this golden fruit.

The first of January the poultry raiser should get his breeding pens in readiness and select his breeding stock. The farmer especially should attend to this matter. He can put together a small movable hen-house as suggested in a former paper, and locate it in a corner of his apple or prune orchard or in some outlying pasture away from the other poultry. If coyotes or any varmints are liable to prowl about such places the hen-house must be protected by inch-mesh wire over all openings and the fowls closed in nights and let out as early as may be mornings. In such locations the dozen or so hens and cock of the breeding pen will require little more than water and grain, as the range should furnish them with green feed and sufficient meat in the form of insects in the spring and early summer. Hens for market eggs give best results by being kept in rather limited quarters and furnished with a rich mash daily; the opposite course must be followed with hens for hatching eggs. We should not force egg production, but work for the greatest vigor and stamina in the eggs—fewer eggs and better.

The poultryman who has not the advantage of the farmer's range or orchards and meadows should at least provide a good-sized yard for his breeding pen. The small yards and egg-forcing of the town fancier have done much to prejudice the farmer and others against pure-bred stock. The few weakly chicks often secured from high-priced settings are blamed to the stock, not to their handling where it rightfully belongs. The breeding stock must have exercise to build up an active, strong body and the reliable poultry breeder will arrange his yards to this end. By keeping the ground mellow and damp to encourage scratching and dusting and by feeding all the grain in deep litter or loose earth, a medium sized yard may be improved in that direction. The breeding stock should have always grain ready for the scratching and once a day sprouted oats or barley with an abundance of other greens but no mashes. As they will get no insects in the yards, they should be given a feed of chopped cooked meat mixed with bran two or three times a week.

When the breeding quarters are in readiness, the house clean, dry and tight on all sides but the north or east, which should be partly open and protected by wire netting, the yard clean, mellow and well drained, then the breeding stock may be selected. The best hens for this purpose are those in their second year, when they have just completed their first moult. These, if not forced for winter laying, will usually begin to lay in January or early in February and at the right time for the hatching season. Pullets which were hatched in February or early in March are likely to take at least a partial moult in January after laying through the fall and early winter. They soon get through with this moult and may be mated by the middle of February, when they make excellent breeders.

Every hen selected for the breeding pen should be in the pink of condition, alert and active, with clear, red comb and smooth plumage and legs. She should be well and strongly built with broad back, long body, large but not flabby crops, legs set well apart and should be broad across the fluff, much more so than across the breast, which gives the wedge-shaped conformation. The hens of the Mediterranean class should have large, rather thick combs that are firm, starchy, not hanging limp like a rag; their eyes should be full and quick-glancing. Such a hen is first off the roost and last on it; she is the one that always "gets there" when there is anything eatable in sight.

With a pen of such vigorous, well formed hens we need a cock to match—a lusty, gallant fellow, full of vim and fight, who shows in every motion that he is proud of himself and means to be "cock of the walk." In age he should be either one year or two years old. It is never safe to depend upon an older male without first testing the hatchability of the eggs from his mating. Unless the bird is an exceptionally fine one, it is better to take no chances, and to dispose of all males after the second year. Some males retain their generative vigor into the fifth year, but it is the exception. The writer had one such that was kept on account of fine points; but another bird that seemed even stronger and had headed a pen with excellent results for two seasons, proved a total failure at the third mating, and was the cause of much loss and dissatisfaction in the sale of hatching eggs before the fault was located.

The cock is half the pen, and he should be a thoroughbred. No matter how much the hens may be off in this respect, the cock should be pure-bred. A few poultrymen proper, and many farmers, believe in cross-bred stock, and such often give first-class results; but this is true only of the first cross of thoroughbreds. Promiscuous breeding with such stock finally eliminates all desirable qualities and runs them into the "dung-hill" class. As much care is required in cross-breeding as with the pure-bred stock. Only females and those of excellent points should be used; they should be mated to a pure-bred male of the breed most preferred in the cross. For the ordinary poultry raiser and farmer who have not time to study up the subject and give it proper attention, line-breeding with pure stock would better not be attempted. Breed from the vigorous and most perfect females, and every second year secure a cock, from the same strain if possible, anyway, one that possesses the best qualities of the breed. It pays to pay a goodly price for such a bird.

The poultry raiser who mates up his pens and cares for them as here indicated may be use of the strong-germed, hatchable egg that will produce the chick that can get out of the shell and live to lay the golden egg.

CORNISH INDIAN GAME.

This sturdy bird comes from Cornwall, England. It is a prize-fighter, compact, muscular, and broad in build, with hard, short feathers and small pea comb. Standard weight, 9 pounds for the cock and 6½ for the hen; color, glossy black with greenish sheen and small mixture of dark red. A good table fowl but too pugnacious for the ordinary poultry yard.—M. R. J.



Cornish Fowl, Male.

POULTRY NOTES.

A hundred tons of turkeys were raised in northern New York, says the New York Sun. Farmers residing in Lewis, Jefferson, and St. Lawrence counties who went into the turkey raising business this year are now reaping their harvest. The weather during the last summer was just about what the farmers who are in the turkey business wanted, and with great flocks of birds brought to maturity and good prices prevailing, the turkey men are going to make a clean-up.

Over $12,000 worth of turkeys were shipped from Lincoln county for the holiday trade.

POULTRY.

BUFF ORPINGTONS—Sullivan's famous buffs excel all others. Eggs for hatching, stock for sale. Catalogue for the asking. **W. SULLIVAN,** Agnew, Santa Clara Co., Cal.

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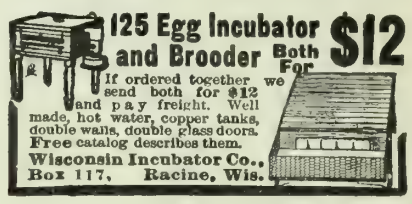
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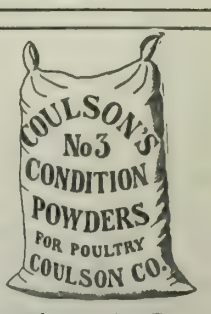
Prof. L. H. Bailey, the leading horticulturist of the East, says of the book:

"This work is an invaluable addition to the literature of horticulture. The conditions of culture are so peculiar in California that a particular treatise is demanded for them. The present volume deals in a clear and comprehensive manner with the whole field of California pomology. The author has enjoyed unusual facilities for the acquisition of facts, and he has everywhere used the material to good advantage."

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PETALUMA, CALIFORNIA.

Patrons of Husbandry.

TULARE GRANGE MEETING.

To the Editor: Tulare Grange met in regular session on Saturday the 5th, the 4th being the 42d birthday of the Order of the Patrons of Husbandry.

The order was organized in the city of Washington, D. C., at the home of Dr. William Saunders, on the evening of December 4, 1867, and the following officers were elected: Worthy master, William Saunders, of the District of Columbia; overseer, Anson Bartlett, of Ohio; lecturer, J. R. Thompson, of Vermont; steward, William Muir, of Pennsylvania; assistant steward, A. S. Moss, of New York; chaplain, Rev. A. B. Gosh, of Pennsylvania; secretary, O. L. Kelley, of Minnesota; gatekeeper, Edward F. Farris, of Illinois. At the time all of those gentlemen were engaged in some department of the National Government.

For some time previous to this, some of these gentlemen had been employed by the government to investigate the deplorable conditions of farmers at that time; all of them had given the subject thoughtful consideration, and all agreed that, as a means of amelioration and relief to them, farmers must be taught to unite in efforts for their own benefit, and as a means thereto the order was instituted.

Much thought was given to the form of organization which would be attractive and binding. It was finally decided the new order should be modeled after the Order of Free and Accepted Masons, with similar forms of application and ceremonials of admission, the Masonic order being the oldest of all moral orders, and the particular one after which all similar orders are modeled.

It can be truthfully said of the ceremonies of the Order of Patrons of Husbandry when properly rendered, and I have seen them thus rendered at Sacramento and at San Jose, are as beautiful and as impressive as are the ceremonies of any order.

Of the first officers of the National Grange, only Brother O. H. Kelley now survives. Brother Kelley for many years in succession was the honored secretary of the National Grange, P. of H., as he is now its honored pensioner; for to him more than to any other one member it owes its origin, its usefulness and its continued existence.

One application for the degrees was balloted on and the candidate elected.

Brother and Sister Lawson, who represented Tulare Grange, P. of H., before the Commission on Rural Life at its Fresno meeting, reported.

Resolutions of Santa Clara Pomona Grange against the proposed railroad raise of ten per cent on fruit to Eastern points were read and adopted, with an additional resolution that the law should prohibit any railroad raise of fare or freight until approved by the U. S. railroad commission.

A resolution was passed that at the next meeting of this Grange a "mothers' club" would be organized,

Officers for the year were elected, as follows: Worthy master, A. C. Henry; overseer, Bro. Hawley; lecturer, Bro. Tuohy; steward, Bro. Styles; assistant steward, A. J. Woods; chaplain, Sister Fay; treasurer, Bro. Watts; secretary, Sister B. I. Morris; gatekeeper, Bro. Hy Hunaker; Ceres, Sister Loman; Pomona, Sister Wing; Flora, Sister Griffith; L. A. S., Sister Sayre; organist, Sister Styles.

It is expected that on his return from the National Grange and from his old Eastern home, Worthy Master Griffith will come this way and jointly install Dinuba, Orosi and Tulare Grange officers.

Tulare, Cal. J. T.

SOWING ALFALFA ON DESERT SOILS.

Those who may have been disappointed in getting a stand of alfalfa on desert soils in the usual way may like to try the way which Mr. T. S. Van Dyke of Barstow, San Bernardino county, found successful and which he described in the Irrigation Age. Mr. Van Dyke is situated in what is probably the dryest part of the Mojave desert, lying along the Mojave river ome 40 miles west of its sink. The elevation is about 2000 feet, average rainfall about four inches, often less than three and that only in winter. Temperature in summer 116 occasionally, but seldom over 112 and rarely below 100 except at night. Moisture in air about the extreme minimum of the world. Mr. Van Dyke says:

I have soil of several textures, from near clay to the coarsest gravel. In spring when it is windy much of the time and in summer when it is hot but rarely windy I find it almost impossible to get a decent stand of anything without flooding. The moisture cannot be kept long enough at the immedate surface, even for seeds like alfalfa (which is up inside of five days), unless the surface is sealed over. My first planting of alfalfa was in the most orthodox manner, with deep plowing, fine harrowing and immediate seeding and harrowing in on soil wet many feet deep. I got about one plant to square rod from about 35 pounds of seed to the acre. I concluded that air spaces drying out the soil under the hot sun and dry air had done the mischief and that if the seed were drilled in shallow on unplowed ground so dry that loose dirt could be easily dragged back over the seed by chains that trail behind the feeders of the drill and the whole then sealed over by flooding that I could get a stand in spite of the hardening and tightening of the soil. The ground in the other case had been irrigated by furrows and they were run for some time after planting without effect, except in the bottom of the furrows, with a few scattering plants along the sides. But now I rushed a big head over the whole patch; in five days the young plants were lifting the thin crust in every direction, and I had a stand about three times too thick, although I had planted the smallest amount of seed the drill would feed—about 15 pounds to the acre, or nalf of what is generally deemed necessary for sowing broadcast under good conditions and culture.

RAT'S-TAIL GRASS IN NEW ZEALAND.

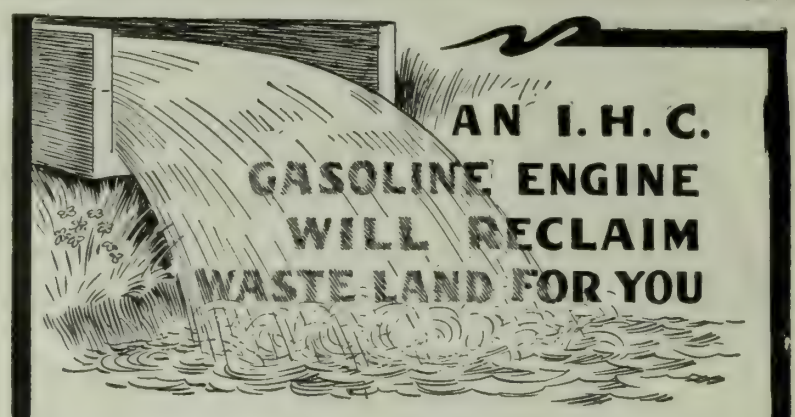
To the Editor: I am frequently reading enquiries in your paper from all parts of California regarding a good grass to grow on dry hill land. In New Zealand, where I farmed for many years, we had a grass known by the name of "rat's-tail." This plant will grow practically anywhere, and throw a lot of feed without rain for six months. We used to burn off scrub growth in the fall and sow the seed broadcast immediately after the ashes had cooled off. I have known the seed to remain on the bare, hard ground for three months and, after we had given up all hope of it ever coming on, in the following summer it would make a start, and once it gets root-hold, nothing will ever move it. This grass has the advantage of being able to carry a fire, and after rain it sprouts away as strong as ever. North of the Auckland district there are thousands of acres carrying large flocks of sheep and horses, and they are turned off as "fats."

Of course, like other grasses, it has its drawbacks. It is a wiry grass and cuts down the stock's teeth. It also spreads very quickly, its fine seed being blown about. Once it gets onto cultivated land, it makes it hard to plow, it taking two crops to remove entirely. The seed is today quoted at about 40 cents per pound. If any of your readers desire to try it, Arthur Yates & Co. of Auckland, N. Z., can supply it.

I have some on order and intend sowing it during next February. I can assure anyone who possess poor, thin land in a dry situation that they will not regret giving it a trial.

Los Gatos. F. D. PHILIPS.

J. B. Neff, the conductor of Farmers' Institutes for southern California, gives us the following dates and places at which meetings have been arranged: Golita, Jan. 4; Oxnard, Jan. 5; Mound schoolhouse, near Ventura, Jan. 6 and 7; Santa Paula, Jan. 8 and 9.



AN I. H. C. GASOLINE ENGINE WILL RECLAIM WASTE LAND FOR YOU

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The land without water is practically valueless. It can be had for a few dollars per acre.

With the land under water you can raise bumper crops of grain, potatoes grass, fruits and vegetables.

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They enable you to reclaim waste land and to make it worth anywhere from $25 to $200 per acre.

They require but little of a man's time to care for them. For the most part, the operator may go about his other irrigating or farm duties. The engines, when supplied with fuel and started, practically run themselves.

Water can always be had somewhere The problem is to get it upon the land. I. H. C. engines enable you to take water from low lying ponds, sloughs or running streams and raise it so that it is available for irrigating the higher lands.

In many places farmers are irrigating from wells, or are using the underflow. I. H. C. engines enable them to pump the water where it is wanted and to farm their lands at a good profit.

Have you on your farm a piece of land that is unprofitable because you cannot get the water upon it?

Or have you your eye on a tract you would like to homestead if you could irrigate it?

Investigate the I. H. C. gasoline engines and see how well they will solve these problems for you.

International local agents will supply you with catalogs and all particulars. Or, if you prefer, write to the nearest branch house.

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1½ "	2.68 "	7.25
2 "	3.61 "	10.00
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DIVIDEND NOTICE.

The German Savings and Loan Society

(Member of Associated Savings Banks of San Francisco.)

526 CALIFORNIA STREET

Mission Branch, 2572 Mission St., nr. 22nd.

For the half year ending December 31, 1908, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, free of taxes, payable on and after Saturday, January 2, 1909. Dividends not called for are added to and bear the same rate of interest as the principal from January 1, 1909.

GEORGE TOURNEY, Secretary.

DIVIDEND NOTICE.

San Francisco Savings Union

(Member of Associated Savings Banks of San Francisco),

N. W. Cor. California & Montgomery Sts.

For the half year ending December 31, 1908, a dividend has been declared at the rates per annum of four and one-quarter (4¼) per cent on term deposits and four (4) per cent on ordinary deposits, free of taxes, payable on and after Saturday, January 2, 1909.

Depositors are entitled to draw their dividends at any time during the succeeding half year. A dividend not drawn will be added to the deposit account, become a part thereof and earn dividend from January 1st.

LOVELL WHITE, Cashier.

DIVIDEND NOTICE.
THE SAVINGS AND LOAN SOCIETY.
(Member of Associated Savings Banks of San Francisco),
101 Montgomery St., corner Sutter St.

For the half year ending December 31, 1908, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, free of taxes, payable on and after Saturday, January 2, 1909. Dividends not called for are added to and bear the same rate of interest as the principal from January 1, 1909. Money deposited before January 10th will draw interest from January 1, 1909.

WM. A. BOSTON, Cashier.

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The Home Circle.

The New Year.

Another year has wing'd its airy flight,
Still wrapt the future in mysterious night;
An eager haste we feel.
We long, we hope and e'en swift time seems slow,
Enquiring ask, while yet we would not know,
What may this year reveal?

What may it not! Ah, one short year may send
To his long home a loved, a valued friend,
Bring others to our view;
Lay hundreds low in death. Alas, replace
Full many a well-known lamented face
By forms entirely new.

A year may bring the wounded mind repose,
O'erwhelm the happy with unnmberded woes,
May ease the captive's doom.
A fleeting year, ere it is past and gone,
May add fresh beauty to the form of one,
Decay another's bloom.

May ope to sorrow pleasure's blissful door,
Make the poor wealthy and the wealthy poor;
Thus change the form of fate.
May shower profuse, from golden realms above
On private homes, the joys of peace and love;
Bring discord to a State.

Could we look forward but through one short year
How would the smile alternate chase the tear!
The tear its place supply.
How one sad home would view the mind pedplext;
Perchance relieved and free from care the next
Ere yet the tear was dry.

But though weak man alone can truly see
What has been, is, not what yet may be,
We'll fondly paint the best.
We'll bid the radiant dawn of Hope appear;
Through its fair glass we'll view this opening year;
And while we hope we're blest.

(The above poem was first published in 1767, but its truths are as real today as then. The name of the author is lost in the years.)

Women in the World's Work.

A farmer's daughter of the Middle West made $310 last year with peacocks.

New England has one switchwoman—not the kind that dresses down bad boys; but a railroad switchwoman. She is, says the New York Sun, Mrs. Mary A. Lamont, and besides tending to the switches she sends out and receives all the telegrams at her station.

At the recent election in Denver, Colo., the oldest voter was a woman, Mrs. Richard Sophris. She is in her 98th year, but very intelligent and in the full use of her faculties. She expresses herself as proud to be at last a full-fledged citizen.

Minnesota has the champion woman corn husker. The St. Paul Dispatch says Miss Mollie Morgan of Jamaica was offered $10 by her father if she would gather 100 bushels of corn in a day. In the morning the young lady started a stream of corn flying into the wagon and at night she had gathered 104 bushels.

There is a certain Congressman from New England, a self-made man, who is noted in Washington for two things—his quick wit and pride in his Celtic origin.

He was walking down Pennsylvania avenue one fine evening, with a fellow member from Kansas, when the Westerner, looking at the sky, remarked, "How bringht Orion is tonight!"

"A-r-rh!" replied the New Englander. "So that is O'Ryan, is it? Well, thank the Lord there's one Irishman in heaven, anyhow!"—Lippincott's.

"We should all strive to forgive our enemies," remarked the Wise Guy. "Yes; then they won't be so apt to get back at us," added the Simple Mug.

OUR HOME CIRCLE CHAT.

Breakfast Hints.

Man's first right in the order of the day is the right to a good breakfast. Thus fortified he is ready for the day's work and can meet it successfully, while the ill-breakfasted finds everything awry—the chill of the morning gets onto his spirits and he hasn't the vim to throw it off.

Breakfast as a rule is given scant consideration; yet this meal is the most important one of the day. The system is in immediate need of nourishment, something that it can readily assimilate; the stomach not yet toned to heavy burdens, needs something it can easily digest. It follows that the breakfast should be light, nutritious and gently stimulating. A heavy meal made up of a variety of rich foods is far from a good breakfast and will not afford that strength of body and lightness of spirits which sets us on our feet for the day. The breakfast of cereals, toast, eggs and coffee is not far from requirements; but all the difference between virtue and baseness lies in the quality and preparation of these articles. The gummy mush and thin milk; the muddy coffee of questionable antecedents; the ill-flavored eggs of uncertain age; the ill-toasted bread or soggy cakes, are enough to drive a man to drink!

The good housewife might better be slack elsewhere than careless of breakfast comforts. True, she may not always feel at her best in the early morning and is apt to consider a make-shift breakfast sufficient if the dinner and evening are up to the mark—or even let the "gude mon" get his own breakfast. A cheery breakfast room and an appetizing breakfast table are well worth the efforts of a half-hour's earlier rising and they give a touch of brightness and comfort to the whole day.

One may vary the breakfast menu and still have what is light and easily prepared. Such dishes we will consider later on, and this week speak of what may be called the breakfast stand-by. The first in this line is

Good Coffee.—For breakfast there is nothing which can take the place of coffee. Nature must have grown this berry especially that man might have a "cup to cheer and not inebriate." Buy coffee of the better grade; the cheapest grades are really the most expensive, for they have little strength and less flavor and are entirely destitute of that delightful aroma which rightfully belongs to a cup of coffee; and take no base substitutes for coffee. It is the abuse of coffee, not its use, which is harmful. Coffee should be as freshly parched as possible and always kept in tight cans. When it has become somewhat tough and flavorless by standing, putting it in a hot oven till thoroughly heated will restore considerable of its virtue. Never buy the prepared coffees. The rule for making coffee as strong as it should ever be drank is one heaping tablespoonful to each cup of coffee and one to the pot; half this strength is sufficient for those of weak nerves or digestion. Good coffee may be made either by dripping or boiling. The army mode is to put it into a tight vessel in not quite the full amount of cold water; let come to a boil quickly; add the rest of the cold water and again let come to a boil; now clear by pouring a cup out and back and scraping down the grounds; cover perfectly tight and let stand where it will keep boiling hot, but not boil for a few minutes, then serve. This is clear and excellent. To settle with eggs, etc., mix with the coffee and just enough cold water to wet; pour on boiling water and let come to a boil, then treat as above. It is well to use a fine wire strainer in serving it to make sure that no grounds slip in. A spoonful or more of whipped cream is the most delicious addition, but if only milk is obtainable always serve it hot with coffee. Cold blue milk will ruin the best cup of coffee. To repeat: Use good coffee and the real thing; have it freshly parched and ground; don't let it ever boil more than a minute nor stand long before srevıng; serve hot and with cream or rich hot milk.

The Breakfast Egg.—"Anybody can boil an egg," is often said. This may be true in one sense, but to boil it properly is an art which few can attain. There is a psychological moment in the evolution of the breakfast egg which one must catch to have the egg at its best; then its consistency is perfect and its flavor at the maximum. The first requirement of the breakfast egg is that it be "strictly fresh" in the fullest sense of that much abused term; it should be produced in the yards of a true poultryman who keeps only healthy hens fed in a cleanly wholesome manner. To boil, cover with cold water and place on a hot stove or blaze where it will come to the boil quickly; the instant the water begins to boil remove the vessel to the back of the range and let stand one minute, then serve at once; if wanted somewhat firmer leave two minutes longer in the boiling water—not boil. Eggs should be served instantly, and the egg cups warmed; but they are better eaten out of their natural cup—of better flavor, hotter and more attractive to the eye.

The Breakfast Toast.—This requires good bread and a good fire. Cut the slices evenly and some three-quarters of an inch in thickness; toast over hot coals to an even golden brown; butter and place between hot platters and serve at once. If toasted in the oven the latter should be hot but not hot enough to brown before the bread is thoroughly heated. Toast crisped to a light brown half way through is delicious with coffee and excellent for the delicate and dyspeptic.

In the Garden.

The lawn, smooth and sloping with the soft sheen of velvet, is one of the most beautiful of garden effects—and the most difficult to attain.

In California, just after the rains begin in the autumn is the best time to start a lawn—or rather to start the preparation for a lawn, which is far the most important part of lawn-making.

The ground should be deeply spaded and worked till thoroughly pulverized; then spread with poultry manure or the well-rotted manure from the barnyard, and spaded and worked again. After this thorough working and raking, it should be leveled with a gentle slope from the house; then wet down and allowed to lie some three weeks to bring out the weed seed. When these are well started, spade them under and let the ground rest for another period; in fact it would be well to repeat this operation three of four times in order to catch all of the weeds. It is exceedingly tedious—and very expensive if you hire it done — to weed a new lawn; therefore reduce the weeds to the minimum before planting.

When no more weeds can be coaxed up, again thoroughly work and level the ground and roll it till it is firm and compact. Now sow your seed thickly and evenly. It is best to do this with a sieve which may be readily made by tacking a screen wire of the right sized mesh onto a box frame from which the bottom has been removed. Cover the seed about a quarter of an inch deep with sifted sandy



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loam put on with the sieve — and be sure there are no weed seeds in this sifting or all your previous work will go for naught. Now roll smoothly and wet down evenly, aud keep watch for any stray weeds and prevent them getting a foothold.

The old Kentucky blue grass in its purity is preferred by some for the lawn, but there are more who like a mixture of it with white clover. The reliable seed companies, however, whose advertisements may be found in the PACIFIC RURAL PRESS, have lawn grass mixtures which have been especially prepared to meet the requirements of our climate and soil, and to produce best results.

For a simple grass plot where one has not an abundance of flowing water and the necessary time, the native grasses may be cultivated successfully with much less water and care. The writer has kept such a plot since last May by a moderate amount of watering and keeping out the weeds and the ground from being tramped on. A kind of barley or rye grass and burr clover grow on it and make a bright green oasis which at a little distance might vie with a more pretentious lawn. The quantity of clippings which this small plot has furnished for the fowls is truly surprising; in fact it has furnished more green feed with less water than an equal space in alfalfa, and it is much more relished by the fowls.

Br'er Rabbit in Indian Lore.

The "Uncle Remus" stories have made the world familiar with the Southern negro version of Br'er Rabbit and his cunning, says the N. Y. Sun. It is not generally known how Br'er Rabbit figures in the animal lore of the North American Indians. An effort has been made to establish for these stories a negro origin regardless of the fact that the rabbit—the great white rabbit — figures as the hero, god, trickster and wonder-worker of almost every Indian tribe from Hudson Bay to the Gulf and from Nova Scotia to the Pacific. Here is a Cherokee story which corresponds with our fable of the "Tortoise and the Snail:"

"Br'er Rabbit was a good runner and everybody knew it. The terrapin was a slow traveler, as everybody also knew, but he was a great warrior and unblushingly boasted of it. The terrapin also had a gift of cunning in no small measure, and as the rabbit was always playing tricks on the other animals Mr. Terrapin concocted a practical joke with which he proceeded to victimize the old joker.

"The terrapin challenged the rabbit to a footrace; the day was fixed, the starting place agreed upon. They were to run across four mountain ridges and the one that came out first at the end was to be the winner of the race.

"Br'er Rabbit said to himself that it would be a shame to take anything so easy, so he said to the terrapin: "You can't run, and everybody knows it. I'll give you the first ridge and then you'll have only three to cross while I'll cross over four."

"To this the terrapin assented and went home to arrange for the race. He sent for his terrapin friends and frankly told them that he knew that he could not outrun the rabbit, but he wanted to stop his boasting. He then explained his plan to them, and they agreed to help him.

"The day came and the animals were all out to see the race. The rabbit took his station at the starting point and the terrapin went ahead as they had arranged, and they could hardly see him on account of the tall grass. When the word was given the rabbit started out with long jumps up the mountain, expecting to win the race before the terrapin could get down the other side of it. Before he got up the mountain he saw the terrapin go over the ridge ahead of him.

"He ran on and when he reached the top he looked all around, but could not see the terrapin on account of the tall grass. Br'er Rabbit kept on down the mountain and began to climb the second ridge, but when he looked up again there was the terrapin just going over the top. This was surpising, and Br'er Rabbit began to take longer jumps to catch up, but when he got to the top there was the terrapin away in front over the third ridge.

"The rabbit was now getting tired and nearly out of breath, but he kept on down the mountain and up the other ridge until he got to the top just in time to see Mr. Terrapin cross the fourth ridge and thus win the race.

"Br'er Rabbit could not make another jump, but he fell over on the ground crying 'mi, mi, mi, mi,' as the rabbit has done ever since when he is too tired to run any more. The race was given to the terrapin, though all the animals wondered how he managed it. But he kept still and never told.

"It was easy enough, however, because all the terrapin's friends looked just alike and he had simply posted one near the top of each ridge to wait until the rabbit came in sight and then climb over and hide in the long grass. When the rabbit came on he could not find the terrapin and so though the terrapin was ahead, and if had met one of the other terrapins he would have thought it was the same one because they look so much alike. The real terrapin had posted himself on the fourth ridge so as to come in at the end of the race and be ready to answer questions if the animals suspected anything."

NEW CALENDARS.

This office is in receipt of several handsome 1909 calendars, the handsomest one being from the California Fruit Exchange of Sacramento. The picture on this calendar represents a bouquet of roses and white lilacs, from a painting by R. M. De Longpre of Paris, and is a beautiful work of art. Another calendar is from the Leonard Coates Nursery Co., Inc., of Morganhill, and the central picture shows a portion of a lot of 515,000 eucalyptus trees ready for planting out in forest form. The calendar is a good one, but we would offer one criticism, that is, the figures on the date pad are rather small. The Western Gas Engine Co. of this city and Los Angeles also sends us a handsome calendar, printed in brown tones and very effective.

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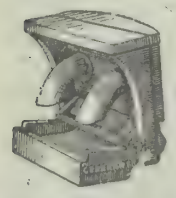
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THE MARKETS.

San Francisco, Dec. 29. 1908.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Since last report the local wheat market has shown the effect of the holidays, and there has been very little movement. No particular activity is looked for, however, as the local buyers have taken comparatively little interest in the market for some time past. Trading on futures is extremely quiet. There is a fairly liberal movement from the North for the California milling interests. Prices unchanged, all lines being firmly held.

California White Australian	$1.75 @1.80
California Club	1.67½ @1.70
California Milling	1.70 @1.72½
California lower grades	1.45 @1.60
Northern Club	1.65 @1.67½
Northern Bluestem	1.72½ @1.77½
Northern Red	1.62¼ @1.65
Turkey Red	1.75 @1.80

BARLEY.

With liberal receipts, part of which are from the North, this market is fairly well supplied for present needs, though holders are showing considerable firmness in regard to prices on spot grain. The best feed is again selling at $1.45, and sales of brewing and shipping grades are reported at an advance of 5 cents over the figures recently prevailing. May barley is weaker.

Brewing	$1.45 @1.52½
Shipping	1.45 @1.52½
Chevalier	1.57½ @1.62½
Good to Choice Feed, per ctl.	1.40 @1.45
Common Feed	1.35 @1.38¾

OATS.

Prices show no further change, and no material reduction seems likely, as the grain is very firmly held in the North. The California demand for seeding purposes, however, has so far been much smaller than was expected, and very little movement is going on locally, though there may be some increase in the demand after the first of the year.

Choice White, per ctl.	$1.70 @1.75
No. 1, White	1.65 @1.67½
Gray	1.65 @1.70
Red, seed	1.75 @1.85
Feed	1.50 @1.70
Black, seed	2.45 @2.65

CORN.

Scarcely any California corn is arriving, and there grades are practically nominal. There has o far been no increase in the arrivals from the Western States, and stocks remain small, with the local movement confined to narrow limits. Western prices are 2c. below the last quotation.

California Small Round Yellow, per ctl.	Nominal
Large Yellow	Nominal
White	Nominal
Western State Yellow	$1.60 @1.65
Mixed, in bulk	1.49
White in bulk	1.53

RYE.

No interest is taken in this grain at present, buyers in general having sufficient to last them until after the first of the year. The demand is very light, but all offerings are still held at former prices.

Rye	$1.42½ @1.50

BEANS.

The market has been of a holiday character for the last week or two, and the movement has quieted down considerably. The decline on limas has induced a little business, however, and some buyers have placed orders to be shipped before the advance in freight rates goes into effect. Arrivals show a further decline this week, and local dealers express the opinion that the growers are holding comparatively little stock. While stocks in the warehouses are rather large, prices are steadily maintained on most varieties, and some advance is looked for. The dealers here are holding firmly, in the expectation of a large demand later in the winter. Garvanzos are lower, but greater strength is shown by pinks and horse beans.

Bayos, per ctl.	$2.90 @3.05
Blackeyes	3.00 @3.25
Cranberry Beans	2.75 @3.00
Garvanzos	2.25 @3.00
Horse Beans	1.60 @2.00
Small Whites	4.50 @4.70
Large White	3.65 @3.85
Limas	4.20 @4.30
Pea	4.50 @4.75
Pink	2.45 @2.60
Red	3.75 @4.00
Red Kidneys	3.25 @3.50

SEEDS.

The seed market has been considerably affected by the holidays, though a moderate amount of buying has been done this week. A good demand in all lines is expected next month. Prices show some revision, but the market in general is steady to firm.

Alfalfa, per lb.	17 @18 c
Broomcorn Seed, per ton	$20.00 @ 25.00
Brown Mustard, per lb.	3¾ c
Canary	4½ c
Flaxseed	2¾ @ 3 c
Hemp	4 c
Millet	2¾ @ 3¼ c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

There is considerably less shipping movement from the northern Coast ports than a month or two ago, though the exportations from San Francisco keep about up to the usual small average. Local trade is very quiet this week, though a fair movement may be expected in the next few weeks.

Cal. Family Extras	$5.60 @6.20
Bakers' Extras	5.60 @5.85
Superfine	4.40 @4.70
Oregon and Washington, Family	4.50 @4.75

HAY.

Arrivals for the last week show some decrease, owing to the holidays, and neither shippers nor consumers have shown the usual interest. The market, however, continues to show a decided strength and activity unusual at this time of year. Prices are well sustained, most grades being quoted rather higher this week, and all offerings are readily taken at the figures quoted. Local conditions are considered favorable to a good consumptive demand throughout the rest of the season, while the demand in the interior so far shows no decline, and the South is taking large quantities. Growers are holding strongly, and the outlook is more than ever for a further advance before the end of the winter.

Choice Wheat, per ton	$20.00@22.50
Other Grades Wheat	16.00@19.50
Wheat and Oat	17.00@21.00
Tame Oat	17.00@20.00
Wild Oat	15.00@18.00
Alfalfa	12.50@17.50
Stock	12.00@13.00
Straw, per bale	65@ 80c

MILLSTUFFS.

Supplies or bran are quite large, as another shipment has been received from Japan. The demand is not especially strong at present, and the market is weak, with a decline in prices on all grades. Some shorts have also come in from Japan, but this market is well sustained, and middlings are also firm. There is a steady demand for alfalfa meal and mealfalfa, the prices for which have been advanced $1 a ton. Other varieties are unchanged.

Alfalfa meal, per ton	$23.00@24.00
Bran, ton—	
White	30.00
Red	28.50@29.50
Broom Corn Feed, per ctl.	1.20@ 1.25
Cocoanut Cake or Meal at Mills (in 10-ton lots)	25.50
Jobbing	26.50
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Mealfalfa	23.00@24.00
Middlings	33.50@35.50
Mixed Feeds	28.00@32.00
Oil Cake Meal, per ton	38.00@39.50
Rolled Barley	30.00@31.00
Shorts	33.00@33.50

VEGETABLES.

Owing to the growing scarcity of onions in this market, stock is now being shipped in from Oregon. This is of superior quality, and brings as high as $1.40—as high as some repicked lots of local stock. Arrivals from river points have been light, and with a good demand for the week, the price is considerably higher. Receipt for miscellaneous vegetables from the South have been light this week, but the demand has also been of small proportions, and prices are lower on several articles. Celery and rhubarb, however, are considerably higher, and tomatoes are steady, although a good deal of poor stock is offering.

Onions	$ 1.10@ 1.25
Garlic, lb.	7@ 9c
String Beans	10@ 15c
Green Peas, lb.	10@12½c
Cabbage, per ctl.	$1.00
Marrowfat Squash, per ton	10.00@15.00
Tomatoes, crate	50@ 1.00
Turnips, sack	60c
Bell Peppers, lb.	10@ 15c
Chili Peppers, lb.	4@ 6c
Egg Plant, lb.	10@12½c
Cauliflower, doz.	50@ 60c
Celery, dozen	40@ 80c
Rhubarb, box	1.50@ 2.00

POULTRY.

Prices on chickens stand about the same as last week, ordinary hens being slightly higher. Arrivals from Western points are liberal as usual, and sell off readily, but the small supplies of California stock receive little attention. The stock of dressed turkeys for the Christmas market was one of the smallest on record, and the demand was strong, raising prices to an unusual figure. The choicest dressed stock sold as high as 38c. a pound, and the day before Christmas nothing could be had under 31c, live birds bringing about 29c. There is no live stock offered at present, and dressed turkeys are still in good demand at the prices quoted.

Broilers	$ 4.50@ 5.00
Small Broilers	3.50@ 4.00
Fryers	5.50@ 6.00
Hens, extra	7.00@ 9.00
Hens, per doz.	5.50@ 6.00
Small Hens	4.00@ 5.00
Old Roosters	4.00@ 5.00
Young Roosters	6.50@ 7.00
Young Roosters, full grown	7.50@ 8.00
Pigeons	1.25
Squabs	2.50
Ducks	4.00@ 8.00
Geese	2.50@ 3.00
Turkeys, live, per lb.	Nominal
Turkeys, dressed, per lb.	28@ 30c

BUTTER.

The butter market is in a good condition this week, the trade being well cleaned out by the holiday demand. Buying is accordingly quite liberal, and although the receipts are fully up to the average, all offerings of first-class fresh stock are readily taken. Extras are considerably higher, at 36½c, with an advance of 1c on firsts. Other grades are steady to firm at former quotations. The following figures are given by the San Francisco Dairy Exchange:

California (extras), per lb.	36½c
Firsts	31 c
Seconds	25 c
Thirds	20 c
Eastern Storage Ladles, extra	23 c
Cal. Storage, extras	29 c
Pickled Butter	23½c
Packing Stock, No. 1	21½c

EGGS.

The market has been quite liberally supplied for several days past, as large lots that had been held back for the holiday trade have been placed on the market. There has accordingly been some accumulation, and a pressure on the part of sellers has caused a decline of 7c in both extras and firsts. At these quotations trad-

ing has been rather active, and the surplus is being well cleaned up. The present feeling is one of firmness, with a prospct of somewhat higher prices next week, as the production is still light.

California (extra), per doz	43 c
Firsts	42 c
Seconds	37 c
Thirds	29 c
Storage, Cal., extras	35 c
Storage, Eastern extras	30 c

CHEESE.

The market on cheese has been of a holiday character, with less interest than last week, and practically everything on the list is weak. Supplies are liberal, and fancy flats have been market down ½c. Both fresh and storage Young Americas show a similar decline. The following quotations are given by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	14½c
Firsts	14 c
New Young Americas, fancy	16 c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

Potatoes continue quiet, with plentiful supplies, and buyers show very little interest in anything but the choicest lots. Sales of Early Rose for seeding are small this week. Prices, however, are strongly held on all lines. Receipts of sweet potatoes are large, but prices are somewhat higher, fancy stock bringing an advance over quotations.

River Whites, fancy, ctl	65@ 90c
Common	50@ 60c
Salinas Burbanks, ctl.	$1.25@ 1.50
Oregon Burbanks, ctl	1.15@ 1.25
Early Rose	1.25@ 1.35
Sweet Potatoes, ctl.	1.35@ 1.75

FRESH FRUITS.

Fresh fruits are in rather less demand than last week, as all holiday wants have been filled, and the market is inclined to dullness. Some grapes are still being offered, but they receive little attention. Few cranberries are left, present offerings bringing an advance. Ordinary apples are plentiful, and easy as to price, though choice stock is still firm under a fair demand. Good lots of pears are higher.

Apples, fancy	85c@$1.50
Apples, common	40 @ 75c
Christmas Apples	1.50@ 1.75
Cranberries—	
Cape Cod, bbl.	15.00
Grapes, crate	50c@ 1.00
Pears, box, Winter Nelis	75c@ 1.25
Other varieties	50 @ 75c
Persimmons, box	50 @ 1.00

CITRUS FRUITS.

Oranges and other citrus fruits are quiet this week, as the demand appears to be well filled. Plenty of supplies have come in, including shipments from the South. Navel oranges are slightly higher at the inside figure, but otherwise there is no change.

Choice Lemons	$2.00@ 2.50
Fancy Lemons	3.00@ 3.25
Standard	1.25@ 1.50
Limes	4.00@ 5.00
Oranges—	
Navels	1.75@ 2.50
Tangerines	1.00@ 1.25
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The local market on dried fruits shows little feature at present, being quiet, as usual at the holiday season. While stocks of several varieties are small in the Eastern markets, there has so far been no sign of any increase in the demand, and no immediate change in the range of values is looked for, with the possible exception of apricots and prunes. Apricots are very scarce, and the price is firmly held. There is no lange inquiry for prunes in the East, but the jobbing trade is fairly active, and in view of the scarcity of large sizes the packers are inclined to firmness. Peaches at present show little strength, being slow and inclined to weakness. Other descriptions are steady at former quotations. The local market on raisins remains in a dull and weak condition since the decline, and most of the packers appear to be taking little interest in the offerings of growers. Eastern dealers are unwilling to buy, and stocks on hand locally are sufficient to meet all immediate requirements. Much depends upon the success of the Fresno pool, as that would undoubtdly give more strength and activity to the market. Local dealers quote the following prices:

Evaporated Apples	5½@ 6½c
Figs, black	2½@ 3 c
Figs, white	3 @ 4 c
Apricots, new crop	8 @ 10¼c
Peaches, new crop	4 @ 5½c
Prunes, 4-size basis	3 c
Pears, new crop	4 @ 7 c

RAISINS—NEW CROP.

Loose Muscatels, 4 crown	4¼c
3 Crown	3¾c
2 Crown	3¼c
Thompson Seedless	4 c
Seedless	3¾c
London Layers	$1.10@ 1.20

RAISINS.

Some of the local packers are offering 2c for raisins in the sweatbox. For packed raisins they ask:

Loose Muscatels, 4 crown	4 c
3 crown	3¼c
2 crown	2¾c
Thompson Seedless	3½c
Seedless Sultanas	3 c
London Layers, 3 crown	$1.00

NUTS.

Nuts are quiet at present, and buyers show little interest, as this year's requirements have all been filled. Some demand may develop soon ofter the first of the year, though supplies now seem to be sufficient to last for some time. All stocks are firmly held, both by growers and dealers, and prices show no change.

Almonds, Nonpareils	11 c
I X L	10 c
Ne Plus Ultra	9½c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	12½c
Softshell, No. 2	8½c
Hardshells	less 2 c
California Chestnuts	10 @12½c
Italian Chestnuts	10 @11 c

HONEY.

Extracted honey is selling at former prices, though the movement is slow. Comb honey, however, is weak and dull, the market showing some injurious effect from a poor lot of Nevada stock which was received here recently, and prices are lower. Prices an water white extracted and comb honey are nominal.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼ @ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Most of the better California hops have already been disposed of, taking care of all pressing wants, and whatever high grade stock is left in growers' hands is being firmly held. Considerable quantities of less desirable quality, however, are being placed on the market, and in some quarters there is pressure to sell. The current prices accordingly show a further reduction.

Hops, per lb	5 @ 7 c

WOOL.

A large proportion of the fall clip of California wool has been moved, though prices were not very satisfactory. There is very little movement at present, partly owing to the holidays, and partly because neither buyers nor sellers are taking much interest in the market.

Red Bluff (f. o. b. Red Bluff) free	6 @ 7½c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 6½c
Defective	4 @ 5 c
Mendocino, free	7 @ 9 c
Defective	5 @ 7 c

MEAT.

Receipts of hogs are now rather liberal, but the surplus is taken up by the packers, preventing any reduction. Dressed meats are in general higher, beef, mutton and lamb showing a considerable advance. Live stock remains about as formerly quoted.

Beef: Steers, per lb	6½ @ 7¼c
Cows	5½ @ 6½c
Heifers	5½ @ 6½c
Veal: Large	7 @ 9 c
Small	9 @ 10 c
Mutton: Wethers	8 @ 9 c
Ewes	7 @ 8½c
Lambs	10 @11 c
Hogs, dressed	8 @ 9½c

LIVESTOCK.

Steers, No. 1	4 @ 4¼c
No. 2	3¾c
No. 3	3 @ 3¼c
Cows and Heifers, No. 1	3 @ 3¼c
No. 2	2¾c
Bulls and Stags	1¾ @ 2 c
Calves, Light	4¾ @ 5 c
Medium	4½@ 4½c
Heavy	3¾ @ 4 c
Sheep, Wethers	4 c
Ewes	3½c
Lambs, lb.	4 @ 4½c
Hogs, 100 to 150 lbs.	5¾ @ 6 c
150 to 250 lbs	6 @ 6¼c
250 to 325 lbs	5½@ 5¾c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

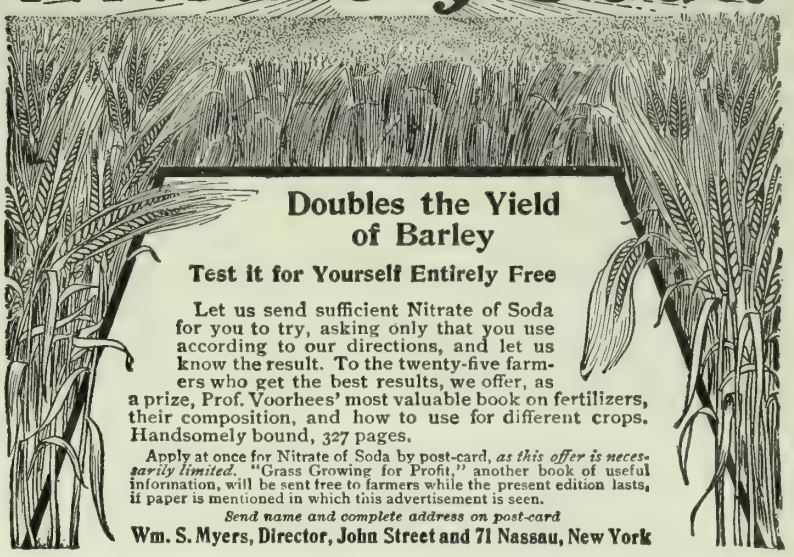
Los Angeles, Cal., Dec. 29, 1908.—The orange market is in fine shape, though prices are not very high, and probably will not go any higher just at present. This is the time of the usual after-holiday slump, but there is no sign of its appearance, and it will not show up this season if the shippers will confine their output to within the needs of the jobbers throughout the country. All the output for Christmas was handled very nicely—in fact, there was not enough stock out to supply the legitimate needs of the trade, and there were no auctions held from Wednesday last week until yesterday, simply because there was no fruit to auction; it had all been sold that arrived on time.

Lemons are dragging and prices are not good. A price of $2.75 delivered is about the limit, judging from auctions, and the shippers here are not claiming anything more than $3 delivered on their very best stock, and from that down to $2.50. Demand is light and importation quite heavy, 18,000 boxes being the next offering of the importers, sale to be held on January 5.

It is not believed that the frost has done any great damage in this part of the citrus belt. There will no doubt be some frosted fruit shipped, but the percentage will be very small, from present indications, though nearly all growers agree that it will be another week or ten days before the full extent of the damage done by the last cold spell can be accurately gauged. There has been considerable fruit-drop lately, and it is claimed this is from the effect of the freeze about the last of November. If the last cold snap gave the orchards as hard a jolt, in proportion to the degree of cold, as the first one did, we are likely to see a great many more fallen oranges, though growers have a theory that the first cold hardens the tree so that it is able to withstand much more cold the next time without as much damage; in other words, it is in a more dormant state, with less sap flowing.

The shipments are now in the neighborhood of 75 cars a day, and increasing. Totals to date are 1339 cars oranges and 607 cars lemons. To the same date last year there had been shipped 1491 cars of oranges and 550 cars of lemons.

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PUBLISHER'S DEPARTMENT.

Owing to the large increase in patronage given the PACIFIC RURAL PRESS of late we have decided to enlarge the paper by adding one-fourth to the number of pages. Whether this size will be permanent or not, the future only can demonstrate. We appreciate the generous treatment accorded the new management, and believe the best way to express our feelings is to give more value to our readers.

Of the four pages added, two of them will be devoted to the live stock and dairy interests of the West. We have secured the services of Mr. Leslie W. Symmes of this city to aid Prof. Wickson in this department. Mr. Symmes brings to the work a varied experience, not only in dairy and range cattle, but is also an agricultural engineer, and will from time to time give our readers articles along the lines of building telephone systems on the farm, the use and handling of water for irrigation, silo farming, and allied subjects. To make this department of more value to our patrons, we ask each one to send us any articles or notes they may have along stock lines.

The horticultural and agricultural parts of the paper are well represented already, Prof. Wickson being assisted by Prof. F. T. Bioletti in viticulture and T. C. Wallace in citrus culture. Besides the above departments, we will continue the strong Poultry and Home Circle pages by M. R. James, and with special articles and good market reports, we believe the PACIFIC RURAL PRESS will make greater strides in 1909 than ever before.

We want our readers' patronage and friendship; we believe we shall merit it, and we would like to have their neighbors as patrons. We want every present subscriber to get us an additional subscription, and above all, we wish you a happy and prosperous season during the present year of 1909.

The Porterville Enterprise says that owing to the heavy snow in the hills that coyotes are coming into the outskirts of that town for food.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

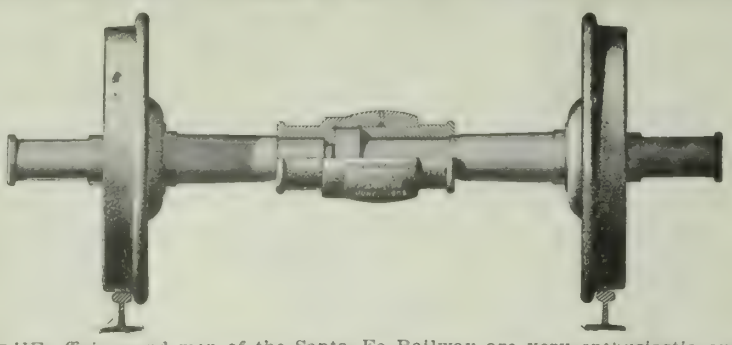
The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,

President John Crouch Land Company.

Great Excitement AT THE San Bernardino Shops



THE officials and men of the Santa Fe Railway are very enthusiastic over the **Seabrook-Box Differential Railway Axle Coupler,** which is being applied to an 80,000 pound capacity oil car at the San Bernardino shops. The expression you hear among the men very frequently is, "SAVE YOUR MONEY AND BUY AXLE STOCK."

Mr. Seabrook, a prominent engineer of Los Angeles, has invented a Differential Railway Axle Coupler that promises to make more men rich than any other railroad device ever invented. Mr. Seabrook has had a very wide experience in railroad work, as he was General Manager a great many years for a company which employed from six hundred to one thousand men. Considerable of this work was in repairing and rebuilding locomotives and cars. He, therefore, realized the necessity of a Differential Axle for railroads.

Mr. Seabrook's device is the only device to which railroads of the world can look that will enable them to haul a much greater tonnage and reduce the expense of operation and maintenance.

An axle equipped with a Seabrook-Box Coupler is stronger by 50 per cent than a rigid axle.
It is pressed together in the same way that the wheels are pressed on the axle.
There are no bolts, screws, rivets or flanges employed in this axle coupler.
There are absolutely no loose parts to it excepting the journal movement, which is perfect.
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It does not in any way interfere with vested interests.
It is interchangeable.
It is more efficient in every way than the rigid axle.
It adds to the life of the axle at least 100 per cent.
It adds to the life of the rails on curves more than 75 per cent.
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It enables a locomotive to haul from 25 to 35 per cent greater tonnage without the expenditure of any additional fuel or labor.
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It does away with 75 per cent of the flange wear.
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A small investment in this stock today will net you enormous returns in dividends. The stock is now selling at One Dollar per share, but will be selling very shortly at Two Dollars. It is the consensus of opinion that this stock will be worth Forty Dollars per share in a very few years and should be worth Five Dollars one year from today.

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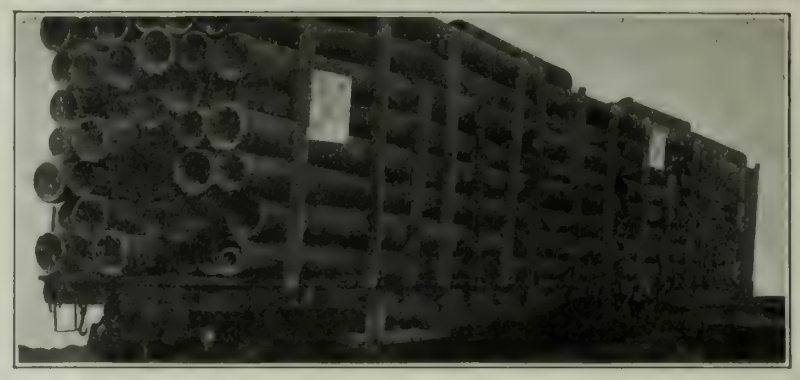
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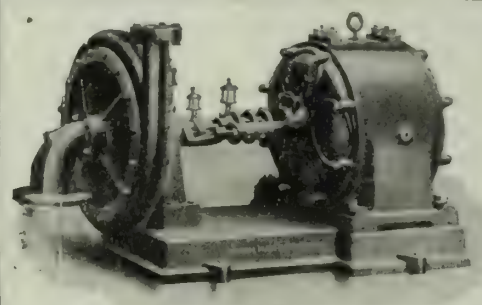
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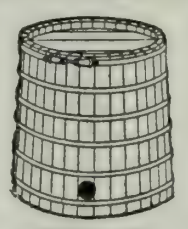
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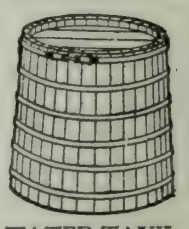
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 2. SAN FRANCISCO, SATURDAY, JANUARY 9, 1909. Thirty-ninth Year.

CALIFORNIA STATE

A Talk About I. H. Thomas.

Written for the PACIFIC RURAL PRESS
By CHAS. A. CHAS. A. CHAMBERS, of Fresno.

In the pioneer days of the San Joaquin valley of California, there was a nurseryman named I. H. Thomas with a world-wide reputation. To his intimates he was always known as "Uncle Dan"; to the people of the West he was referred to as the "Widow's Friend." He was given this latter title owing to the fact that at the end of every nursery season he gave away all his surplus nursery stock to the widows; in fact, any widow that applied to him, whether a "Merry Widow" or a seasoned one, she was welcome to any nursery stock left over from the season's sales. If whiskers make a man famous, old "Uncle Dan" would certainly claim his share of the fame, for he carried a "bunch of hair" under his chin that resembled a hair mattress without a ticking. The accompanying cut, showing Uncle Dan among his prune trees, does not bear out this statement that Mr. Thomas carried an extraordinary beard, for in later years he decided to reduce the amount of hair on his chin, hence the smaller set of whiskers which now adorn his face. When "Uncle Dan" was in his prime, however, I'll venture to say that his whiskers were so large and wavy that he could sneak up on a band of quail and use them as a blind, getting 40 feet nearer the quail than any other living man.

Mr. Thomas was a great advertiser, not from a newspaper standpoint, but from his personal make-up. He attended all fruit grower's and nurserymen's meetings and always made himself conspicuous from the fact that he always carried in the lapel of his coat a certain horticultural emblem. When sunflowers were "ripe" Thomas sported a sunflower of the largest type; when the orange season was on, he would substitute a small bunch of oranges of some dwarf species; anything just so it made an exaggerated bouquet. When attending the various horticultural meetings he drew attention to himself pretty much like a loadstone would attract a tack; in fact, he was the most popular man the West has ever seen.

Aside from being a heavy grower of nursery stock in the early days, Mr. Thomas introduced into the San Joaquin valley the famous "Prunus Simoni" plum, otherwise known as the Apricot plum. He created quite a sensation with this plum by shipping it to the English markets, where it found a ready sale. This plum is still heavily grown by orchardists, but later introductions in the plum line has made it take a back seat. The greatest drawback to the Prunus Simoni plum is that it carries such a pronounced flavor that it cannot be shipped in mixed cars of fruit. One box of these plums, if packed in a car with other fruit, will give the whole shipment the Prunus Simoni smell, and this is seriously objected to by receivers of mixed cars. This peculiar flavor is not objected to as a general thing by the consumers, but the distributors do not care to have their whole car of fruit with this plum flavor.

Among the other fruits and vegetables introduced by this individual was the "Bath Tub" squash. This squash carried a pumpkin pedigree, inasmuch as its "grandfather" was no doubt one of those large Texas pumpkins. At any rate this "Bath Tub" squash was so large when cut in two that it was big enough to make a bath tub of regulation size. Other fruits too numerous to mention were introduced and originated by Mr. Thomas, the most important of which was perhaps the "Harriott's Seedling" almond, a very fine sort commercially, and the tree is considered the most ornamental of all the almond family, making it a fine avenue tree as well as a profitable nut producer.



I. H. Thomas, of Tulare County, Among His French Prune Trees.

Again referring to this so-called "Bath Tub" squash introduced by him, Mr. Thomas claimed, it is said, that this squash was not only the largest vegetable of any kind produced from the soil, but it was also a valuable adjunct for draining soils. He claimed that by planting this pumpkin or squash between the rows of an orchard or vineyard where the land carried a surplus of water, such as is the case with sub-irrigated land, the pumpkin would absorb so much moisture from the soil that it did away to a certain extent with underground drainage. To demonstrate this theory, Mr. Thomas ran 200 of these pumpkins through a Missouri cider mill, with the result that he squeezed from this number of pumpkins 50,000 gallons of pumpkin juice. Whether pumpkins are soil drainers or not Mr. Fred W. Roeding, in charge of U. S. Department of Drainage on this coast will have to determine.

Mr. Thomas is a quaint character in every sense that the term implies. He is even to this date known all over the Pacific coast, not only as an expert horticulturist, but as a humorist and wag. He is always good natured and is continually cracking jokes.

To give the reader an idea of his funny side, I will relate a certain happening during his career. The late W. H. Mills of the Land Department of the Southern Pacific railway system was a great admirer of "Uncle Dan" Thomas. They were personal friends and, as is well known, during Mr. Mills' occupancy of the land office of the aforesaid railway system, Thomas was supplied at all times with an annual pass.

One day on changing clothes to make a trip to San Francisco Thomas neglected to change his wallet containing the pass into the new suit he had donned to make the trip. He did not discover this until he had started on his way, comfortably seated on the train. The conductor came through the coach after the general custom, calling on every one for their tickets, and when Thomas was approached it was then that "Uncle Dan" discovered that he had left his pass at home. Thomas explained the matter to the conductor, but the conductor demanded the pass or a ticket. Thomas had neither, and, what is more, he would not produce the cash fare. Several times the conductor retraced his steps to where Thomas was seated and demanded the fare, to no avail, Mr. Thomas making the statement that he would adjust the matter as soon as he got to San Francisco and saw Mills. This kind of talk would not be listened to by the conductor and Thomas was threatened with ejection at the first water tank. Little trivial matters of this kind never disturbed Ike Thomas materially. The conductor was perplexed at this stage of the proceedings and did not know exactly how to make this passenger "dig up" his passage money. Finally Thomas cocked up his legs and went peacefully to sleep. During his slumbers the conductor, with the aid of the brakeman, quietly removed the shoes off of Thomas' feet and put them in the train locker. Shortly thereafter Uncle Dan awoke to find his shoes missing. By making careful inquiry Thomas deduced the fact that the trainmen had removed the shoes from his feet and were holding them in lieu of his railroad fare. The conductor, in fact, told Daniel that he had pirated the shoes and unless he produced the fare he could not redeem

(*Continued On Page 38.*)

Pacific Rural Press

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FRANK HONEYWELL - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., January 5, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	3.14	15.67	17.93
Red Bluff	2.98	7.35	10.68
Sacramento	1.00	4.59	7.57
Mt. Tamalpais	1.06	9.13	9.04
San Francisco	.66	4.75	8.91
San Jose	.44	3.30	8.88
Fresno	.42	1.80	3 86
Independence	.00	1.80	3.82
San Luis Obispo	.80	4.64	6.64
Los Angeles	.00	4.09	5.63
San Diego	.00	2.25	3.41

The Week.

What do you think of our kind of weather prophet now? We are delighted with him; just see the results within a week—rain in all parts of the State, an old-fashioned California warm winter rain, apparently good to last a week or two, not coming in floods to wash away everything, but a long drizzle-drazzle, sending its water down gently to the foundation of agricultural things! That is the kind of rain which our prophet had in mind when he prophesied, and here it is. Readers of last week's paper will remember that he did not defy the elements with a bluff, as the rain-makers do. He simply said that since from respectable observation of things he could not see any reason why we should not have a good rainy season, it is rational to expect it. So we did expect it, and here it is, just moistening the land enough to continue plowing or to continue growing or to continue expecting, as it lies with each team or plant or man to do for the greatest accomplishment or comfort. We commend ourselves for our choice of a prophet. We go light on the prophet. It is quite human to esteem one's own selection rather than the agency selected; therefore we did it all ourselves because we knew how to pick out the right kind of a prophet. If old Ahab had had more sense in the selection of the right kind he might have left a better record.

The rainfall is considerably short of the normal in nearly all parts and our recollection is that years which have a light and late beginning do not make large seasonal totals. But the largest total is not the best thing in California. It generally means a winter of much idleness, of much land unsown, of much land submerged and often of large losses from high rivers and low levees, not to speak of the local losses from soil brimful of water for weeks together. It does not look like that kind of a winter, although, if we mistake not, there has occasionally been too much when there was no particular reason to expect it. The better years, however, are those not of excess but of moderate total and of even distribution, not overlooking just enough at the end of the season. That is the kind of a water supply which our prophet had in mind, no doubt, and that is what we are expecting.

The most appalling disaster of modern times is certainly the upward push of the ocean's floor near the island of Sicily which destroyed several Sicilian cities last week and cost the census of Italy something like 200,000 lives. The phenomenon is claimed by experts to be due to the fact that the earth is still rising out of the sea, and whenever there is a push-up there is a rush of waters over adjacent shores which brings ruin to seaboard cities and then flows back to distribute itself over the oceans to their most distant boundaries. The event in Sicily seems to be clearly in that line, for, like our California mishap of April, 1896, it was not accompanied by volcanic eruption or other explosive phenomena. It really seems that this "to solid earth" of the poet is really nothing of the kind and words are inadequate to expression of the human sadness and sympathy which its instability occasionally causes. The earth's people are, however, doing the best they can to manifest the sentiments which mundane kinship of all peoples demands. Possibly a quarter of a million lives have been lost; possibly a billion dollars' worth of property, the result of centuries of human sacrifice and self-denial, has been destroyed. All that now can be done is to send a few millions to save survivors from suffering, and this only act of sympathy and consolation is being shared by all nations. It is well, perhaps, not to be too sure of the earth or of what man is doing upon it; above all things is vainglory an offence to heaven in the face of such events. It will be a comfort to many Americans to know that the great fleet of warships circled the world just at the right time to lend a hand of help and comfort to the Italians in their extremity and that the great store-ships, laden to the gunwales with food supplies from our Atlantic ports to refresh our homing sailors, can sail at once to succor the starving refugees in southern Italy. It is gladsome to think that an excursion for display became in the end an errand of mercy.

The world is in fact somewhat low in spirits and the great calamity may preach resignation and fortitude. Things have been rather dark and dull everywhere; perhaps as a penalty for earlier excess and exultation. It is announced from Washington that the Bureau of Statistics shows that of the twenty-five principal countries of the world, whose foreign commerce the bureau records month by month, all but four show a falling off in exports and imports. Imports from Europe in ten months showed a decrease from $625,000,000 in ten months of 1907 to $436,000,000 in a similar period of 1908. Those from North America and Asia each show a decrease of $45,000,000 from the total of the corresponding period of last year, and those from South America a decrease of $25,000,000. Exports to Europe show a decrease of but 3 per cent, while those to North America show a decrease of 21 per cent. This shows that the old world has suffered most during the era of depression and gives measure of the misfortune which has come to European industries.

But these things are sad; a cloud with a silver lining is possibly the present condition of the sulphur question in California fruit curing. The growers are finding friends unexpectedly. At least two groups of doctors who have had more or less favorable experience in their family use of California cured fruits have undertaken to test the question of the wholesomeness of the fruits by accurate observation of effects upon themselves and groups of their associates who are willing to enter the test, so that we shall have a check upon the poison-squad results of which Dr. Wiley has made so much, but which California producers do not regard as at all conclusive because not conducted at all in the way that the cured fruit is eaten. A more rational test is that undertaken by Dr. A. J. Atkins of Sacramento in co-operation with Eastern physicians who have become interested in the issue. Dr. Atkins' position in the matter is described in his own words: "I believe firmly in the pure-food and drug law, and in the objects sought to be attained when it was enacted, and while I believe a mistake has been made at least in the matter of sulphured fruits, I shall keep my mind open until the clinical experiments have determined it, one way or the other." We believe the attitude of Dr. Atkins is that of all Californians, fruit producers and dealers included. They believe in the pure-food law and its enforcement, but they do not believe in enforcement based upon an arbitrary, individual conception of injuriousness, especially when that is reached by a wholly artificial and untrustworthy test. These carefully conducted experiments by qualified physicians are very timely and will do much to check the conclusions reached by the referee board which is approaching the question by a very different route. Current report from Washington is that Dr. Wiley has received an intimation that he is not a "bigger man than old Grant" and that he has no right to make declarations against products concerning which regulations are suspended until the results of the work of the referee board are known.

We hardly see what is the use of attempting to resuscitate the old Garden of Eden while California has one or more in each county, but there probably always will be restless people who will not let well enough alone. It is reported from Constantinople that Sir William Wilcocks has been engaged by the Turkish government to perfect his gigantic scheme for restoring the ancient Chaldean irrigation works on the Euphrates and Tigris, the traditional site of the Garden of Eden. He has made a number of trips through these valleys, and is convinced that the construction of irrigation works would be comparatively easy and inexpensive. If the ancient system of irrigation were restored, it is estimated that sufficient grain could be grown in the valley of the Euphrates alone to alter the conditions of the wheat supply of the world. Excavations made at various places along this river show that the ancient system of canals existed as long ago as 4000 B. C. This report unsettles a number of modern views, one being the claim that the world will soon have to be eating chemicals instead of bread. But you cannot make much of a Garden of Eden out of wheat fields, so that, as far as the plans have proceeded, the California style of the Garden, which is truer to the biblical descriptions, is not endangered.

The disposition of the surplus raisin product seems now assured on the basis of selling for what the market will bring, the price to be set by the growers according to the best judgment they can reach of the conditions. This is thoroughly rational and it was reached in Fresno on December 29 when 600 growers in mass-meeting unanimously voted to accept the contract drawn up between the selling committee of the raisin belt and all the packers of the valley. The contract allows

the united growers to set their own price on the goods, while the packing firms receive 2 cents a pound for packing, shipping and selling the goods. Signatures to the contract must be obtained in the next twenty days to the extent of 25,000 tons. Should the movement succeed the growers expect to realize a fair profit through a stable Eastern market. Desirable products will go readily enough if you can arrange that all distributors get them at the same price; this is really more important than what the price itself is, if it is reasonable.

The government is proceeding very energetically and enterprisingly in bringing its lands newly reclaimed by the Irrigation Act to the attention of those who can make farms of them. Mr. Thomas R. Means is the government engineer in charge and he is now negotiating with the Southern and Union Pacific roads, Denver & Rio Grande, the Burlington and Missouri Pacific to bring into Nevada next February and March 1000 farmers from the middle West in four or five excursion parties to inspect the new irrigation district and give them a chance to buy irrigated lands in lots not exceeding 160 acres.

The Truckee-Carson project represents $4,000,000 spent in the construction of dams, ditches and drains and by means of them 100,000 acres of land are now open to settlement. Some of the ditches have been operated for two years. During the season of 1906, 21,000 acres were cultivated and in 1907 practically 25,000 acres were cultivated. Today about 600 farms are awaiting settlement by bona fide purchasers. Another necessary thing to do is to show the Eastern people who may take these farms how to use water and what they can grow at a profit under the prevailing conditions. This is also within the plans of the Irrigation Service and has been for some time and is to be realized more fully in the future.

Doesn't this make you smile? A Los Angeles telegram states that an "official report" has been issued about the growing of thornless cactus which says: "The early fears expressed that the thornless varieties would revert to the old habits of growing thorns have been dispelled by this year's results, as the propagation is not from seed but from cuttings, which, according to all botanical law and history, rigidly conforms to the features of the parent plant." That is funny indeed. We have "expressed early fears" that it would not do to allow the cactus seedlings to grow because they might be thorny, and now the official report makes a virtue of what we held to be an objection, viz.: that the plant could not be allowed to take its own course. Let us live and learn.

Queries and Replies.

Cypress as a Border Ruffian.

To the Editor: A and B are adjoining neighbors. Their places are divided by a barbed-wire fence. B wants to plant a cypress hedge as a windbreak on his side of the fence. A objects to this, claiming the existence of a law, prohibiting the planting of cypress trees on a division fence. He states that the roots would take too much nourishment out of the ground on his side and in consequence his roses would not do well alongside the fence. Can you tell me what B can do under the circumstances?—Subscriber, Alameda county.

We do not know of any such law, but no one who cared to keep a cypress hedge would plant it on the division line. He would plant it within his property far enough to protect the trunks of the trees in their expected enlargement. The owner of the adjoining property has a right to cut off everything which extends beyond the perpendicular erected upon the property line and he has a right also to cut off all the roots which run under his land. That is, he has a right to excavate to this line (provided he does not cause his neighbor's property to fall into the hole), and in doing this, which is his right, he would be forced to cut off his neighbor's tree roots. There is no doubt that A is right, that he would have a hard time growing roses or anything else over the roots of cypress trees, but we are not aware that he has any legal rights in the matter except to remove everything which extends over or under the superficial area to which he holds title.

How About Eucalyptus Clearings?

To the Editor: I ask for information about the planting of eucalyptus, of which I understand there are many varieties. Our land is in Solano county, the land is level and cultivated, some 300 acres being mostly adobe. A party has made a proposition to us to plant 300 acres with eucalyptus, with an agreement to buy in a stated time. I would like to know which would be the proper sort to plant, providing that we consider the proposition favorably. Also what would be the effect on the land; that is, would the trees take out from the soil all its substance, rendering it useless for farming purposes after the trees were cut? We set out 1000 red gum plants last spring (to plant along the driveway); they have done very well; not lost one of them. We have a small number of blue gum trees in the corral, planted some years ago that have attained good size.—Owner, San Francisco.

Everybody is too busy getting eucalyptus trees into the ground to think much about getting them out again; and then, that may be a question for the next generation to answer.

If you can grow the blue gum successfully it is altogether the best eucalyptus to plant; not only on account of its more rapid and upright growth, but because the timber promises to be most in demand for various purposes. It seems to us that lands which are allowed to carry eucalyptus trees for a number of years should be permanently occupied in forest, because the second growth starts so readily and can, by thinning of shoots, furnish a continuous product and be brought finally to a second timber product quite as good as the first. We have no data for determining just what the effect upon the soil will be, but it may be doubtful whether the land can be cleared of eucalyptus stumps for less than its agricultural value, unless all our valley lands should greatly increase in price. This is, of course, merely a conjecture. Answering your question in another way, we know of no reason why land cleared of eucalyptus should not be as productive as land cleared of other trees, and what should be done with it twenty or thirty years hence would depend upon conditions then prevailing, in the price of land and the uses to which it can be profitably put.

Killing in Tree Holes.

To the Editor: Could you kindly inform us as to the best way of disinfecting soil from borers after trees have been taken. We want to be sure to have the soil pure before we set out the young trees, as we must set them in the same holes.—Subscriber, Los Gatos.

We do not see how there is any danger in carrying over borers in the dirt, for the grub starts from the egg deposited on the bark at the base of the tree by a clear-winged moth, and this moth emerges from a chrysalis which is formed near the entrance of the burrow which the grub makes to the surface of the wood for that purpose. Neither moth, egg nor grub has anything to do with the ground except by accident and could not live long probably in it. However, if you want to do some killing for general purposes, throw back nearly all the dirt removed in digging out the old tree, pour on two ounces of carbon bisulphide, such as is used in killing squirrels, cover with a little dirt. After a few hours the tree can be planted.

Manure for Adobe.

To the Editor: I have thirty acres of good prune land, with the exception of three acres of adobe. I can put upon this adobe a large quantity of old stable manure. Will that improve it so that it would be worth while to set prune trees in it the coming spring?—Southerner, Chico.

Yes. You can spread the manure at once and plow deeply when the ground is in good condition in February, turning well under the manure and green stuff which grows, up to that time. Then plant and follow with good summer cultivation. You can do this with your late and usually abundant spring rains, more safely than it could be done under other conditions and by working in manure or green stuff, or both, during the next few years you may be able to get the best trees on the spot of which the suitability now seems questionable to you—providing the place is not boggy from the too high ground water. In this case it will not be worth planting to trees without drainage.

Probably Too Much of a Luxury.

To the Editor: As I intend to fertilize my vineyard this winter with stable manure I should value your opinion as to how much to put on per acre. It will be fresh manure shipped from the city.—Beginner, San Francisco.

Mighty little to the acre. You do not say where your vineyard is, but we do not know of any vineyards near enough to San Francisco to pay for the freight on fresh stable manure. Ordinary fresh city stable manure may not even be worth what it costs to put it on board cars in the city freight yard, much less the freight and the hauling after reaching your station. Besides that, it may be so loaded with stable disinfectants that it cannot decay and is therefore even less valuable. You had better buy good commercial fertilizers if your land needs plant food, and get your humus from stable manure made on or near the land and from cover crops which you can grow in the winter in the vineyard.

Not Scale Insects.

To the Editor: Enclosed please find some twigs of Smith Cider apples. The bark looks as if infested with some kind of scale. I only notice it on the Smith Cider and White Winter Pearmain. What is the remedy? I spray every spring several times with Bordeaux mixture, but that don't seem to affect it.—Subscriber, Healdsburg.

The little pustules on the bark are not scale insects, nor insects of any kind, nor are they the usual corky excrescences. They are, however, physiological and not pathological and do not need treatment. Their appearance on some varieties and not on others simply indicates varietal susceptibility. We use a few big words to demonstrate our interest in Subscriber's problems. There is nothing on his twigs except what nature does to them.

The Best Silage.

To the Editor: Which of the two is considered the more valuable as feed for stock, when in the form of ensilage, alfalfa, or corn cut green? Is ensilage of any kind a profitable food for hogs?—Subscriber, Alameda County.

Corn cut when the ears are beginning to glaze, put through a silage cutter and evenly packed down in a good air tight silo, is the ideal of silage. Silage is not a generally accepted food for hogs, though some have favored it, especially if fed with dry grain feeds.

Horticulture.

GET READY FOR APPLE MILDEW.

Prof. R. E. Smith, the plant disease expert of the University Experiment Station, helps all who will be ready to fight apple mildew next spring by the publication of the facts in the case.

Apple mildew is one of our most serious apple troubles in California. It is caused by a fungus which seems to find conditions peculiarly to its liking here, since in most parts of the country it has almost no economic importance whatever. The mildew appears as a white powdery covering on the young leaves and blossoms just as they unfold. It develops abundantly on the new tips of the twigs as they come out, and when abundant kills them back to a serious extent. The growth of the tree is hindered and its bearing surface considerably reduced.

Spraying with both Bordeaux mixture and sulphur sprays has been carried out at various times and on different varieties of apples. We would suggest as the most promising treatment for this disease the use of the following spray, suggested in part by Buleltin 154 of the California Experiment Station:

Sulphide of Potash Stock Solution.—Granulated or powdered concentrated lye, 15 pounds; sulphur, 18 pounds; water to make 20 gallons. Stir the sulphur and lye together dry in a vessel which will allow plenty or room for boiling. When well mixed, add about one pint of water, placing it in a slight hollow in the mixture, and stir slowly. The mixture will soon begin to melt and boil, forming a red fluid; stir until the boiling ceases, and then add water to make 20 gallons. This stock solution will keep for a while, or indefinitely when protected from the air.

Preparation of the Spray Mixture.—Slake 20 pounds of fresh lime in water to make a smooth whitewash. Strain into the spray tank and add 25 pounds of sulbimed sulphur. The sulphur will not dissolve, but by vigorous stirring and agitation may be mixed with the water and brought into suspension. Add also 10 gallons of the potash-sulphur stock solution, and water to make 200 gallons. This mixture can be made for less than one cent per gallon at usual prices for materials.

Spray the trees with this material just as they are coming into leaf in the spring, and once or twice later, or at any time when the mildew is active. Arsenical poisons may be combined with this spray for worms. This sulphur spray should be particularly effective for mildews of all sorts on account of its double action. It kills by contact, destroying fungus spores by poisoning like Bordeaux mixture, and also has the gaseous effect of dry sulphur, since a large amount of the sulphur is simply in suspension and dry out on the tree in its original form. The lime is added to hold the sulphur to the twigs and leaves, and also to indicate plainly how thoroughly the spraying has been done. We recommend adding lime to every spray wherever possible without producing any undesirable effect, as there is nothing that will show up a poor job of spraying like a little whitewash in the spray. If the work is properly done every twig and every portion of it will show a uniform covering, while if the work has been slighted the contrast between the sprayed and unsprayed portions will be striking. A large part of our spraying fails because the twigs, leaves or whatever is being sprayed, are not completely covered with the mixture.

TO TACKLE THE THRIPS.

The Santa Clara county prune growers are in earnest about the thrips. A number of the foremost orchardists, bankers and business men of the county have formed a citizens' committee for the purpose of raising funds with which to control and, if possible, exterminate this pest. A petition asking the board of supervisors to appropriate $1500 to aid in the work is now being circulated through the country, and is being subscribed to almost unanimously. It is the plan of the committee to have this appropriation placed at the disposal of the local entomological bureau of the United States Department of Agriculture, to be used for chemicals, skilled labor and other necessary expenses of the bureau until a larger appropriation can be secured from Congress. It is believed that with this money promised, the Department of Agriculture will allow more expert entomologists than it otherwise would. The committee hopes to obtain an appropriation of $50,000 from Congress to carry on the fight against thrips.

PRUNING FIGS.

W. F. Toomey, the fig packer of Fresno, says that not one in a hundred of the growers prune their fig trees enough. He holds that fig trees need as much pruning as vines or any other plant, and should be pruned as conscientiously. This is certainly not done in the vast majority of cases. The result is inevitable. A great proportion of small goods, fit only for manufacturing, is produced. The percentage of one and two crown figs runs very high. The grower gets 1 and 1½c. for his figs. Why? Because of the large proportion of the one and two crown goods, which has to be put up in 50 pound boxes for $40 and $50, and has to be handled at a loss. The proportion of the small grades this season ran as high as 30% or a little more, of the entire crop. This proportion should not be more than 5 to 10%, and in case the right sort of pruning is done might be 2 to 3 per cent.

Citrus Fruits.

AN IMPORTANT POINT IN IRRIGATION.

Written for the PACIFIC RURAL PRESS
By THOMAS C. WALLACE.

At one of the course of winter evening meetings at the Riverside Y. M. C. A. recently Mr. James Mills, while discussing cover crops, spoke strongly of the defective irrigation of orchard soils which results in an excessive use of water. As I understand it, he holds that the water is commonly not distributed deeply, but that a few feet of depth is drenched to a state of practically flooding. In an overearnest endeavor to impress his view of the situation upon his hearers, Mr. Mills is reported to have ventured the assertion that nearly all the groves in one of the Riverside districts receive nearly double the water they need, and in consequence are defective.

This precipitated a warm discussion which has assumed a condition of war between the candid speaker and the grove owners in the district involved, and in which the daily press has taken sides. We refer to this phase of the matter in fairness to Mr. Mills, who has received severe editorial handling.

Without referring to any district or any particular groves, it is undoubtedly correct if the intention of Mr. Mills is to take the position that most groves are hurt by irrigation because the water is not sunk deeply into the soil, and that practically twice as much water as the soil can properly accommodate is crowded into the surface stratas.

Soils containing a percentage of clay or silt sufficient to give them character will not drain with sufficient rapidity to stand irrigation applied as in common practice. The result is that the surface foot or two (according to their density) becomes saturated, the air expelled, and even downward capillarity arrested. A further saturation of this condition practically puddles the soil, or in a sense sets it afloat, with the result that in drying a dense strata is formed within a few feet of the surface, so that each time the operation is repeated the condition is aggravated.

The harm resulting from such a condition is far reaching and takes different forms, but the main trouble arises from the driving off and exclusion of air from the surface rooting system of the trees. But where Mr. Mills may be in error is that he condemns the quantity of water used rather than the method of irrigation, for nothing short of an intimate acquaintance with the particular soil under irrigation warrants any of us in assuming the quantitative water requirements of a soil. The principle involved is that the evergreen plant needs air continuously at its surface roots, which in some soils are two feet deep, and the flooding of the soil so as to expel the air is harmful to the plant. A deciduous tree hybernates for several months each year, and during that period the exclusion of air from the roots is believed to be beneficial rather than harmful. The ideal method of irrigation would be to gradually apply water to the subsoil, stopping the flow when the loam had absorbed what it would naturally lift by capillarity. It does not seem possible to give figures which could be relied upon as valuable for the amount of water soils should have in a general sense, yet it is quite practical to fix the amount necessary to properly irrigate a given soil. There is nothing gained by over-irrigation intended to meet evaporation, which can only be controlled by cultivation and correct periods of water application. I have already referred to this in previous issues of the RURAL PRESS, but to emphasize this point and help growers to more correct methods of irrigation I shall take occasion at the earliest opportunity to lay before your readers the actual irrigation requirements of certain soils under my hand in actual practice.

Agricultural Science.

THE POSSIBILITIES OF PLANT IMPROVEMENT IN CALIFORNIA.

(*Continued From Page 5 of Last Issue*)

By Dr. G. W. Shaw of the University Experiment Station at the State Farmers' Institute on the University Farm at Davis.

The Financial Aspect.—The States to which these strains are adapted produce annually more than a half billion dollars' worth of crops. Ten per cent of these is $50,000,000 and the results already secured through the liberal support of the work by the legislature in these States give a basis for the hope that through its continuance these crops can still be made to produce more than ten per cent additional, and this can be brought about at a cost that is absurdly small as compared even with the increased values produced in a single year.

That the five or six billion dollars' worth of plant and animal products annually grown in the United States can be increased ten per cent by selection and breeding is not seriously doubted by those best able to judge. The addition of ten billion dollars' worth of products every twenty years by readjusting the hereditary tendencies of our crops and animals at a mere nominal cost is as important as the development of electrical methods and appliances, or as the perfection of systems of steel roads and public highways, or as our entire foreign commerce. If, as is believed, our plant and animal forces can have their heredity so improved that $5,000,000,000 is increased ten per cent at a cost for breeding of only $500,000, one dollar creating $1000, it is certainly a good business proposition to develop breeding projects rapidly and freely. The evidence shows that this proposition is every year developing into a form that cannot be ignored. Our country is destined to see breeding projects developed, as it has seen mechanical projects grow. Our plant and animal forces are fully as potent economic factors as our mechanical forces and are worthy of as serious efforts to develop them.

Cost of Conducting the Work.—Professor Willet M. Hays, Assistant Secretary of the United States Department of Agriculture, has the following to say as to the cost of conducting such work:

"The cost of all the work of wheat breeding in Minnesota to the date of the introduction was far below $25,000, counting every possible expense of land, labor, salaries, seeds and general expenses. The two new varieties, Minnesota No. 163 and Minnesota No. 169, surely will have covered a total of a million acres, including the present year, 1906. The evidence is conclusive that these wheats have increased the yield fifteen per cent, more than a million dollars. One dollar here has already produced forty, and these wheats, before they are replaced by better ones now being bred in the State or elsewhere, promise to add $25,000,000 to the crop of Minnesota and surrounding States, each dollar of original cost producing a thousand dollars. There is no better business enterprise on foot than this.

"The cost of all flax breeding by the Minnesota Experiment Station to date, counting all possible expenses, cannot be more than $5000. Primost

flax (Minnesota No. 25) was sown on at least 10,000 acres in 1906. Its increased yield is 26 per cent, or more than three dollars per acre. The first year it was introduced, 1905, it produced $5000 more value in flax on about 1500 acres than the common flax, beside which it grew. The second year, 1906, it covered 10,000 acres and increased the crop by 30,000 acres, if it spread to new farms only as rapidly as was Minnesota No. 169 wheat and should have increased the crop by $100,000."

If this variety were distributed so as to cover one-tenth of the flax acreage, which is mainly in Minnesota and the Dakotas, which it should easily do before it is overtaken by other varieties bred to yield still more, it would be adding a million dollars annually to the flax crop. If the seed stocks of this variety can be so handled as to retain their historical identity, it should easily produce $5,000,000 worth of additional flax in the next decade, again one dollar producing a thousand. Wheat and flax, however, are two crops in which it has been easiest to make important improvements. Most other crops are yielding more slowly to the breeder's art, though tobacco is an example of still more rapid results at even less relative cost.

If the use of $5000 annually will increase the crop by $500,000 annually, and the use of $50,000 annually will increase the crop by $5,000,000 annually, the latter is the better proposition. According to these figures, spending $50,000 gives a net profit of $4,950,000, the better proposition by $3,960,000. There is no reason why the figures here given do not present as clear a business proposition as any engineering or mechanical project by which a great railway system can materially increase its net earnings.

One Dollar Will Earn One Hundred Dollars.—California produces annually field crops which could be improved by breeding which are now worth $75,000,000, and the area is being annually increased. To increase this by breeding to $82,500,000 without other additional expense, it would pay to use $750,000. It will certainly not take $100,000, or say $100 for each dollar of the stated increase. The State is now spending probably $5000 in plant improvement.

The legislature of each State and the national Congress can easily verify these figures and can find similar financial results coming forward from plant breeding work by the numerous public agencies at work with our leading staple crops. The justification of the use of increased appropriations from Federal and State treasuries to build up the hereditary power of our animal and plant forms is rapidly developing into such concrete form that expenditure along this line is becoming a broad public question.

(Concluded in Our Next Issue.)

The Vineyard.

A RISE FROM A SANTA CRUZ MOUNTAIN GRAPE GROWER.

To the Editor: In a late issue I note under head of "Horticulture" this statement—that a Lodi car had been sold in the East for $2000 gross and it was the highest price paid for a car of grapes this year.

Now I want you to correct that statement something like this: The Earl Fruit Co. car from Wright's was sold in Boston, October 30, 1908, for $2113 gross, the largest sum reported this year.

The carrying and selling qualities of the Santa Cruz mountain grapes has been proved by returns to growers to be about $1 net after deducting freight and commisison, which amount is not exceeded probably this year.

In support of this statement I submit telegraphic reports of one car sold in Boston and one in New York as exhibits of the selling and keeping quality of our mountain grapes.

I have been sending grapes East for nearly 30 years and a dollar net has been received by me this year and as a rule in past years.

If Lodi grapes this year had the carrying and selling quality of the Santa Cruz mountain grapes the million or so of crates would have returned to growers a cool million dollars. Warm, sunny slopes are the home of the grape where the fruit grows and ripens firmly and sweet and when sent East will arrive there for sale in substantially as good condition as when picked from vines.

The Lodi grape grown on rich level bottom land is large, thin skinned and watery and will not keep for successful Eastern marketing. The truth is that orchards and vineyards in this State are frequently planted upon lands and under climatic conditions that are unsuitable for their successful and profitable growth. W. H. Aiken.

Wrights, Santa Cruz county.

[Judge Aiken sends us the documents, which of course justify his statements of fact on the sales of the grapes from his locality. The judge is strong on facts. His conclusions as to the relative value of hill and valley lands for grapes are open to controversy perhaps. There are other things which might be said about mountain grape growing—but this isn't our fight. Let those who feel aggrieved take it up.—Editor.]

PRIMARY EDUCATION OF VINES.

Written for the Pacific Rural Press
By F. T. Bioletti.

In the training of vines, as of men, "well begun is half done." Mistakes made in infancy can never be completely remedied, and attempts at remedy often make worse faults.

If we allow our vine to grow crooked, the attempt to straighten it may destroy it. If we allow several stems to grow where only one should be, the cutting off of some of these stems will entail large wounds which may afford entrance to destructive wood-rot fungi. If we allow our vine to branch out too low or too high the attempt to cure this defect may have the same result. If we neglect the underground suckers during the first four years we will be troubles by suckers as long as the vine lives.



Well Trained Young Vines in the Lodi District.

During the first year the main object of the vineyardist should be to get a perfect stand of strong vines. This is to be obtained by careful cutting or root selection, proper preparation of the ground and thorough cultivation. At the beginning of the second year—that is, nine to eleven months after planting—the vines should be pruned. The strong, healthy vines which have heavy growth should be reduced to one cane, which should be cut off twelve to eighteen inches from the ground. The shorter canes are for small growing vines, like Zinfandel, the longer for larger varieties, like Flame Tokay. Any vine which has not made the required length of strong, healthy cane with perfect buds should be reduced to two buds. Exceptionally strong vines which have produced lateral growth from the main cane may be allowed two or three side laterals cut back to one bud. No laterals should be left in any case nearer than six inches from the ground and the nearer the top the better.

The vines should now be staked, the stake being placed to the leeward of the vine. A stake 30 to 36 inches long and 1 to 1¼ inches in diameter is sufficient. This should not cost on the average more than $10 per acre, including labor. The stake is simply to keep the vine upright for two or three years until it can support itself.

Every vine on which a cane has been left should now be tied up carefully and firmly; a tie being placed above the top bud and another about the middle of the cane. A half-hitch should be made around the cane with the top tie, but not with the other, for fear of strangling the vine when it grows. When the vine starts in the spring all suckers from below the surface of the ground and all shoots within six inches of the ground should be removed before the strength of the vine has been expended on them. This will insure a strong growth from the top buds which will produce the shoots which are to become the main arms of the vine. These shoots should usually be pinched or topped when they have grown about eighteen inches to prevent their being broken off by the wind. The shoots from the vines cut back to two buds should be thinned early in the spring to one or at most two and those shoots tied loosely to the stake. If these shoots grow vigorously they should be topped and thus forced to throw out laterals. These laterals at the following winter pruning may be pruned back to one or two buds and will form the final main arms of the vine.

Vines treated in this way, if nothing such as drought or grasshoppers has interfered with their growth, will, at the end of the second year, be supplied with a straight trunk of twelve to eighteen inches and two to four short spurs or rudiamentary arms. Such vines at the end of the third year should produce a crop sufficient to pay for the year's cultivation.

That this result is not more commonly obtained is due in many cases to errors of treatment during the first three years. The most common errors are the following:

1. Failure to prune at the end of the first season.
2. Failure to stake the second year.
3. Allowing the vine to fork near the ground.
4. Leaving more than one main stem.
5. Starting the vines the second year from a weak cane.
6. Starting with a short cane.
7. Neglect of suckering.
8. Neglect of those practices which have for their object the diversion of all the energies of the plant into those parts which are to form the final framework of the mature vine.

IRRIGATION IN HAWAII.

Word comes from Honolulu that Mr. F. H. Newell, director of the reclamation service of the United States, is now on the Island of Kauai, after having made very complete reconnoissance of the islands of Oahu, Maui, Hawaii and Molokai to determine the possibilities of reclamation projects on these islands. He says that each of these islands presents opportunities for reclamation projects which will add greatly to the development of the islands. Hawaii, he thinks, offers opportunity for many people to engage in agriculture in a climate unexcelled and under conditions of health and comfort almost unexcelled.

SIX of the Most Valuable New Fruits

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"IMPROVED FRENCH" PRUNE. Originated by Luther Burbank.

"CONCORD" WALNUT. French variety. Grafted trees only. Better than Franquette or Mayette.

"PAUL" CHERRY. Finest black cherry.

"PHILIPPI" GRAPE. Handsomer than Tokay; a month earlier. Disinfected cuttings only for sale; to comply with quarantine regulations.

All these, like Muir, Lovell, and Phillips Cling peaches, are of California origin.

"COMET" RED CURRANT. Much larger, earlier and sweeter than any other.

"MAY-DUKE" GOOSEBERRY. Earliest of all; large, smooth skin.

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EUCALYPTUS TREES,

by the 1000 or 100,000; no stronger stock; grown in the open, without lath screen or shade; therefore hardened to all weather.

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Shipments made promptly.

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The celebrated Crocker Bartlett Pear, guaranteed immune from blight.

Golden Rule Summer Apple, dormant buds.

Crocker's New Free Peach, 50 cents each; 5,000 left.

Deciduous Trees and Grape Vines.

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We have a large lot of EUCALYPTUS, CYPRESS, PINE TREES, transplanted in flats; also a large variety of ORNAMENTAL TREES AND SHRUBBERY, EVERGREEN AND DECIDUOUS, most suitable for planting along streets and sidewalks and for beautifying parks and gardens.

Also PALMS, DRACENA, ROSES, ERICAS, CAMELLIAS, AZALEAS, RHODODENDRON, FRUIT TREES and BERRY BUSHES.

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All kinds of small fruit and berry plants,

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The Rhubarb and Berry Specialist Dept. I.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J. St., Sacramento, Cal. Send for catalogue.

AGRICULTURAL REVIEW.

HORTICULTURE.

A fruit cannery, capitalized at $50,000, is to be built at Hemet, in southern California, this year.

A local company of Porterville will set out a 320-acre orange grove at Ducor, Tulare county, this season.

The King's county statistician has figured out the production of dried fruits last year as 15,523 tons, valued at $974,122.

The Davis Almond Growers' Association has marketed the 1908 crop of its members, which amounted to 322 tons, at an average price of 9⅞ cents per pound.

A grower from near Reedley found a way to dispose of his raisins. He shipped a car to Dakota and sold them there in small lots, netting four cents per pound.

Local nurseries in the Santa Clara valley report a heavy demand for prune trees; also that peaches and apricots are selling well. Walnuts are receiving more attention than ever before.

Several Watsonville growers have just gotten returns from a carload of apples sent to New York to be sold from the retail stores in competition with Eastern fruit. They received 60 cents per box net.

A farmers' institute is to be held seven miles southwest of Yuba City, on January 14. Profs. Bioletti and Clark of the State University are to present the subjects of grape culture, deciduous fruits and poultry raising.

Notwithstanding a short crop this season, the shipments of pickled olives from California will be heavier than ever before. Last year there were sent from the State 30,000 cases and this season the shipments are figured at 35,000 cases.

At the two meetings of raisin growers forming the pool, held at Fresno and Hanford last week, the Gartenlaub seeding contract was adapted. This gives the pool the control of the packing houses in the raisin district for the season. As the preliminary work is now done, the selling committee will devote its energy to disposing of the 20,000 odd tons of raisins in the pool. An effort is now being made to increase the pool holdings to 25,000 tons, thereby controlling the situation.

AGRICULTURE.

A number of hop sales are reported being made in Sonoma county, with prices ranging from 5 to 6 cents per pound.

Kansas now leads all other States in the Union in the production of winter wheat. Last year it raised $68,800,000 worth on 6,108,000 acres of land.

Last year Puget Sound ports, including Seattle and Tacoma, increased their wheat exports till they are now second only to New York are shipping centers for this cereal.

The farmers of Yolo county have al ready more land seeded to grain this sea son than was planted altogether last year. The outlook for a good grain crop is excellent.

Exports of wheat from the United States during 1908 increased 26,000,000 bushels over 1907. Corn exports decreased 32,000,000 bushels last year from the one previous.

LIVE STOCK.

Oregon produced over $5,000,000 worth of poultry and eggs during 1908.

A new milk ordinance was before the city council of Yuba City Monday night for second reading.

A press dispatch states that hundreds of cattle have died from starvation on the range in Antelope valley.

Five carloads of beef cattle from Nevada were brought to Suisun last week

MILL TO MAN

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Orange and Lemon.

Nursery Stock and Alfalfa.

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Ask your dealer, or address:

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100 Acres.

The Sims Cling Peach

IS THE PEACH TO PLANT.
WE HAVE THE TREES.

Griffin & Skelly Company,
16 California Street.
San Francisco, Calif., Oct. 6, 1908.

Mr. Geo. C. Roeding, President Fancher Creek Nurseries, Fresno, Cal.—

Dear Sir: Regarding the Sims Cling Peaches, samples of which were delivered to our cannery at Fresno:

We packed these samples, and are most favorably impressed with them. We find the peaches to be of fine texture, rich color and particularly fine flavor, and the best late Cling Peaches we have ever had in our cannery. They seem to ripen between the Orange Cling Peaches and the Phillips, and there has been an urgent demand for Clings that would come in just at that time, as it would enable canners to materially increase their output of Cling Peaches, and we shall welcome the day when a sufficient quantity of these peaches is available for canning purposes. If we were planting today, we should certainly put out a considerable quantity of these Clings.

Yours truly,
GRIFFIN & SKELLY CO.

Every Fruit Grower

Should have a copy of the following books:

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ILLUSTRATED IN COLORS.
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CALIFORNIA HORTICULTURE.
THE FRUIT GROWER'S GUIDE.
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Geo. C. Roeding Pres. & Mgr.
Box 18 Fresno, California, U.S.A.

for winter feeding by A. Callan of Suisun, Phil Steffan of Vallejo and Emery Fraser of Rio Vista.

Walter Beard of Modesto lost 120 sheep recently from bloat. The sheep were being pastured on alfalfa near Woodland.

The Oregon sheep men have set aside this month to exterminate coyotes. Poison and gun are the means used to control their greatest pest.

The government inspector has been confiscating butter made by the Reno, Nev., dairies and creameries that contained over 16 per cent moisture.

Hawaii is trying out various kinds of grasses for hogs, that they may save themselves the expense of importing nearly $188,000 worth annually from the main land.

A new disease has broken out among horses near Iron canyon, Tehama county. Horses in good condition are affected in the region of the kidneys and later get down and are unable to rise again.

A 140-acre ranch near San Bernardino was sold to a wealthy man last week for $25,000. The new owner announces that he will enclose the place with mesh wire and devote it to the raising of fancy fowls, deer and other animals.

The work of building the new creamery at Merced has progressed far enough to announce that butter-making will commence within thirty days. It is announced that several new dairy herds are being gathered there to produce milk for the creamery.

At the close of the beekeepers' institute held at Monterey last week a bee association was formed. The association will cover Monterey, San Benito, Santa Cruz, Santa Clara, Contra Costa and Alameda counties. In this territory there are nearly 300 bee men who have about 12,000 colonies of bees.

The Howard-Glide sale of Short-horn cattle, held at the Chase pavilion in San Francisco last Tuesday, was quite successful. The sale called together the most representative class of stockmen of any held for many years. The heifers sold fairly well and the bulls brought good prices. Under the direction of the auctioneer, George P. Bellows of Missouri, the bidding was lively and the sale as an innovation was a success. We will give a full account of the transfers in our next weeks' issue.

MISCELLANEOUS.

It is announced that George West & Son of Lodi will build a big winery at Turlock. This firm already has ten wineries.

A couple of men are figuring on putting in a pickling plant at Modesto, which will handle cucumbers, onions, tomatoes, etc.

A colony of French-Canadians are reported to be about ready to start for Sutter county to settle in the Sunset colony.

Seven hundred acres of land in Stanislaus county has recently been purchased by San Francisco parties which will be planted to eucalyptus.

A. Humphreys of San Francisco is reported to have recently purchased 1000 acres of land near Orland and will plant half of the tract to eucalyptus.

San Joaquin and Contra Costa land owners are endeavoring to have a big canal dug, two and a half miles long, which will drain the waters from Franks, Bethel and Jersey island tracts.

George M. Cooley will plant out the east end of Little mountain, near San Bernardino, with eucalyptus rostrata this year. Besides being a good windbrake the trees will make fine hardwood timber.

The California Development Co. recently let a contract for the construction of an eight-mile canal for irrigation purposes, to run from Packard station, in the Imperial valley, toward the international line.

The supervisors of Sacramento county last week granted the petition for the organization of a big reclamation district, comprising 55,000 acres of land in the American and Sutter tule basin. This is one of the largest reclamation projects ever undertaken in the West.

During the past year there was imported into the United States $516,000,000 worth of tropical and sub-tropical products. Of the various items in the list, sugar was the largest, being valued at $133,000,000. Coffee was sent to us to the value of $68,000,000. Cocoa amounted to $14,000,000. Tobacco is another large item, amounting to $32,000,000. The item of cotton alone was valued at $14,500,000, which came chiefly from Egypt. Bananas to the value of $11,500,000 were shipped in, and of lemons $4,333,000 worth were received.

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Complete Line of Citrus and Deciduous TREES,

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Write for PRICES NOW.
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Box 272.

CHOICE WINTER PEARMAIN APPLES.
50 lb. box, 4 tier, $1.00; 4½ tier, 75c.
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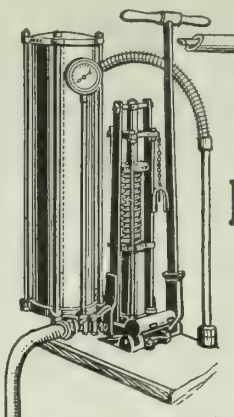
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Bean Magic Spray Pumps

Effective spraying means **High Pressure Spraying** and till the advent of the Bean Magics a high pressure could not be maintained with a hand pump for any length of time, on account of the body-racking effort needed to operate it. The Bean patent spring divides the work between the two strokes of the handle and works against only one-half the pressure shown on the gauge and saves exactly one-third the labor.

Our illustrated catalog No. 21 describes ten sizes of hand pumps, and contains much valuable spray information, and formulas. Catalog No. 22 describes Power Sprayers. Both books sent free. Write for our special offer; state number of acres and kind of fruit.

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WHICH SPRAY PUMP

shall you buy? Buy the Pump that fully meets the demands of the Government Agricultural Scientists and all Practical Fruit Growers. These pumps are known as **Deming Sprayers** made in 23 styles for use in gardens or orchards. Write for our 1909 Catalog with Spraying Chart. Add 4 cents postage and get "Spraying for Profit," a useful guide book.

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1000 Cuttings of Prarie Belle Wild Rose
1000 Cuttings of Minetta Wild Rose

Address, J. S. WHITE, Jr.,
Holtville, Imperial Co., Cal.

The Irrigator.

HINTS ON IRRIGATION.

"Don't irrigate too much. Over saturation checks the growth of plants and trees by lowering the soil temperature and at the same time completely shuts out the air. This practice takes money out of the grower's pocket. Roots, like human beings or anything that breathes, must have air for life and growth. The water-holding capacity of soils runs from 40 to 60 per cent of the total solid volume, and 45 per cent of the whole is about as much water as should be put on the soil at any time. The best results from the application of moisture on ordinary crops have been obtained by using 25 per cent of the water-holding capacity of the soil at planting, decreasing gradually to 15 per cent, remaining at that point until the leaves are formed, then increasing quickly to 40 per cent and allowing the water to fall rapidly to from 12½ to 15 per cent, and remain there during the fruiting and maturing period."

H. L. McIntyre, C. E., of Spokane, an authority on irrigation subjects, emphasized the foregoing points in his paper on "Practical Irrigation," read before the Washington Horticultural Association at its annual meeting in Spokane, December 8 to 12. He indicated that practical irrigation is scientific in form and covers a broad field in its many phases, and urged irrigationists to study dry farming methods, as well as read irrigation and farm journals, declaring that the first requisite to be a successful irrigator is to be a first-class dry farmer, adding: "If you can't dry farm, you can't irrigate." Mr. McIntyre said it is the practical side of irrigation that appeals to the farmer and orchardist and fruit grower. They want to know how much water to use, when to apply it and how. To know these things the grower must first ascertain certain facts regarding the land before he is ready to irrigate practically and intelligently. The speaker grouped them as follows:

First. The depth of soil.

Second. The relative position of top subsoil.

Third. Slope of surface for drainage purposes.

Fourth. Slope and characteristic of subsoil for under-drainage.

Fifth. The percentage of moisture the soil holds stored in its present condition.

Sixth. The water-holding capacity or amount of water the soil contains when in a state of complete saturation.

Seventh. The degree of fineness or grain of the soil.

"With these questions solved," Mr. McIntyre said, "the grower is ready to irrigate with some degree of certainty as to what the result will be; without the facts the grower occupies the position of the head of a mercantile house without his books and statements and invoices. To ascertain these facts is not a complex process, as you can see:

"First. The way to ascertain the depth of the soil would be to bore augur holes at short intervals over your tract of land. Bore one foot in depth at a time, pull the auger, save the soil and put it in a glass jar and seal it up to prevent the moisture from evaporating. Bore the second and third foot, and on down to the subsoil in like manner until you have a sample of each foot of soil.

"Second. The relative position of top and bottom soil you have ascertained by boring holes in the first instance.

"Third. If the surface slope is too level to determine by the eye, employ a surveyor to run levels over the ground and furnish you a map showing the elevations in one foot contours, or in squares of 100 feet. This will always be extremely useful to any one in the distribution of water for irrigation.

"Fourth. Knowing the depth of your subsoil at all points and the surface slope, the relative slope of the two is apparent.

"Fifth. To ascertain the percentage of moisture the soil holds stored in its present condition, take the samples of soil you have in the sealed glass jars from your borings. Weigh each sample separately, not the part of the field from which it was taken, then dry each sample perfectly and weigh again. The difference is the amount of moisture in the soil, from which you ascertain the percentage of moisture in each foot of soil from the subsoil to the top.

"Sixth. The water-holding capacity of the soil may be determined by taking a box one foot square and one foot high with a fine screen for the bottom. The capacity of the box will be one cubic foot. Fill the box with soil, pour water on it with a sprinkler until the water drips off at the bottom through the screen. As soon as the dripping stops, weigh the box and contents. Then dry the earth and weigh again. The difference between the two weights gives you the amount of water the soil will hold in its water-holding capacity.

"The soil is a sponge and you can only fill the voids with water. Having learned all the conditions, you know how much water it will require to bring about a certain percentage of moisture in the land you wish to irrigate. You know how it drains, whether it leaches down or runs off in the subsoil. You can ascertain at any time whether your percentage of moisture is too low or too high; also how deep you can store water in the soil, and know how much it takes to wet it one foot down.

"Seventh. When you begin to experiment you will find that the saturating capacity of soils, even in the same field, vary greatly. When the soil is so full of water that the air is shut off, no new roots are formed, and no new water is taken up, and as a result the growth suffers. The soil requires air and sun as well as moisture.

"Shallow soils with gravel or open subsoil leach the moisture rapidly and there is less danger of over-saturation, but the continual pouring of water through such soil will often carry away the fertilizing elements which are in solution and soon deplete the soil. Find out how much water your soil will hold in suspension and irrigate accordingly. The soil is a chemical laboratory and you are the chemist. The soil must have moisture, air and the heat of the sun to keep the chemical action at work making plant food. When you have too much water in the soil there is no air, hence no chemical action. With too much air there is no moisture and no chemical action. With proper moisture and cultivation the chemical action is complete, the capillary attraction bringing up the moisture from the lower levels to the top mulch. Here the sun and the air manufacture the fertilizing elements and the next rain or irrigation washes them down to be taken up by the roots. The process repeats itself without end, so long as we water and cultivate properly.

"Cultivation is more important than irrigation, and in the arid regions one is of little use without the other. Don't overlook the fact that a weed is a pump, and that it draws water out of the soil at a rapid rate. Of course it is difficult to control exactly the amount of moisture, but a great deal can be done in this direction and will amply repay any one who will take the trouble to apply his water to crops scientifically.

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Apiculture.

CONVENTION N. C. B. K. ASSOCIATION.

Written for the PACIFIC RURAL PRESS By MR. RALPH BENTON of the University of California.

On December 21 and 22 the Northern California Beekeepers' Association had its third annual meeting at Pioneer Hall, Sacramento. The attendance was not large, but great interest was manifested in the topics discussed, and all took part. The first afternoon was taken up with the usual reports and preliminary business of the Association. This was followed by an exhaustive discussion of the marketing of honey. This is one of the real problems of the honey producer. California annually produces much more honey than can possibly be consumed, and how to effectively get this product into the Eastern market was the kernel around which the discussion centered. It was generally conceded that the beekeepers, not only of northern California or of any one locality should organize for co-operative marketing, but that a honey exchange, embracing the whole State, should if possible be formed. The matter was again taken up the next afternoon, and it was decided to take steps looking toward some form of affiliation with the State Beekeepers' Association, with a view to establishing a better system of co-operation among the beekeepers of the State. It was further decided that for the present, until a better system of co-operation could be effected, the members of the Association would attempt individually to market their honey, rather than to hold it longer in an effort to market the crop as an Association. This arrangement is wholly a temporary one, and it is to be hoped that soon a more decided step than ever before can be taken in the matter of co-operative marketing for another year.

The next forenoon was given over to a report of what the University of California is doing for apiculture and a presentation and discussion of the bee disease situation in California. The matter of a better system of inspection comes close home to northern California, where there never has been much of a concerted action in the matter of checking or eradicating the diseases common to bees. There has been in the past much laxity, in view of the fact that the variation of foul brood occurring is not generally believed to be as virulent as the form found in southern California. This theory has become in many instances a serious menace to the industry, and much loss has been occasioned through this laconic passivity. Sacramento county has had some form of inspection for some time, but none of the adjoining counties has made it a community matter to have inspectors of apiaries, and so the results of inspection work in Sacramento county have been most disheartening. This serious status of affairs is greatly enhanced by the constant moving in of bees that takes place from Nevada, where no system of inspection is provided. These diseased bees come in by the carload, and are a constant source of reinfection of those California apiaries that do succeed in getting cleaned up and free from foul brood. As a result of the present imperfect and incomplete system of inspection obtaining in California, and the interest aroused in the matter of bee diseases at the convention, a committee was appointed to draft and present resolutions, and in the afternoon of the same day the following resolution was adopted:

Resolved, That we recommend to the Legislature and heartily endorse the passage of a bill providing for the conduct of

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investigations in the diseases and other enemies of bees; for the inspection of bees passing into the State and from one county into another county within the State; for the inspection of bees in those counties without local inspectors, since these counties become a constant menace to adjoining counties as sources of constant reinfection; and for the State supervision of the inspection work now being done by local county inspectors, to the end that a better system of co-operation be arrived at among inspectors in their work, and that they be afforded expert assistance in making bacteriological determinations of suspected cases of disease. That to inaugurate and support this work we recommend that there be made an annual appropriation of $2500, to be placed at the disposal of the apiculturist or that person in charge of apiculture at the State Agricultural Experiment Station.

Provided, That an apiarian pathologist be appointed to conduct the hereinbefore mentioned investigations, with such other assistance as may be deemed necessary, and, further, that the apiarian pathologist of the State Agricultural Experiment Station, appointed in the usual channels, be vested as State supervising inspector of apiaries, with authority similar to the authority vested in county inspectors of apiaries, and that his territory be made co-extensive with the State, and that he be empowered at any time to deputize inspectors for such a time and to the number he may see fit.

It was further resolved that copies of the resolution passed be circulated in the counties of northern and central California, with a view to obtaining the signatures of beekeepers favoring the measure; that copies be forwarded to the State Beekeepers' Association meeting in southern California; and that the copies when circulated and signed should be transmitted to the proper legislative committee having the bill in charge. Provisions were made for carrying on the compaign.

In the election of officers, vice-presidents were elected from each of the bee keeping counties of northern California with a view to strengthening the bee disease campaign and other interests of the Association by having a strong representative at work in each county.

The new catalogue of the Wisconsin Incubator Co., Racine, Wis., is a very fine book giving valuable information on incubators and brooders. This catalogue should be in the hands of every one interested in incubators and brooders, as it tells how they are made, and at what price they can be made and sold for. It also gives good illustrations and instructive views, showing their construction. Mr. Thomas Collier, manager of the Wisconsin Incubator Co., will be glad to mail their catalogue if you will write them for one.

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LURES AND POISON FOR COYOTES.

We judge that coyotes are becoming pretty thick in California and probably the fact will be pressed upon the attention of the legislature which is to assemble next week. We hear of the pests and the losses they occasion in many localities and had a realizing sense of their abundance when we saw from a car window last month, a bunch of three trotting slowly across a field near the track. This was in a closely settled part of the State. When coyotes get used to railway trains there are evidently too many of them.

Mr. Vernon Bailey of the U. S. Department of Agriculture prepares a statement which may be helpful to those who are disposed to reduce the coyote supply. He says:

Success in trapping depends largely on the use of scent that will attract wolves and coyotes to the traps and keep them tramping and pawing there until caught. Meat bait alone is of little use and often scares the animals away. Of the many scents and combinations tested the fetid bait has proved most successful. Place half a pound of raw beef or venison in a wide-mouthed bottle and let it stand in a warm place, but not in the sun, for two to six weeks or until it is thoroughly decayed and the odor has become as offensive as possible.

When decomposition has reached the proper stage, add a quart of sperm oil or any liquid animal oil. Lard oil may be used, but prairie-dog oil is better. Then add one ounce of pulverized asafetida and one ounce of tincture of Siberian musk or Tonquin musk. If this cannot be procured, use in its place one ounce of dry, pulverized castoreum or beaver castor or one ounce of the common musk sold for perfumery. Mix well and bottle securely until used. After setting the trap, apply the scent with a stick or straw or by pouring from the bottle to the grass, weeds or ground on the side of the trap opposite that from which the wolf would naturally approach. Never put scent on the trap, as the first impulse of the wolf after sniffing the scent is to roll on it. This bait is very attractive also to cattle and horses, which are sure to tramp over and paw out the traps if set where they can be reached.

Poisons.—No poison has yet proved so effective as pure sulphate of strychnine, provided the proper dose is used. The most effective dose is four grains for wolves and two grains for coyotes. The common three-grain gelatin capsules sold by druggists will hold four grains of strychnine and are better than the larger capsules. The regular two-grain capsules should be used for coyotes. The capsules should be filled, securely capped and every trace of the intensely bitter drug wiped from the outside. Each capsule should be inserted in a piece of beef suet the size of a walnut and the cavity securely closed to keep out moisture. Lean meat should not be used, as the juice soon dissolves the gelatin of the capsule.

The necessary number of poisoned baits may be prepared and carried in a tin can or pail. They should never be handled except with gloved hands or forceps. The baits may be dropped from horseback along a scented drag line made by dragging an old bone or piece of hide well saturated with the fetid scent or they may be placed around or partly under any carcass on which the wolves or coyotes are feeding or along trails which they are in the habit of following. Gelatin capsules quickly dissolve in the juices of the stomach. Strychnine taken on an empty stomach sometimes kills in a very few minutes, but on a full stomach its action is much slower and the animal may have time to travel a considerable distance.

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These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

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Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

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THE STORY OF A CLOUDBURST.

In the upper reaches of San Emigdio canyon, Kern county, California, cloudbursts have at many places stripped the mountain slopes bare of their forest cover and swept great trees and masses of rock many miles from their source. Just where the creek breaks from the hills is the hacienda of San Emigdio rancho, and the superintendent of the rancho, J. S. Douglas, who has had ample opportunity to observe the cloudbursts, gave the following description to H. R. Johnson, of the United States Geological Survey, who has in preparation a report on the geology of the San Joaquin valley. Mr. Douglas says:

"The cloudburst issued from Cloudburst canyon into San Emigdio canyon about eight miles above this ranch house. I had been expecting the occurrence, as the premonitory signs had been very pronounced for two or three days previously, viz.: immense masses of white snowy clouds in the forenoons, changing in color to inky blackness in the afternoons, with the accompaniment of thunder. The weather was sultry, with occasional gusts of cool wind rushing down the canyon, an unusual occurrence during the day in summer time.

"Some time before it made its appearance, probably fifteen minutes, its dull and heavy roar could be heard from up the canyon, quite distinct from and rising above all the other noises of the storm, and reminding me of breakers against a rocky shore. As it issued from the narrow mouth of Cloudburst canyon into the comparatively broad one of San Emigdio it was accompanied by a cloud of dust occasioned by the breaking up of huge masses of dry soil torn from projecting points in its rush down the canyon.

"Through the dust glimpses would be had of great piles of drift, with an occasional tree turned end over end by the moving mass behind.

"After reaching the main canyon it spread to a widtn of probably 200 yards, and after descending about one-half mile came to a full stop, only to be succeeded in a few moments by another wave larger and swifter than the first. There was no dust about this or any of the succeeding waves, but immense masses of rock, many of which must have weighed several tons, were apparently dancing along, light as corks, on the surface, being supported by the rocky mass beneath.

"This wave extended about one-half mile farther down the canyon than the first, when it also came to a stop, having spread to the full width of the canyon (about one-fourth mile here).

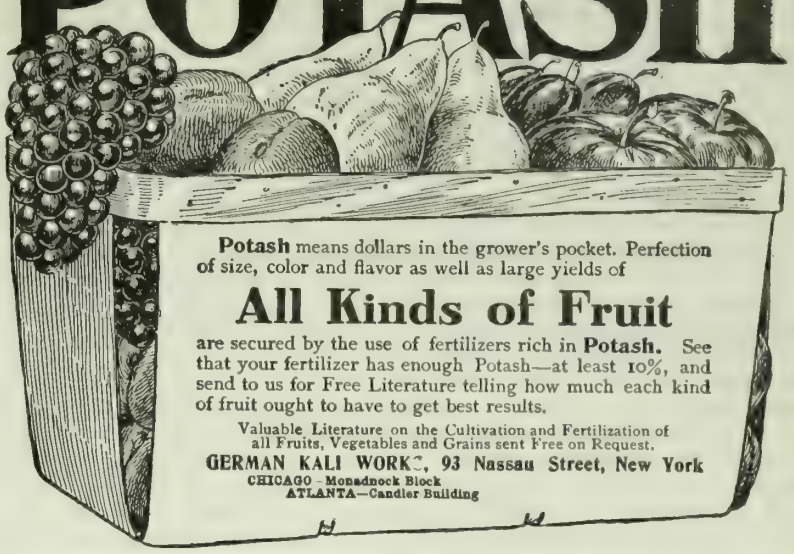
"In a few moments another wave of mud swept by, followed by others at intervals of a few minutes, each succeeding wave getting thinner and traveling with greater velocity than the preceding ones.

"In answer to your question as to the distance and size of rocks moved by cloudbursts, I will give you a description of one which lies on the bank of the creek close to this house. It is a sandstone bowlder which has come from seven miles above, and as near as it can be measured, owing to its irregular shape, gives the following dimensions: Height, 8 feet; length, 16 feet; width, 12 feet. On the plains (the San Joaquin valley) about five miles east of here, several masses much larger than this can be seen. These were brought down the Pleito canyon by cloudbusts."

Commenting on this description, Mr. Johnson says:

"The interesting point about the cloudburst described is its ebb and swing. It has been further learned that the first wave, which brings down the coarsest debris, often forms a dam at or near the conyon's entrance. It is as a result of the impact between these later waves and the debris dam that the greatest damage usually occurs, since the breaking of the dam at its weakest point usually results in the formation of new deep gulches in unexpected places, down which the liberated water and sludge rush toward the flatter marginal slopes of the fan, dividing and again dividing into smaller, less well defined channels as they go. So far as observed, the end point of these cloudbursts is to be found upon the lower slopes of the fans. These are in some places thick enough to obliterate the low, bunchy grasses across which they have spread, and are characterized by homogeneous, regularly cracked surface and an even, fine grain. Such thin, irregular mud beds are known by the well diggers of the region as 'slickens.'"

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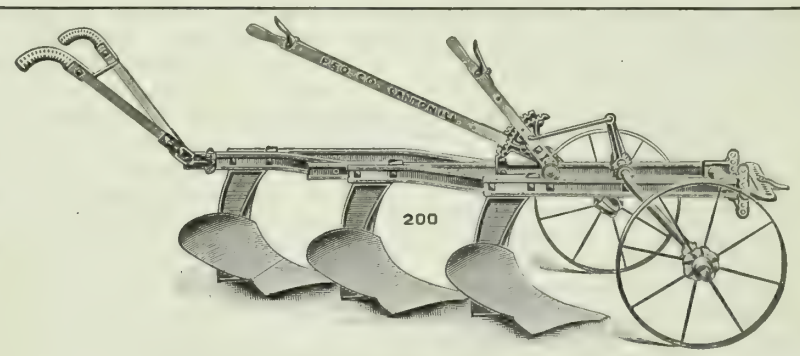
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Live Stock and Dairy.

PRESENT DAIRY AND RANGE CONDITIONS.

Written for the Pacific Rural Press
By Leslie W. Symmes.

We have recently returned from a visit to the west side of the San Joaquin valley, and find rather trying conditions existing there. Although this is the trying time of the year for both dairy and beef cattle, we did not expect to find conditions in just their present state. We realize, of course, that at this time of year dairy products are noticeably lessened. It is the time between the end of green alfalfa pasture and the new feed, but the weather conditions have visibly increased this off period. The long unusual spell of cold weather that has followed the first rains has held back the growth of foxtail and other pasture grasses that go to fill in the green feed period and materially assist both dairyman and stockman. Most of the dairymen on the west side are now feeding alfalfa hay to assist their cows with the short pasture feed, and evidently the dairy herds are not yet reconciled to this dry feed. The milk and cream returns have fallen off at least 50 per cent. Foxtail makes an excellent pasture grass at this period, and cattle take to it readily. When young and succulent it has a high nutritive value, though it is certainly a pest later in the season, after it has become mature.

The weather conditions have been peculiar, and the inhabitants have not seen the sun for over a month. We ought to correct that statement, however, as we believe the sun did appear for about an hour on Christmas day. Nevertheless, the week we spent in that region was certainly a rather chilly one, and such a long spell of cloudy and foggy weather, with an occasional shower, is hardly conducive to rapid growth of feed.

On the ranges the stockmen have also been having their troubles. The feed was generally pretty well cleaned off last year, and the tardiness of the fall rains, followed by the cold weather, has hardly more than started the grass on the ranges. On some ranges which were not so closely pastured the young grass has been protected somewhat by the old feed and has made a little better growth.

These conditions are not confined to the west side ranges, however, but appear to be rather general throughout the State. From the south comes word of shortage of feed on the southern Government ranges, and particularly around Antelope valley. According to reports from this region, thousands of cattle belonging to the cattlemen of this valley are roaming the ranges in search of feed, while hundreds are actually staving to death.

We hope the reports are exaggerated. These conditions happen every few years, some seasons being more trying than others, but lead to only one conclusion—that cattlemen stock their ranges too heavily in the good seasons, and are naturally caught in the poor or even in the average year. We have seen a good deal of the range conditions in different parts of the State and, generally speaking, these ranges are carrying more head than they can stand. Heavily stocked ranges have no opportunity to recuperate. Some feed must be carried over in order that the grasses may mature and produce seed. This is the natural method, and unless artificial re-seeding is done we must expect a gradual diminution of feed. These are the conditions that have been brought about in the Southwest and on other mountain ranges, due to overstocking and neglect of proper range protection. It is well to look to the future, and on the Government ranges this is supposed to be attended to by the Forest Service employees where those ranges are in National Forests. These Government officers are seldom experienced cattlemen, and while the number of head pasturing in National Forests has been generally reduced, it is from the experienced cattlemen of the region making use of these pastures that the proper limitations should come.

We trust the National Livestock Breeders' Association, which convenes in Los Angeles this month, will take up this matter. It is not confined to the Government ranges, however, as cattlemen with extensive private ranges, and experience in the business, whom we would expect to know, are often in error on this point of overstocking.

The dairyman has the advantage in this regard, as he can, and generally does, feed through this period. We believe, however, that his returns can be very materially increased by the proper use of a silo. It is certainly a valuable adjunct of any well regulated dairy, and while for years in California we considered our natural advantages of climate and soil sufficient without it, each year we find more wide-awake dairymen building silos to hold up their creamery returns during this part of the year. The fact that alfalfa makes an excellent silage should commend it to dairymen in the alfalfa regions. We hope shortly to give our readers some practical suggestions and cost of construction of various kinds of silos. Possibly some of our readers have already constructed silos and can give us their experience and the cost of construction. We shall be glad to hear from them.

SEX CHARACTERISTICS OF THE HORSE.

Written for the Pacific Rural Press
By Leslie W. Symmes.

In all live stock the changes of disposition are traceable to sexual development, and it is because of the close connection between the two features that many breeders consider the characteristic disposition valuable as an indication of future usefulness for breeding purposes. In the development of the sexes marked differences of form result. The true male form is heavier at the shoulders than the female, while the latter is wider in the hind quarters. It would be well to remember this when we are examining animals, as it might often prevent unjust criticism of judges in their selection. A male should be expected to be wider in the chest than behind, though it should not be weak in the latter part. Width of hip, however, is not the chief qualification of the female form; depth in this region, or length of barrel from rib to hip, is of more importance, as it makes provision for the proper production of the foal.

The variations in the features of the stallion and mare are characteristic, and generally recognized. In the stallion the head is larger and the face has a harder look. The neck is fuller, with a pronounced crest, surmounted by a heavy mane. The mare has a slimmer face, with softer expression, the neck rather thin, often ewe shaped, with finer and thinner mane. In geldings we often have a decided approach to the characteristics of the faminine type. Extreme effeminacy on the part of the male, however, is not desirable, and often follows from closely in-and-in bred animals. Effeminacy in a sire means a lack of tone in muscle and loss of vigor, and this is very observable in sires lacking impressive powers, while the most noted sires in the history of breeding have been remarkably virile, with the characteristics of masculinity unusually developed. A stallion should have a determined expression, the hard features, the high crest and full neck that are evidences of masculinity. With these there should be the active, vigorous temperament, which also indicates virility.

It is a frequent subject for discussion as to whether or not the stallions in some classes should be judged solely as to their individual merit, or also include the merit of their pedigree, performance, and progeny. This question arose in judging stallions at the last Fresno County Fair, and the exceptional value of a worthy stallion as a sire was not given due consideration. We believe that the conditions relating to the awarding of the prizes should be explicit enough to avoid discussion on this point. All of the attributes that will add to the value of the stallion should be considered in making awards. Pedigree in a breeding class has a value, so has performance; and for this reason they should be given consideration along with the personal merit of the stallion and his progeny. The judge should be able to discriminate between pedigrees, and also be broad-minded enough to include in his estimate of the different stallions before him the other characteristics that make the animal valuable for breeding purposes.

In the purchase of a stallion for breeding purposes the breeder must constitute himself the judge, and he should give special attention to the conformation of the animal under consideration. A defect of conformation in the smallest particular is very apt to be transmitted, and for that very reason it should be discountenanced in breeding stock. It is generally known that even such a slight defect as a twist of the fetlock, or the turn of the foot in action, is very likely to pass from a stallion to his get. A breeder would be better justified in using a stallion that has a spavin on a well constructed hock than one that was without a spavin but had a hock that was very defective in conformation. In the instance of the well constructed hock with a spavin, it is certain that the horse was subjected to a severe wrench or injury of some kind, else the spavin would not be there. With the horse with a badly constructed hock, it needs only the opportunity which occurs in nearly all kinds of work to develop a spavin, and the reason there is not one there is only because extra care has been given to the protection of this part.

The Royal Commission, composed of the leading veterinarians of England, has decided that the following diseases in horses are hereditary: Roaring, whistling, sidebone, ringbone, navicular disease, curb, bone spavin, bog spavin, thoroughpin, grease, and cataract. While all breeders may not agree with this opinion, it is very important to the prospective purchaser of a stallion, or the farmer who makes use of a neighbor's animal, to know of these things and make a careful inspection of the animal used for breeding.

A BUFFALO CROSS.

We have been interested in reading an article by Eleanor Gates in the American Magazine for January, entitled "A New Meat for the Millions." Those of us who attended the last State Fair at Sacramento will remember the author of this article, as the owner and exhibitor of the beautiful Arabian horses shown there. The article is interesting reading, though we believe the author is a little too optimistic on the buffalo cross for economic beef production. Several other cattlemen have tried the buffalo crossing, without satisfactory results, one of these attempts having been made in California by a veteran live stock breeder. Some of the buffaloes that were used in the experiment in this State could have been seen grazing in the region of the famous Fifteen Mile Drive, near Monterey, where they at-

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tracted considerable attention. Possibly other breeders who have tried the experiment of crossing the buffalo and beef animal gave up the task a little too soon. That this was the case we are not prepared to say, but the fact remains, as the author of the article has stated, that the returns are not commensurate with the expense, that is, at the present time. The article is interesting reading, however, with some excellent photographs of the animals in question. L. W. S.

THE RANGE AND FEEDING INTERESTS.

At the recent meeting of the trans-Mississippi Congress, Col. I. T. Pryor of Texas gave a statistical review of the meat producing industries of the United States and his idea of what they need from the government and from other industries:

NUMBERS AND VALUE OF ANIMALS.—The trans-Mississippi States represented in population in 1900, 19,000,000 out of a total of 75,600,000 for the United States, or 25 per cent, while, according to statistics of the Agricultural Department, this part of the country contained meat producing animals, excluding milk cows, in ratio to the whole country, January 1, 1907, as follows:

Cattle in United States	51,565,731
Cattle in trans-Miss. States	35,847,061
Per cent in trans-Miss. States	70 pct.
Swine in United States	54,794,439
Swine in trans-Miss. States	28,841,270
Per cent in trans-Miss. States	52 pct.
Sheep in United States	53,240,282
Swine in trans-Miss. States	39,476,685
Per cent in trans-Miss. States	74 pct.
Milk cows (value)	$650,057,000
Beef breeds (value)	845,938,000
Sheep (value)	211,736,000
Hogs (value)	339,030,000
Total	$2,046,761,000

The producers of this vast number of animals, representing the fabulous sum of $2,046,761,000, believe those who represent the manufacturing districts of the United States have dominated and controlled both branches of our national Congress up to the present time hence the manufacturers received every possible consideration and protection Congress could grant, while the live-stock interests have received little favorable legislation. In fact, this great industry has been sadly neglected by our lawmakers. Especially is this true so far as our foreign markets are concerned.

FAVORABLE LEGISLATION.—Not one of the European countries produces sufficient meat to supply the demands of the people, while the United States can produce at least 30 per cent more than the people now use, and we are actually producing at the present time 10 to 15 per cent more than we consume. Hence, a market must be provided for this excess. In other words, if we are not permitted to offer this surplus on equitable terms to continental Europe the meat producers of this country will suffer from an oversupplied market, and the trans-Mississippi district will bear the principal burden of this condition.

To illustrate, I segragate and take one class of live stock, viz., cattle. We slaughter about 20,000,000 head per annum. Eighty-five to ninety per cent of these slaughtered cattle is ample for our home consumption, leaving from 10 to 15 per cent surplus, for which we must secure a market. If deprived of this European market and forced to sell this product at home, the 100 per cent would bring less to the stockraiser and stock farmer than the 85 per cent. In one instance there would be a good, healthy demand for the 85 per cent, while the 100 per cent would be forced on an overstocked and glutted market, the result of which would need no prophet to foretell. The farmers and stockraisers in the trans-Mississippi district would be the principal losers under such conditions.

MEAT INSPECTION.—This trans-Mississippi congress will be asked to pass certain resolutions indorsing a government policy of permanent benefit and advantageous to this industry. Our Agricultural Department has accomplished much in the improvements it has brought about in the live stock business. To reap the full benefit, however, of all this marked improvement we must have adequate laws looking to the introduction of our live stock on the hoof into continental Europe, and not until this is accomplished will we, the live stock producers of this country in general, and the trans-Mississippi district in particular, receive a fair price for our products.

The live stock producers of the trans-Mississipi district will demand, during the next session of Congress, strong recognition for their interests in the tariff revision, which will be undertaken in the Sixtieth Congress, and from this time the live stock interests not only of the trans-Mississippi district, but of the entire United States, will demand equal consideration with all other interests of like importance in all reciprocal measures adopted by the United States, and I sincerely trust this organization will impress upon those who represent them in Congress, the importance and necessity of proper consideration for this great industry.

Colonel Pryor also criticised the present freight rates on live stock, saying that in many instances the freight consumed one-seventh of the value of the stock. He recommended the enactment of laws preventing the loss to cattlemen through poor service, delays, etc.

CROPS FOR THE SILO.

To the Editor: In your issue of December 10 you answer an inquiry from a correspondent in Kern county relative to silo filling, etc. I have had considerable experience with building and filling silos for the past 18 years in Wisconsin both in a practical way on a farm and at the Wisconsin Experiment Station.

So far as the alfalfa is concerned I do not believe in putting it into a silo unless the silo is a very good one in every particular. Of course it might be a good way to handle the alfalfa where there was a large percentage of foxtail mixed in with it, but I would be doubtful of good results on account of there being so much moisture in the first crop of alfalfa.

I have known of sorghum being handled very successfully in silos in Texas, but in Wisconsin corn was, of course, the main silage crop.

In regard to the corn I must say that I think it could be ensiloed with a great deal of success under the conditions your correspondent describes. I have seen corn that was planted very late and failed to develop much of any ears, that was dead ripe and practically all dry except some moisture in the stalks, also corn that had been killed with the frost, all cut and put in the silo with entire success. I don't mean to say that it was as good silage as that from corn in just the right condition, but it made excellent feed that was relished by both dairy cattle and sheep. I think the tendency has always been to cut corn too green to get the best results, particularly where there was but a small amount to be harvested.

I am such a strong believer in the silo that I could not refrain from saying what I have. I was animal husbandman at the Arizona Experiment Station for two years and also for the past year at the Wyoming Station and can sympathize with your correspondent when it comes to foxtail, for in both places the station farms were badly infested with it.

T. F. MCCONNELL.

Morganhill, Cal.

HOGS AND SHEEP IN YUMA VALLEY.

To the Editor: As a boy 30 years ago, while working on a farm in San Benito county, I first read the RURAL PRESS, and although I have never before personally subscribed for it (my occupation not being in the farming line), I have frequently read it at friends' houses, and have always felt very friendly to it, and by my praise of it, no doubt have been the means of getting subscribers for it. I write all this to justify myself in that I wish to ask your advice as to what breed of hogs and sheep would do best in a warm place like the Yuma valley, where corn and alfalfa is at home? I am having a farm developed down there and intend to raise hogs and sheep. The latter more to keep the Bermuda grass down along the canals. Would want the sheep more as mutton than for the wool, which I imagine would not do very well on account of the natural warmth. I anticipate getting Duroc hogs and Shropshire sheep. If you consider these good breeds for that section, at what point or place would be the best market to get half a dozen?—Old Reader, Angel's Camp.

REPLY BY MR. SYMMES.

You should get good results from either Berkshires or Duroc-Jerseys, though I prefer the first mentioned breed for that country. Duroc-Jerseys are good animals, but do not fatten so quickly nor are they quite as large as the Berkshires. The grazing and feeding qualities of both are good, with not much difference in their breeding qualities. As feeders the Berkshires give a maximum return in flesh for the food consumed.

As you intend to raise your hogs on alfalfa and corn, you will be interested in the article on "Alfalfa for Hogs" which appeared in last week's RURAL PRESS.

As mutton is the prime object, I believe the Southdown will suit your conditions better, as the lack of weight of fleece would be in its favor rather than against it in that region. It lacks the size of the Shropshire, but its grazing qualities are superior, as the Shropshire requires better pastures.

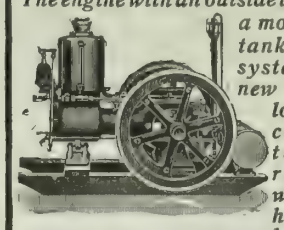
We refer you to advertisers of swine and sheep in this paper as reliable parties to procure such breeding stock.

THE RECOURSE TO MEXICO.

Of the present disposition to develop American range projects in Mexico, a recent consular report says: Throughout the West and Middle West of the United States the larger ranches are being gradually cut up for agricultural purposes, which forces these cattle barons to look elsewhere for suitable lands for grazing purposes. Mexico, with its vast, well watered ranges, rich grasses and equable cli-

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mate, is an ideal country, and these cattlemen who own large herds in the United States are now investigating the conditions offered by Mexico, believing that cattle can be raised with less expense here and shipped to the United States and fattened for the market. In addition to the advantages mentioned, and the fact that the inland and water transportation facilities for shipment to the United States are excellent, the Mexican market is stable and the demand for a good quality of beef constantly increasing.

Mexico contains a great many haciendas admirably adapted and almost exclusively devoted to the raising of cattle, and every season shows a decided improvement in the care taken of the animals, and also in the class imported. Stockmen throughout this country have within the last few years imported so many pure bred cattle from the United States that on many haceindas one may find animals which compare favorably with those on noted breeding farms of the North. In former years they consisted exclusively of the old long-horned Spanish and Mexican types, which have large bones and frames and long legs, but are deficient in flesh. This deficiency is certainly not due to the country, for the climate, grasses, water and general topography are decidedly favorable to animal growth and comfort, and while it is a generally recognized fact that Mexican stock is in general inferior to animals raised in the United States, it is the prevailing opinion that a cross between the pure blood of the North and the cow acclimated here produces a large, healthy, vigorous offspring:, with an unusually compact muscular development.

FEEDING BABY BEEF.

Prof. H. M. Cottrell of the Colorado Station gives the Denver Field and Farm some notes which may be interesting to California feeders also. He emphasizes the fact that one must feed cattle while they are growing to get the best results. Cattle here in Colorado must be fed on grasses and hay, with just enough grain to give flavor. On a calf it takes five pounds of grain to make a pound of flesh, while on a three-year-old it requires ten pounds. This is truly an important point. Then, again, the shorter the fattening period, the cheaper. The calf fat is the best in the animal. If this fat is lost, the juicy best portion is forever gone. Feed the calf all it will eat. Baby beef today is quite a staple, and everywhere it is demanded and brings the same price as export steers.

I am anxious to have Colorado feeders and stockmen take up this line of work, so that the State will become celebrated for baby beef. A 14-months-old heifer will bring from $40 to $50, and there is money in this. Senator Ammons tells me that he has sold calves in Denver for $60 each after they had been grained a little and turned loose on the range the second summer.

The feed lot should be well drained and dry. The beef cattle should be given all they can eat two hours in the morning and two hours in the evening, allowing them to lie down and chew their cuds the rest of the time. Cattle must lie down much to do the best. As high as 200 cattle can be fed in one lot. If a bunch persists in stampeding, break it up, because so long as they stampede they will lose. Spray the cattle as soon as they come off of pasture, to get rid of mange and other skin diseases. In spraying or dipping, the water should be at least 140 degrees. The shelter is important. It should be out of the wind and have plenty of bedding. In fact, little shelter is needed if a steer is kept. It wants good snappy weather, and I have seen a steer go out into a dry lot and lie down facing a strong wind at 31 degrees below zero. Stay with the steers all you can. Stir up the grain, pull out the alfalfa, and be a friend—especially in bad weather. Do not get up at 4 or 5 o'clock and bother the steers when they are lying down.

Don't feed them before sunrise, and get through before sunset. Let them rest at night and eat while the sun shines. Carry a watch and be on time in caring for these animals. Be as regular as possible. Alfalfa is our feed in the lower sections, and pea hay up to 8500 feet in the higher altitude. When corn fodder can be used in connection with alfalfa, it will pay to feed it. When feed has to be bought, corn is the best. Speltz is being tried a little and I believe it is good food. Feeding a limited amount of roots is also advisable. A ton of beet pulp has the same feeding value as 200 pounds of grain. If grain alone is fed it will not be satisfactory. Instead, use grain with other foods and the steers will get along much better.

KALE FOR FALL AND WINTER FEEDING.

In the Pacific Rural Press of June 20 we gave a detailed account of kale growing, which is now so popular in Oregon for fall and winter feeding. There are parts of California where the plant will grow just as well or better than it does at the North, and it should be given more attention during the coming year in this State. In current issues of the Northwest Horticulturist we find additional experience with it, from which we draw some paragraphs.

Mr. William Schulmerick of Hillsboro is raising this year 9 acres of kale for his 34 head of Jersey cattle. He plants his kale about 2 by 3 feet, getting 6400 plants to the acre, and is very particular to have his ground in good shape, plowing and harrowing just before planting. When he plants a field from seed he does it in April and drills it into rows, thinning out when the plants have a good start, along about June. This year he sold $50 worth of plants at 35 cents per thousand from a part of his ground that was seeded. In transplanting he has the best results, for he uses a small, well fertilized piece of ground, and puts in the seed with a Planet Jr. drill, in April, and in June he transplants, using a tobacco transplanter. Results show very plainly this year, the difference between the seeded and transplanted field, in favor of transplanting. The upland that will work up well, and is well fertilized, brings him the best crops, for the low ground has a tendency to hold water in winter and to cause the kale to rot and the lower leaves to drop off. Timber land that has been cleared off and put into good shape has given him the best results.

Ground well fertilized should be planted with plants at least three feet apart, giving 5000 plants to the acre, and making between 40 and 60 tons of kale. Land that has not been so well fertilized can be planted 2 by 3 feet apart, and will make about 6400 plants, yielding from 30 to 40 tons per acre.

Never feed kale just before milking, for it will be sure to taint the milk. Mr. Schulmerick commences feeding kale about August or September, and continues to feed it until green grass comes in the spring: feeding about 50 pounds per day, or 25 pounds per feed, just after milking.

In feeding kale or vetches, he does not feed any bran or shorts with it, but feeds ground barley or ground corn. Next year he will plant Beardless barley and Canadian field peas, and grind the two together to feed with his kale, after finding that he gets the best results from that source, compared with any other feed.

Another Record of Experience.—Mr. Richard Scott, of Milwaukie, Oregon, 30 years ago imported the first kale seed to this country from Europe. Since that time he has advocated kale for winter cattle feed. It is of hardy growth, having stood the big freeze-out in 1883, when everything else was frozen and turned out of the ground, including turnips, rutabagas, and all other grain.

This year he has 20 acres of kale, and considers it a poor crop if he hasn't over 30 tons to the acre.

The thousand-headed kale, which is the best known variety, is at its best just before its blooms, and at its worst for feed when in bloom. While the large leaf kale will be effected by frosts, the small leaf kale is not affected at all, and will stand a great deal more exposure and produce more leaves. It branches close to the ground, and then each branch will branch again, making practically a solid plant from the ground up.

In his experimenting he found that the purple kale is much richer in protein than the thousand-headed. As can be seen by the report from the Oregon Agricultural college, on April 14, 1908, as follows:

Moisture, 88%; Protein, 3.25; ash, 1.01; fibre, 1.1; fat, .61; carbohydrates, 6.03%, on purple-headed kale, while on thousand-headed kale the best they had examined was 2.6% protein. This shows over 1% more protein to the credit of the purple-headed variety.

In feeding cows he used to commence about the first of August and feed all winter, using about 25 pounds to a feeding, or 50 pounds per day per cow. In feeding to a milking cow care must be taken to feed at least six hours before milking, and Mr. Scott held at least eight hours, for there is an oily substance in kale that will go through a cow's system while she is eating it, and will be noticeable for several hours after, sometimes for 10 hours, if a heavier feed than usual is given. This oil will also affect the taste in the milk and in butter; in fact, it is almost impossible to work it out of butter. So particular pains must be taken when feeding, but results more than offset the additional work and care.

In planting, he tried nearly every way possible, seeding as a rule in April, but almost equal results can be obtained by planting in November. He used the ordinary plow and planted in every third furrow, keeping the ground perfectly clean by hoeing.

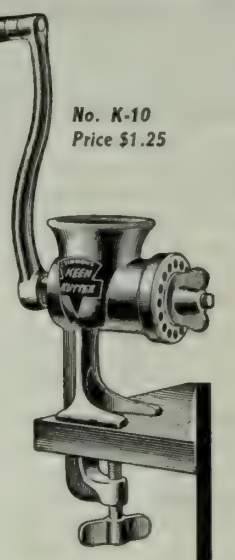
All kinds of soil will not do for kale, and as it is deep rooted the ground must be well drained or it will drown out. On ground with proper drainage it can be irrigated to a certain extent, but must not be flooded.

Under favorable conditions and in certain sections of Oregon, kale has produced as high as 75 tons to the acre, but the average yield under proper care will be from 30 to 40 tons. And its value as a winter food has been fully established.

ABOUT HOLSTEIN MILK.

Mr. R. F. Guerin of Visalia writes to the Holstein Register in favor of their style of milk as follows: I have seven children, and all have been raised on Holstein milk, and are as healthy children as one will find anywhere. If a child has a weak stomach and is not very strong, separate the milk. I fed two of my children in this way, and they throve on it. The cream seems too rich in some cases, and when separated the milk fattens the child and makes a better food than whole milk, which has a tendency to make a young child coarse looking. After a year old I give them whole milk. One of my children became ill with fever at three weeks old and I could find nothing to agree with him. A neighbor told me he fed his baby separated milk and he got well and fat. I tried it and found it a fine food. The baby fattened every day on the milk, and

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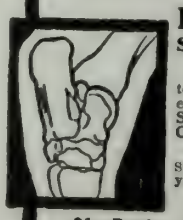
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$1 a Bottle; 6 for $5. At all druggists. Get it and be ready for emergencies. Book, "Treatise on the Horse," free at drug stores or from

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is now ten years old and never sick. We think Holstein milk quite a good food in our family. I have one boy two years old this month that weights 35 pounds, and has always been fed on Holstein milk.

CORN SORGHUM AND SOY BEANS FOR HOGS.

In the course of a discussion of feeds for hogs in the Southern States Mr. D. T. Gray of the Alabama Experiment Station tells the Breeders' Gazette that the most satisfactory results were secured when green crops were used along with the grain. A few farmers in the South already appreciate the value of green crops as a hog feed, but the great body of our farmers have made no use of them at all. It has been shown that the man who puts his hogs up in a pen and feeds them 70-cent corn is following a losing proposition; that is, on the average he is realizing not more than 50 cents a bushel for his corn, when hogs are selling for 5 cents a pound. But the farmer who makes use of green crops along with the corn knows that he cannot afford to sell his corn for 70 cents a bushel on the market. He can realize more than 70 cents a bushel for it when it is fed to hogs in conjunction with certain green crops, especially legumes.

Among the green crops tested, peanut pasture has been found to be one of the most useful. When corn alone was fed it required 611 pounds of grain, at a cost of $7.43, to make a 100-pound gain; but when the corn was supplemented with peanut pasture, but 148 pounds of grain were required to make 100 pounds of gain, at a cost of $1.85. In another test with peanut pasture it was found that when corn alone was used each 100 pounds of gain cost $7, but when the pasture was used along with corn, 100 pounds increase cost but $2.22, and when the pasture was supplemented with both corn and cottonseed meal, each 100 pounds made cost but $1.97.

Sorghum is a crop well thought of in the South as a pasture for hogs. Its chief advantage lies in its large yields and sureness, there being very few seasons in which it fails. But it must be remembered in planning a rotation of crops that sorghum is not a legume, and that the land will not be made better on account of its having been grown. The results with sorghum were unsatisfactory as a whole. In fact, it seems that it has nothing to recommend it as a pasture for hogs. The daily gains secured from its use are always small, and the hogs come through at the end in a very poor condition for the market. The daily gains of the pigs on the sorghum pasture were but .37 of a pound daily when they received a half ration of corn in addition to the pasture, and but .51 of a pound when the corn ration was made up of one-third cottonseed meal. A lot of hogs grazing a soy bean pasture in a lot adjoining the sorghum pasture made 1.02 pounds daily gains. When the ration of corn and sorghum was supplemented with a little cottonseed meal the results were most satisfactory, but even then the results do not compare favorably with those secured by the use of the leguminous crops. Even at the best, one acre of sorghum saved, in terms of corn, but $1.57.

Soy beans is another leguminous crop which has proved very satisfactory as a green crop with which to supplement corn in pork-making. The corn required to make 100 pounds gain was reduced from 456 pounds in the case of corn alone to 157 pounds when the corn was supplemented with the soy bean pasture, and the cost of making the 100 pounds gain was reduced from $5.70 to $1.96. The hogs were turned into the field two weeks before the beans themselves were mature, so for the first two weeks the animals had only the leaves to eat in addition to the half ration of corn. The soy bean pasture proved to be far superior to the sorghum pasture, both in the daily gains and as to the economy of gains, the daily gains being about three times as rapid when the beans were used as when the sorghum was used, and the cost of making each 100 pounds of gain was reduced from $5.46 in the case of sorghum to $1.96 with soy beans.

[The trouble with making use of this experience with soy beans is that in California this bean does not like to make summer growth except in moist bottom lands, and it is apt to get too much frost for winter growth. It does not like our dry summer heat, and has to have some mosture in the air, such as is apt to come from adjacent bodies of water. It should therefore be experimented with on a small scale, to see how it will act in each locality.—ED.]

A GREAT GUERNSEY RECORD.

Last March the two-year-old Guernsey heifer, Dolly Dimple, 19144, Adv. R. 628, finished a year's official record of 14,009.13 pounds milk, 703.36 pounds butter fat, which would be equivalent to 820 pounds butter. This is undoubtedly the most remarkable year's official record in the world, when age of animal is considered.

October 9, 1908, this remarkable heifer dropped her second calf. During the last 15 days of the month she gave 927.1 pounds milk, which contained 41.63 pounds butter fat. During the month of November she gave 1898.6 pounds milk, which tested 4.49 per cent, and thus contained 85.25 pounds butter fat.

She recently gave in a seven day official test the following:

	Lbs. milk.	Lbs. butter fat.
December 8	62.4	3.202
December 9	63.0	2.907
December 10	65.8	3.288
December 11	63.3	2.852
December 12	66.4	3.625
December 13	64.2	3.427
December 14	59.7	2.733
Total	444.8	22.034

Statement of feed given: Hay, 70 pounds; silage, 105 pounds; roots, 140 pounds; beet pulp, 63 pounds; bran, 12.6 pounds; pea meal, 8.4 pounds; Ajax, 8.4 pounds; ground oats, 12.6 pounds; gluten, 12.6 pounds; oil meal, 8.4 pounds; alfalfa meal, 8.4 pounds; cotton seed meal, 8.4 pounds; hominy, 4.2 pounds.

It is doubtful if there is a better seven-day record for an animal of same age and on equal feed of any breed in the world.

This remarkable heifer is a member of the Langwater Farms Guernsey herd at North Easton, Mass., and she is now under her second year's official test.

TREATMENT FOR MANGE.

To the Editor: Some years since a remedy for the mange was published in your valuable paper. Through carelessness my paper containing said recipe was lost. Would it be asking too much to have it reprinted. Among the ingredients were coal oil, eucalyptus oil and sulphur.—Constant Reader, Sacramento.

Probably better results can be secured by this treatment: Cleanse the skin of the mangy spots by washing with common soft soap, or any good potash soap, and warm water, rubbing with a brush to loosen and remove the crusts of the skin. If these crusts adhere too strongly, moisten with olive oil and wash off again the next day. Then apply the following mixture: Creolin, 1 oz.; oil of tar, 1 oz.; soft soap, ½ pint; sulphur, ½ lb.; alcohol, 1 pint. Wash it off after two days with soap and water, and three or four days after repeat the treatment, to be sure that all the minute parasites causing the mange are killed.

AWAY IN THE LEAD FOR 1909

DE LAVAL CREAM SEPARATORS

The year that is past was one of unusual interest and importance in a Cream Separator way. Twelve months ago we announced to cow owners the introduction of a complete new line of DE LAVAL farm and dairy sizes of machines, marking another great move forward in the development of the Cream Separator. The enthusiastic welcome given these improved machines by buyers everywhere exceeded even our great expectations and nearly carried us off our feet. Orders came so thick and fast that stock was soon exhausted, and the DE LAVAL factory was forced to run day and night from March to July, and continued with increased force on full time throughout the entire year. Notwithstanding the universal business depression, DE LAVAL sales for 1908 were over 50% greater than in 1907. The new machines simply swept the field of all separator honors and made the year a notable one in separator history. Practical experience in the actual sale and use of 100,000 of the new machines has but served to suggest still greater refinement of perfection and to enable us to offer in the DE LAVAL for 1909 a machine that those who know say IS MILES AND YEARS IN THE LEAD OF EVERYTHING ELSE IN A SEPARATOR WAY. If you have not seen and used an IMPROVED DE LAVAL you really cannot know what a Cream Separator is today. It's surely in your own interest to do so before thinking of buying any other. Why not write at once for catalogue and full information, to be had for the asking.

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WHAT A HORSE-SHOER THINKS.

Are there as many horses being shod now as in past years? is one of the leading questions of the day, not alone pondered upon by horse-shoers, but by certain of the general public as well, who are interested in the general progress of the world. The statistics showing the number of horses on farm and ranch (not including cities) in the United States during the years 1901 to 1907 inclusive, are as follows:

1901	13,537,524
1902	16,531,224
1903	16,567,373
1904	17,057,702
1905	18,718,578
1906	19,746,583
1907	19,992,000

But these bare figures do not show the proportions of horses that are shod, and doubtless this varies in each year according to the commercial demand for horse power. I believe, therefore, that there are more horses being shod now than ever before, but at the same time I do not think that the horse-shoeing trade has kept pace with the development and expansion of other trades.

This lack of proportionate increase I think is due to the greater development of steam and electric power and to the gas engine. The use of these powers is growing so rapidly that it brings up the question whether they will not eventually do all the work and relegate the horse to the rear rank of commercial uselessness.

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The Poultry Yard.

THE GUINEA FOWL.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

Evidently the guinea fowl has a future before it in the United States, but it has not yet come into its own. In the large Eastern cities, however, there is a growing demand for this bird. Epicures are delighted with the "gamey" flavor of its meat and the superior delicacy of its eggs.

In the older countries this fowl has long been highly prized, its eggs being considered a great delicacy, equal in richness of flavor to the famed eggs of the plover. In Paris a guinea egg sells for double the price of one from an ordinary hen. These fowls were bred for the table as far back as in the days of ancient Greece and Rome, and they were taken to the West Indies by the first settlers. The birds took kindly to those islands and flourished and multiplied. In some of them they are hunted as game at the present day, having long ago gone back to their wild state. As their name indicates, they originally were brought from the west coast of Africa. There are other and still more beautiful varieties of this bird in Africa, but they have never been successfully reared in captivity.

Even more than the turkey, the guinea retains its wild traits. It loves to wander far afield and roost in the tops of the tallest trees; it makes its nests with a few sticks and grasses and hides it warily, and if discovered deserts it. Still, it has strong homing instincts and does not readily change its headquarters.

Guineas have not yet been recognized by the American Poultry Association, and no standard has been set for their breeding. Uniformity of color and good size are considered important points by their breeders. In their wild state they mate in pairs, but in domestic flocks several hens are usually allowed to a cock. For breeding purposes, however, the number should not exceed four, or the eggs are apt to prove infertile; some breeders claim that best results come from pairs. Their breeding season corresponds with that of the wild birds, beginning earlier or later in the spring according to climate, and lasting through the summer. The improved varieties lay some 100 eggs in a season, and it is believed that they can be bred for winter laying. As market fowls the age is from five to eight months. The flesh of old birds is tough and dry. The broilers, weighing from one-half to one pound, are considered a great delicacy, the flesh being very tender and resembling in flavor that of the partridge or quail. In the South, where the guinea is more generally grown, the eggs are considered better than hens' eggs for fancy pastry and meringues, the whites beating up lighter and stiffer. The eggs are light brown or white in color and speckled like those of wild birds; the shell is so thick that they cannot well be tested by candling. In size they are about two-thirds that of hen eggs.

Guineas are hardy creatures and have no known disease, but when confined they are susceptible to raw cold weather. They are great foragers and champion insect exterminators; the larvae of ants and other insects, together with the small seeds of weeds, are the natural and favorite food of the guinea chick. Flocks of guineas might be kept to advantage in large orchards. They are like turkeys in regard to food, and much the same rules apply to their feeding; like turkeys, when they have a large range where insects and grass and weeds abound, they require little or no extra food, but they should be given something regularly at night to encourage them to come to their roosting quarters. It is very difficult to accustom them to a change of place, and where old birds are bought they require to be confined for some time. It is considered better to buy the hatching eggs and hatch them under a common hen. The guinea hen at best is an indifferent sitter, being too active and restless to devote sufficient time to the nest; she is liable to be off with the first-comers and leave the nest of pipped eggs to their fate. The eggs require about a week longer for incubation than hen's eggs, in some cases extending to 30 days for the hatching period. The guinea chicks are pretty creatures, only half the size of ordinary chicks, and more like the young of quail. They can use their legs and wings with amazing agility as soon as they leave the shell, and a deep hatching box with netting over over it is required to keep them from losing themselves. After a few days they may be trusted to run with the hen, when the weather is suitable. Unlike the common chick, the little guineas should be fed almost as soon as hatched, and often thereafter, for their crops are so small they eat but a mite at a time. A fast of a few hours is fatal to them. They require more animal food than chicks, as their natural food is almost entirely insects. Bread crumbs mixed with finely minced and cooked beef heart is good for the first food; when a few days old, tender greens chopped fine, and millet and cracked grains, may be added.

The objections to guineas are their noise, their wandering habits, and their quarrelsome disposition. Their loud cry is, however, rather regarded as a virtue in giving warning of intruders in the poultry quarters; their wandering habits may be greatly modified by brooding with common hens, and providing them a house with high perches where they are fed regularly. They become very much attached to such quarters, and will even lay in secluded nests prepared for them. As to their pugnaciousness, in any case they should not be kept in the same enclosure with chickens, and this holds good with geese, ducks, and turkeys; they are all out of place in the chicken quarters.

Crosses between the guinea and other poultry have been known, but always the result is sterility in the offspring. Quite an odd incident in this connection occurred when the writer lived in the South. A lost guinea hen located herself in our poultry yard, where there were some dozen hens and a rooster. She soon settled the hens' vigorous protest to her presence, and then turned her attention to the rooster, for whom she at once conceived a violent infatuation. She kept close to his heels and would cock her head sideways and gaze admiringly at his flaunting feathers; and worse, she was not even willing that his lawful mates should share in the admiration, but drove them away and kept them from him with vicious watchfulness. The cock loathed this alien and ardent admirer and treated her with scorn; but she took all his rebuffs and blows with submissiveness, and even after being keeled over by his spurs would pick herself up and tag after him with loving little gurgles which clearly said, "A blow from you is sweeter than a caress from another." Whenever the cock tried to go to his hens or they to come to him, she barred the way like one of the Old Guard. It did not take many tweaks from her vicious beak to teach the hens to fight shy of the couple, and these indifferent wives kept to themselves and scratched and enjoyed life and left their harassed partner to his fate. The poor fellow trudged about all day in the vain endeavor to rid himself of his tormentor and rejoin his family; even at night there was no surcease, for she snuggled up next to him and kept the hens at the other end of the perch. All the elements which go to the make-up of a two-volumed novel were at work in this simple poultry yard—love and hate, jealousy and despair. Finally the struggle began to tell on this unfortunate hero; his flaunting feathers began to droop, and his whole form wore an air of dejection; he no longer crowed and he scarcely touched food. A tragic end was imminent, when we came to the rescue and removed his devoted tormentor.

POULTRY NOTES.

The Sonoma County Poultry Association has entered into a very satisfactory contract with the Sonoma County Fruit & Produce Co. for the disposal of its eggs. The following is the clause in regard to grading and prices:

Term of Contract.—For three years, three months and six days, being term ending February 29, 1912. First party to have privilege of discontinuing contract on March 1 of the second or third year upon forfeiture of $1000.

Grades—

No. 1. White, ranch eggs, no egg to weigh less than one-twelfth of 22 ounces.

No. 2. White eggs weighing less than one-twelfth of 22 ounces, and all brown eggs.

Prices—

Nineteen cents net per dozen, minimum for No. 1.

Seventeen cents net per dozen, minimum for No. 2.

No. 1. Two cents under top Exchange quotations.

No. 2. Two cents less than the price paid for No. 1 until price of No. 1 is 26 cents, when 3 cents shall be the difference. Maximum price of No. 2 to be 45 cents.

"The egg is by nature a gay deceiver," says the Detroit Free Press. "Like the poet's hypocrite, it may 'look plump and fair while rankling venom foams in every vein.' It may have lain for unmeasured eons in the lockers of the warehouse and yet be proffered as any one of the long list under which its companions are sold, from 'strictly fresh' or 'table eggs' all the way down to 'just eggs.' Date the egg and save the breakfaster from profanity."

Drastic laws, says the New York Tribune, for the suppression of the stale egg traffic will be demanded of the Pennsylvania Legislature at its coming session. James Foust, State Dairy and Food Commissioner, has prepared a bill demanding a long term of imprisonment, together with a heavy fine, as the penalty for either selling or buying decayed eggs for use as food. In conjunction with this, legislation will be asked to compel the labeling of all cold storage poultry, game and eggs as cold storage products.

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Heavy 30-doz. Shook and Irons...	.35
Heavy 18-doz. Cases and Fillers...	.40
Heavy 18-doz. Cases nailed.....	.30
Heavy 18-doz. Shook and Irons...	.25
No. 1 Fillers, 10 sets per case.....	1.50
Medium Fillers, 12 sets per case...	1.50
No. 2 Fillers, 15 sets per case.....	1.50
1 doz. Egg Cartons and Fillers, per 1000.....	7.00

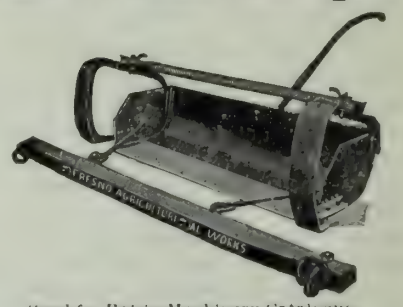
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15 egg size, per doz.....	1.00
30 egg size, per doz.....	1.75

We also make a full line of paper boxes. Paper Baby Chick boxes; all kinds of Fruit Boxes, Fruit Wrappers, etc.

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When buying **"Quality S. C. White Leghorn"** chicks from us at 10c. each, because we give you **Free** the **"Chick Book"** containing full instructions for raising them. Order 200 or more.
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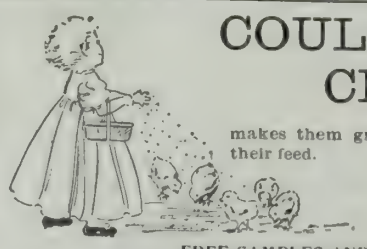
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FREE SAMPLES AND PRICES ON APPLICATION TO
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PETALUMA, CALIFORNIA.

The Home Circle.

The World Is Bright Before Thee.

The world is bright before thee;
Its summer flowers are thine;
Its calm blue sky is o'er thee,
Thy bosom pleasure's shrine;
And thine the sunbeam given
To Nature's morning hour,
Pure, warm as when from Heaven
It burst on Eden's bower.

There is a song of sorrow,
The death-dirge of the gay,
That tells, ere dawn of morrow,
These charms may melt away,—
That sun's bright beam be shaded,
That sky be blue no more,
The summer flowers be faded,
And youth's warm promise oe'r.

Believe it not. Though lonely
Thy evening hour may be,
Though beauty's bark can only
Float on a summer sea,
Though Time thy bloom is stealing,
There's still beyond his art
The wild-flower wreath of feeling,
The sunbeam of the heart.

—FRITZ-GREENE HALLECK.

Women in the World's Work.

A woman farmer in southwestern Michigan makes $1000 a year from her peppermint farm.

Miss Lathrop of eastern New York, a wealthy woman belonging to one of the oldest families in the State, has set out and is cultivating an apple orchard. Although starting with no particular knowledge of horticulture, she has not only become an expert, but has made improvements in the work, and some useful inventions. The dealer in New York City to whom she sells her fruit reported her apples the finest that came to his trade this year. The New York Tribune says: When asked why she had engaged in this enterprise, she said: "I come of a race of New Englanders who cannot be idle. Why not employ my mind and hands in some useful work that will amount to something, rather than to fritter away my time on commonplace things that have no merit except as they serve to divert, occupy and amuse? This work has given me great pleasure. I have enjoyed doing all of it possible myself. It has kept me in the open. I have found a broad field for study in the soil, with plant and insect life. Withal, for the last two years it has paid expenses, and promises to yield a substantial income for the future."

Miss Nellie Cushman, says the Alaskan, was a passenger on the Santa Clara en route home. And where do you suppose she lives? Five hundred miles beyond the Arctic circle! It is unnecessary for the Alaskan to tell its readers who Nellie Cushman is, for there are very few people who have resided in Alaska any length of time who do not know her. She came to Alaska in 1874. She was with the first ones who went into the Cassiar country, and many a miner will tell you that if it had not been for Nellie Cushman they would have died in that country from scurvy and other diseases. She was the nurse on that expedition, and scores of men received medicine free of cost if they were broke. She was through the Dawson country in "the days of '97," and has seen about every camp in Alaska. Four years ago she struck for the wilds of the Koyukuk, and now calls that home.

"When you get into a tight place and everything goes against you until it seems you cannot hold on a minute longer, never give up then, for that is just the place and time that the tide will turn.—Harriet Beecher Stowe.

"Sweet are the uses of adversity," quoted the Wise Guy. "Perhaps," said the Simple Mug, "but lots of us don't care for sweets."—Philadelphia Record.

THE HOME CIRCLE CHAT.

Breakfast Dishes.

Cereals may be classed as a breakfast stand-by, and, like those already considered, there's a difference in their quality and preparation. The oat mushes are best as being a change from the prevailing wheaten foods. There are many cereal preparations floated on the market over the claim of some inherent and wonderful virtues which are equal to any feat, short of raising the dead, in building up the animal economy. The one who makes the most astounding claims for his "breakfast foods" and contrives to meet the bills for widespread advertising is traveling toward the millionaire class by the shortest route. As a matter of fact, the plain rolled oats are the best of the lot. Those in bulk are not recommended, being broken and floury and less care used in their manufacture, they become mushy in cooking. The Eastern brands of white oats are largely used here, but we have found the Coast brands far superior and also cheaper, retailing two packages for 25 cents. These are fresh and the oats white and unbroken, and make a delicious breakfast dish when properly prepared.

THE COOKING OF CEREALS.—Use a smooth granite saucepan with a tight lid; let the water boil briskly; to each pint of boiling water add one level teaspoon of salt and one teacup of cereal. Don't stir, but mix by gently shaking the vessel; let boil hard for a minute, then set on the back of the range tightly covered where it will gently simmer and steam for 15 minutes or half an hour. Take up carefully, so as not to break the grains, which if cooked properly will retain their shape; serve with rich milk or thin cream.

Authorities on digestion say that mush should not be the first course at breakfast, as the gluten acts like paste on the empty stomach and retards the flow of the gastric juices. A few sips of hot milk or coffee are recommended as a starter. These breakfast foods at their best are wholesome and nutritious; but they should be only moderately indulged in by the sedentary, and not at all by the dyspeptic.

As this is the season for wild ducks, a few hints in regard to their cooking are timely. Those who are not partial to the wild flavor should let the birds lie in salt water several hours, or parboil them in it, with an onion inside of each; afterward rinse with clear hot water, stuff and roast. The more plainly game is cooked, the better the flavor.

ROAST DUCK.—These are considered of better flavor without stuffing. Place a piece of salt pork or bacon inside, truss and skewer, cover with onions and a piece of pork or bacon over the breast. Baste often. When tender and well browned, remove the onions and serve very hot with currant jelly, apple sauce or sliced oranges.

BOILED DUCK.—Rub with salt and pepper, inside and out; chop an onion with a little sage, mix with a lump of butter and put inside of the duck; cover the duck with a paste made of butter and flour, and tie in a cloth; place in a kettle of boiling water. Serve with brown gravy made by putting a lump of butter in a saucepan with minced onion; when light brown add a tablespoon of flour and stir constantly till well browned; then stir in a pint of hot water, let cook several minutes, strain and pour around the duck. Garnish with watercress and slices of oranges cut in quarters.

There ain't no credit for keeping in the right road, when there's barbed wire fences on both sides.



Turn the Wick

as high as you can—there's no danger—as low as you please—there's no smell. That's because the smokeless device prevents smoke or smell—that means a steady flow of glowing heat for every ounce of fuel burned in a

PERFECTION Oil Heater

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The Rayo Lamp adds cheeriness to the long winter evenings. Steady, brilliant light to read, sew or knit by. Made of brass, nickel plated, latest improved central draft burner. Every lamp warranted. If your dealer cannot supply Perfection Oil Heater or Rayo Lamp write our nearest agency for descriptive circular.



STANDARD OIL COMPANY
(Incorporated)

What Is a Gopher?

"If you should ask a man from the Illinois prairies what a gopher was," said a man who acted as though he had asked a man from Illinois prairies the question, "he would say a gopher was a gray squirrel that burrowed in the ground.

"If you should ask the same question of a man from prairies farther west he'd say a gopher was a striped squirrel that lived in holes in the ground.

"A Missouri farmer, though, would declare to you, if you asked him, that a gopher was a mole-footed brown rat that digs its way under the ground in that State.

"A man from Georgia would probably surprise you therefore when he assured you that a gopher was a snake familiar to everybody in that State, but not more perhaps than a Florida native would surprise you when he informed you that a gopher was a turtle.

"The funny part of the matter is that every one of these informants would be right in his view. A gopher is a gray squirrel that burrows, a striped squirrel that burrows, a rat that burrows; a snake that doesn't burrow and a turtle that does, just according to the locality. The most interesting of all these is the burrowing turtle.

"This turtle is a Florida institution. The Florida Cracker, and quite a good many Florida folks who hold themselves a good deal higher up than the Cracker, dote on the gopher and think it the finest thing in the edible line ever created.

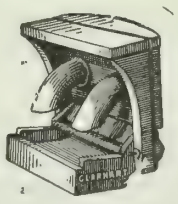
"The gopher never leaves its burrow except to forage. If it can't get into a sweet potato patch it will graze on the wild grasses that abound in the localities where it lives.

"The burrow of this gopher is invariably shared by its occupant with a family of rattlesnakes or lizards. The gopher plainly delights in this deadly association, although it is itself as mild and harmless as a dove.

"No dweller in the same region with the Florida gopher ever goes abroad without a bag slung over his shoulder. This is to carry gophers home in, for he is pretty sure to come across them out foraging. The moment the gopher detects the approach of danger it shuts itself securely in its shell and the Cracker tumbles it into the bag.

"The gophers are likewise trapped by digging holes in the ground close by the

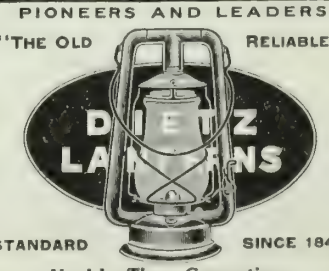
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No Danger.
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"THE OLD RELIABLE"



STANDARD SINCE 1840
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For Sale by All Hardware Dealers
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White for our Guide to Inventors, sent free on request; containing nearly 100 mechanical movements and full information about Patents, Caveats, Trademarks, and Infringements.
DEWEY, STRONG & CO.,
1105-6 Merchants Exchange Bldg., San Francisco. Established 1860.

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Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

entrance of the burrow and sinking a box or barrel into it. When the gopher comes out it tumbles into the trap and can't get out. These queer turtles often weigh as much as thirty pounds. They are of prodigious strength; a large specimen being able to rise on its legs with a man standing on its shell and walk under his weight."—N. Y. Sun.

Not a Chip of the Old Block.

"You want a job, do you, young man?" said the manager of the department store.

"Yes, sir."

"Are you willing to begin at the foot of the ladder?"

"No, siree!" answered the applicant. "That's the way my father began twenty-five years ago, and he's still carrying a hod. I want something a little higher up than that."

So the manager, who hadn't encountered that type of boy before, put him in the packing department, on the top floor.—Chicago Tribune.

Whale Meat for Japan.

Whale meat, corned and prepared for the market in Japan and other countries, put up by the Pacific Whaling Co., this being the last of the whale products to be put on the market by West Coast whalers, formed part of the cargo of the steamer Tees, from Kuyquot. She brought 500 barrels of whale oil, fifty tons of fertilizer and twenty barrels of whale meat.

"What is the secret of success?" asked the Sphinx.

"Push," said the button.

"Never be led," said the pencil.

"Take pains," said the window.

"Always keep cool," said the ice.

"Be up-to-date," said the calendar.

"Never lose your head," said the barrel.

"Make light of everything," said the fire.

"Do a driving business," said the hammer.

"Aspire to greater things," said the nutmeg.

"Dennis," inquired Mr. Hogan, glancing up over the door of the postoffice building, "what is the meanin' of thim letters, 'MDCCCXCVIII'?"

"They mean 'eighteen hundred an' ninety-eight.'"

"Dennis, don't it strike yez thot they're carryin' this shpellin' reform entoirely too far?"—Everybody's Magazine.

"So you braced up and asked that man to pay the money he had borrowed?"

"I did," answered the diffident person.

"With what result?"

"In addition to going without the money I was compelled to apologize."

"Yes," said the bankrupt, "I lost my fortune reaching for an ideal."

"Very interesting. And what was your ideal?"

"A bigger fortune than I had."—Philadelphia Ledger.

Wife (reading)—Isn't this funny, my dear? Here is an article which says they have found a new species of birds in Australia which have four legs. Now, whatever do you suppose they want four legs for?

Husband (yawning)—They are probably politicians, my love, and by this beautiful dispensation of their Creator they are enabled to stand on both sides of the fence at the same time.—Philadelphia Inquirer.

"Do you believe in the literal idea of future punishment?"

"Not for myself," answered Mr. Sirius Barker. "But I favor it for a lot of people I know."—Washington Star.

A TALK ABOUT I. H. THOMAS.

(*Continutd From Page* 21.)

his shoes, but would have to make his departure from the train shoeless when he reached his destination. Thomas was wild but obstinate at this stage of the game. He begged for his shoes, but the more he begged the less attention was paid to his appeal by the trainmen. Finally the Oakland mole was reached and the conductor told Thomas that he would give him one more chance to redeem his shoes by paying his fare. Thomas finally took his departure shoeless and made his way to the ferry boat unshod. From a money standpoint Thomas considered himself ahead on the deal, inasmuch as the shoes only cost him $2.25, whereas the fare money amounted to $7.10. Uncle Dan could not be induced in any possible manner to dig up his fare, so he departed toward the ferry boat shoeless. Crowds of people gathered around him when he was on his way across the bay on the ferry, and of course every one wanted to know what the trouble was with the old man and why it was he was shoeless. Thomas would not tell the crowd his experience with the conductor, but simply stated that in all the years he had traveled up and down California this was the first time he ever had his shoes stolen right off his feet. On reaching San Francisco he went direct to a small shoe store, bought him a pair of $1 cloth shoes and headed for the office of W. H. Mills to register his kick. Mills laughed for four solid hours over this experience of Thomas' and in order to protect Thomas from any future embarrassment, Mills secured the services of an East Indian tattoo artist and had a pass good for 10 years from date tattooed on Thomas' chest.

Every one has heard of how Thomas got sprayed with a spray pump. However, this article would not be complete if it was not repeated to make his career complete. The spraying incident is as follows:

Mr. Thomas came to Fresno one day and wore on the lapel of his coat a large beetle which he had embalmed and mounted to resemble a stick-pin. As he was walking down the street one day the Horticultural Commissioner in office at that time approached Mr. Thomas on the street and wanted to know what the beetle was he was wearing on his coat. As Thomas is a practical joker he told the "bug man" that the beetle he wore was of the variety (in the category of bugology) known as "Sic Semper Trifolitia," a beetle which was destroying the peach orchards of Kern county by defoliating the leaves and otherwise destroying the trees. Well, our inspector got busy on the spot and told Thomas that if this was the case he demanded the removal of the aforesaid beetle and it made no difference if the insect was dead or alive he must remove same: that he did not propose to take chances of having this terrible insect introduced into this county. Thomas insisted that the beetle was harmless inasmuch as it was embalmed and mounted. Our inspector made the contention that the beetle might contain eggs which might possibly hatch and come forth and he demanded very emphatically that the insect be burned, to be on the safe side. Mr. Thomas objected to such a procedure and did not want his bug destroyed after he went to the trouble of having it preserved and mounted. The inspector insisted that the bug be destroyed, but Thomas was obstinate and would not listen to the demands of the inspector. What was the outcome? Mr. Inspector rigged up a spray pump, installed it on a sled, loaded it with a liberal dose of lime-sulphur and salt and drove around town trying to locate Mr. Thomas. Mr. Thomas in due course of time was located in a chair in front of one of Fresno's leading hotels. Without saying a word or before Thomas had time to rebel, Mr. Horticultural Commissioner sprayed Thomas from head to foot and particularly on his shirt bosom, with the contents of the spray pump. The "Sic Semper Trifoliata" bug "got his," and at the same time our friend Thomas was taught a lesson not to wear on his clothing anything so dangerous.

The cut on the front page shows Mr. I. H. Thomas among his famous prune trees, near Visalia, Cal. He attributes the heavy crop on the trees due to the liberal use of pumpkin juice with which he irrigated his trees. He has retired from the nursery business, much to the regret of the widows in particular. At the present time Mr. Thomas is living quietly on his prune farm near Visalia and continues to grow this famous fruit, which is the inspiration of the phrase "full of prunes."

THE MARKETS.

San Francisco, Jan. 6, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Stocks of wheat in the California warehouses are somewhat less than a month ago. The local market has shown little feature for the last few weeks, prices on both spot and future grain being firmly held, with buyers taking on only small quantities. The shipping demand in the north is quiet, though a larger Oriental demand is looked for in the near future.

California White Australian	$1.75	@1.80
California Club	1.67½	@1.70
California Milling	1.70	@1.72½
California lower grades	1.45	@1.60
Northern Club	1.65	@1.67½
Northern Bluestem	1.72½	@1.77½
Northern Red	1.62¼	@1.65
Turkey Red	1.75	@1.80

BARLEY.

Sales of choice feed are made at a slight reduction from last quotations, and May barley is also a little lower. There is still a fair demand for shipping grain, a cargo having left this week, but business in this department is expected to be less active from now on. Good-sized shipments of feed continue to arrive from the north, and local requirements are well supplied.

Brewing	$1.45	@1.52½
Shipping	1.45	@1.52½
Chevalier	1.57½	@1.62½
Good to Choice Feed, per ctl.	1.40	@1.43¾
Common Feed	1.35	@1.38¾

OATS.

Oats occupy about the same position as before in this market, the demand continuing comparatively light, though stocks in warehouses show considerable reduction in the last month. It is still expected that a strong demand for seed grades will develop. Prices are quite firmly held, as stocks on the coast are mostly out of growers' hands, and it is considered that the supply is short of requirements.

Choice White, per ctl.	$1.70	@1.75
No. 1, White	1.65	@1.67½
Gray	1.65	@1.70
Red, seed	1.75	@1.85
Feed	1.50	@1.70
Black, seed	2.45	@2.65

CORN.

The amount on hand has increased considerably during the month, as the local requirements have been very light, and small lots have been arriving from the Western States from time to time. There is no quotable movement of California corn and all Western grades are lower.

California Small Round Yellow, per ctl.	Nominal
Large Yellow	Nominal
White	Nominal
Western State Yellow	$1.60
Mixed, in bulk	1.45
White, in bulk	1.51

RYE.

Holders continue to ask the prices which have prevailed for some time, but quotations continue practically nominal, as there is scarcely any demand at present.

Rye	$1.42½	@1.50

BEANS.

There has been very little business in beans in the local market the past week, only a few lots changing hands among the dealers. The stock on hand January 1 in this city is estimated at 251,000 sacks. Arrivals in December were about 54,000 sacks, leaving the shipments and consumption at 47,000 sacks, compared with about 29,000 sacks for December, 1907. While the stock on hand is considerably more than at the beginning of last year, a large proportion of the crop was held in the interior. This year a very small part of the crop is held by the growers. The market is steady for all varieties, no further change in prices being quoted. Arrivals are very light and a strong demand for any one variety would be likely to cause higher values.

Bayos, per ctl.	$2.90	@3.05
Blackeyes	3.00	@3.25
Cranberry Beans	2.75	@3.00
Garvanzos	2.25	@3.00
Horse Beans	1.60	@2.00
Small Whites	4.50	@4.70
Large White	3.65	@3.85
Limas	4.20	@4.30
Pea	4.50	@4.75
Pink	2.45	@2.60
Red	3.75	@4.00
Red Kidneys	3.25	@3.50

SEEDS.

Prices in general are steady to firm, with very little change. Local dealers are now well stocked in all lines, and look for a very active demand as soon as the weather clears off. For the present the market is quiet, as the continued rain seems to be delaying planting operations. Local dealers ask the following prices:

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

The demand is rather light, as it has been for several weeks, but a more general demand is looked for within a few weeks, as stocks are believed to be light in all quarters. The local millmen have made another advance of 20 cents per bbl., covering all grades, though outside grades show no change.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

Arrivals of hay in San Francisco have been very light this week, but business has been limited during the holiday season, and supplies have been sufficient to fill all demands. The year has begun with a firm market, and prices on some descriptions are higher. There is an active demand, the majority of consumers finding it necessary to replenish their stocks, as usual after the first of the year. Prices are expected to continue firm, and possibly higher, for some time, as there is still a heavy country demand, and prices in neighboring States have advanced sufficiently to prevent shipments so far. Inquiries for hay are coming from several districts which usually raise for their own consumption. Alfalfa is higher, under a heavy demand from dairymen. The grass has not come out well as yet, but will probably cause some change in conditions before long.

Choice Wheat, per ton	$21.00	@23.00
Other Grades Wheat	17.00	@20.50
Wheat and Oat	16.00	@21.00
Tame Oat	16.00	@20.00
Wild Oat	15.00	@18.50
Alfalfa	14.50	@18.50
Stock	12.00	@14.00
Straw, per bale	65	@ 95c

MILLSTUFFS.

Supplies of bran are smaller than a month ago, but the demand is less urgent than formerly and the market is easy, with a further deduction of values. Only the comparatively light supply keeps prices at the present quotations. Shorts and middlings continue fairly firm at previous quotations and rolled barley is steady. Other feedstuffs show no particular feature.

Alfalfa meal, per ton	$23.00	@24.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	1.20	@ 1.25
Cocoanut Cake or Meal at Mills	25.50	@26.50
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Mealfalfa	23.00	@24.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake Meal, per ton	38.00	@39.50
Rolled Barley	30.00	@31.00
Shorts	33.00	@33.50

VEGETABLES.

The firmness of the onion market is increasing, and all good offerings meet with a ready demand. Receipts are light, with comparatively little Oregon stock offering, and it is understood that the Oregon growers are holding for higher prices. Nothing is to be had here under $1.15. Miscellaneous vegetables are arriving in small quantities, but many of the offerings are unattractive and arouse little interest. String beans, peas and pepeprs are lower. Celery is firm, and tomatoes show some advance, crated Mexican stock bringing top prices. Cauliflower is also higher, and the best garlic brings a slight advance.

Onions	$ 1.15	@ 1.25
Garlic, lb.	7	@ 10c
String Beans	10	@12½c
Green Peas, lb.	8	@ 10c
Cabbage, per ctl.		$1.00
Marrowfat Squash, per ton	10.00	@15.00
Tomatoes, crate	75c	1.50
Turnips, sack		60c
Bell Peppers, lb.	12½	@ 15c
Chili Peppers, lb.	3	@ 5c
Egg Plant, lb.	10	@12½c
Cauliflower, doz.		75c
Celery, dozen	50	@ 80c
Rhubarb, box	1.50	@ 2.00

POULTRY.

Receipts of Western stock continue large, five cars coming in early in the week, but California poultry is arriving in very moderate quantities, and good stock of any kind continues to sell readily. Prices are somewhat lower on the less attractive offerings, but the figures for the first class stock are well maintained. The heavy demand for turkeys is over, and prices have returned to normal, with little demand for live stock. Dressed turkeys bring about the same prices as earlier in December.

Broilers	$ 4.00	@ 5.00
Small Broilers	3.50	@ 4.00
Fryers	5.00	@ 6.00
Hens, extra	7.00	@ 9.00
Hens, per doz.	5.00	@ 6.00
Small Hens	4.50	@ 5.00
Old Roosters	4.00	@ 4.50
Young Roosters	6.00	@ 7.00

Young Roosters, full grown..	7.00@ 8.00
Pigeons	1.00@ 1.25
Squabs	2.00@ 2.50
Ducks	4.00@ 8.00
Geese	2.00@ 2.50
Turkeys, live, per lb.	19@ 21c
Turkeys, dressed, per lb.	20@ 24c

BUTTER.

Receipts of butter have been quite liberal, two large lots coming down from Humboldt early in the week, in addition to a large carry-over from the holiday supply last week. There is accordingly considerable weakness in the extra grade, the decline amounting to 2½ cents. The lower grades, however, have been well cleaned up, and a continued demand has caused a general advance. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	34 c
Firsts	32 c
Seconds	27 c
Thirds	27 c
Eastern Storage Ladles, extra	23 c
Cal. Storage, extras	30½c

EGGS.

Retal stocks of eggs were cleaned up at the close last week, and the market opened with a heavy demand in all quarters. The arrivals have been very light, and offerings have been moving off rapidly at advanced prices. Extras stood for a time at 48 cents, but are now sold 2 cents below that figure. In view of the high price of extras, the lower grades, as well as storage and Eastern eggs, have been in strong demand, and the advance has extended to all grades. The following prices are quoted by the San Francisco Dairy Exchange:

California (extra), per doz.	45 c
Firsts	44 c
Seconds	40 c
Thirds	30 c
Storage, Cal., extras	36 c
Storage, Eastern, extras	33 c

CHEESE.

Cheese is showing very little feature at present, as suplies are becoming more plentiful, and the demand is only of average proportions. Most grades are acordingly inclined to weakness, another slight reduction being quoted on new California flats. The San Francisco Dairy Exchange quotes the folowing prices:

Fancy California Flats, per lb.	14 c
Firsts	13½c
New Young Americas, fancy..	16 c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

With a general demand from the trade, stocks on hand have been well cleaned up, and choice stock from the river districts now bring as high as $1 without difficulty, the better lots of ordinary stock also showing some advance. Salinas and Oregon potatoes are in good demand at former prices. Early Rose for seed purposes are higher, and the better lots of sweet potatoes zring an advance. Ordinary sweet potatoes, however, meet with little interest.

River Whites, fancy, ctl.	95c@$1.00
Common	50@ 75c
Salinas Burbanks, ctl.	$1.25@ 1.50
Oregon Burbanks, ctl.	1.15@ 1.25
Early Rose	1.35@ 1.50
Sweet Potatoes, ctl.	1.25@ 1.85

FRESH FRUITS.

Offerings of deciduous fruits are now limited to a very few varieties, the grapes and persimmons being entirely cleaned up. The market is quiet, as the trade is buying only for immediate wants. Apples are plentiful, and pears find very small demand. Offerings of cranberries are small and the best lots bring $16 per barrel.

Apples, fancy	85c@$1.50
Apples, common	40 @ 75c
Cranberries—	
Cape Cod, bbl.	15.00@16.00
Pears, box, Winter Nelis	75c@ 1.25
Other varieties	50 @ 75c

CITRUS FRUITS.

The trade in general is well supplied with oranges, and purchases as a rule are small, the bad weather tending to limit the consumptive demand. The market is really oversupplied, and arrivels continue larger than is warranted by the present demand. Prices, however, are well sustained in all lines, everything being held up to former quotations.

Choice Lemons	$2.00@ 2.50
Fancy Lemons	3.00@ 3.25
Standard	1.25@ 1.50
Limes	4.00@ 5.00
Oranges—	
Navels	1.75@ 2.50
Tangerines	1.00@ 1.25
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The quietness in the dried fruit market continues, little interest being shown by buyers, either here or in the East. Reports from other markets indicate a fair amount of trading in a small way, but there is not enough business to cause any stir locally. Prunes continue comparatively dull, as the large holdover in the East is preventing any strong demand, while holders on the Coast show little inclination to make concessions, especially on the larger sizes. Peaches are dull, but strongly held. Few apricots are offered, and the prices quoted are very firmly held. The prices below are asked by local packers, who are not quoting prices to growers, as there is very little movement. The raisin market appears to be at a standstill, the success of the Fresno pool being still in doubt. The consuming demand is light all over the country, and Eastern dealers are practically out of the market. The local packers are unwilling to pay over 2 cents for small offerings in the sweatbox, and it is understood that some growers have sold below that figure. Packers ask the prices given below:

Evaporated Apples	5½@ 6½c
Figs, black	2½@ 3 c
Figs, white	3 @ 4 c
Apricots, new crop	8 @ 10¼c
Peaches, new crop	4 @ 5½c
Prunes, 4-size basis	3 c
Pears, new crop	4 @ 7 c

RAISINS—NEW CROP.

Loose Muscatels, 4 crown	4¼c
3 Crown	3¾c
2 Crown	3¼c
Thompson Seedless	4 c
Seedless	3¾c
London Layers	$1.10@ 1.20

RAISINS.

Some of the local packers are offering 2c for raisins in the sweatbox. For packed raisins they ask:

Loose Muscatels, 4 crown	4 c
3 crown	3¼c
2 crown	2¾c
Thompson Seedless	3½c
Seedless Sultanas	3 c
London Layers, 3 crown	$1.00

NUTS.

The Eastern demand for California nuts, particularly almonds, is confined to narrow limits, and no business is being transacted in a large way. The local market is also quiet and without feature, with the almonds well cleaned out of growers' hands, and only moderate stocks held by packers. Prices are as last quoted, but are practically nominal on the upper grades, as hardly any movement is going on. Walnuts have been very dull, with considerable stock still in the hands of Association growers. A reduction has accordingly been made in prices, and the remaining stock will probably be disposed of, as supplies held here are limited.

Almonds, Nonpareils	11 c
I X L	10 c
Ne Plus Ultra	9½c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c
Hardshells	less 2 c

HONEY.

Very little honey is now offered by California producers, comb and upper grades of extracted being about cleaned up. The prices offered are the same as before, but the local demand is limited.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼ @ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Prices on hops show a wider range, as the result of a slight increase of activity during the past week. Ordinary grades are not in much demand, and are offered at the former low price, but sales of better grades have been made at a comparatively fair figure. Stocks are now well cleaned up, and buyers are not taking much interest.

Hogs, per lb.	5 @ 8 c

WOOL.

The best San Joaquin wools are bringing a slight advance, but there is at present little movement in any quarter. Local dealers say that the greater part of the holdings in California have been disposed of, and Eastern buyers are not showing much interest.

Red Bluff (f. o. b. Red Bluff) free	6 @ 7½c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 5 c
Mendocino, free	7 @ 9 c
Defective	5 @ 7 c

MEAT.

A general advance of about ¼ cent has taken place in live cattle. Lambs are also a little higher. Supplies in these lines are light, as usual at this time of year. The shortage has brought about another sharp advance in dressed meats, amounting to ½ cent on beef, and about 2 cents on mutton and lamb. Hogs are practically unchanged, supplies being quite ample for the demand.

Beef: Steers, per lb.	7 @ 7½c
Cows	6 @ 7 c
Heifers	6 @ 7 c
Veal: Large	8 @ 9 c
Small	9 @10½c
Mutton: Wethers	10 @11 c
Ewes	9 @10 c
Lambs	11½@12½c
Hogs, dressed	8 @ 9½c

LIVESTOCK.

Steers, No. 1	4¼ @4½c
No. 2	4 c
No. 3	3½c
Cows and Heifers, No. 1	3¼ @ 3½c
No. 2	3 c
Bulls and Stags	1¾ @ 2 c
Calves, Light	4¾ @ 5 c
Medium	4¼ @ 4½c
Heavy	3¾ @ 4 c
Sheep, Wethers	4 c
Ewes	3½c
Lambs, lb.	4½ @ 4¾c
Hogs, 100 to 150 lbs.	5¾ @ 6 c
150 to 250 lbs.	6 @ 6½c
250 to 325 lbs.	5½@ 5¾c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Jan. 5.—The orange market seems to be in very good shape, even though the auction in New York city on Monday showed a weakness over the close on Thursday last. So much fruit had accumulated at that point during the three days of inaction that it was rather more than they were willing to handle, and the buyers took advantage of the situation to get some cheap fruit. Other auctions showed up well and it is not at all likely that this temporary setback will mean anything unless there is still a lot more fruit there unsold. It is not possible for any but the elect to know the number of cars awaiting sale in New York city. The fruit is kept over in Jersey City until needed on the day of sale and then it is freighted over. For reasons best known to themselves, perhaps at the suggestion of interested parties, the railroad men refuse to give the figures from day to day and so the shipper at this end, and even the rank and file of the buyers, do not know what amount of fruit is at hand.

At all other auctions the prices were good and there does not seem to be an over-supply at any point. In fact, it does not seem possible that there could be, for the shipments have not amounted to over 75 cars a day, and this is not as much as has been shipped in former years at this time. Shipments from California for Thursday and Friday of last week were 197 cars of oranges and for Saturday and Sunday, 108 cars. All the houses are now fairly busy, but are ready to stop at any time it becomes evident that more oranges are going out than are needed. No one is anxious enough to rush out fruit to overload the markets, except those who are afraid that their fruit may have been touched by the frost. Even at the points where the most damage has been done there does not seem to be the activity one would naturally expect, and the conclusion is drawn that the damage has not been so great as those who want to "bear" the market would like to have the growers think.

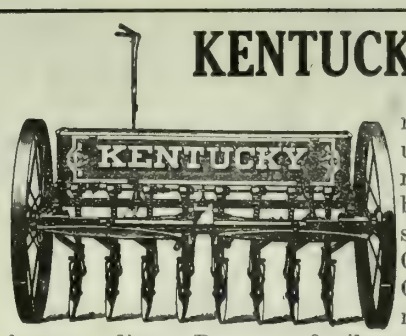
Lemon prices are a little better. The news from Sicily makes the jobber think that perhaps he had better stock up a bit on California lemons, as there is no knowing when the Sicily shippers will be in shape to send any more fruit. The damage has been great, many thousands of boxes of lemons in storage at Messina and other points in Sicily have been destroyed.

THE ARMSTRONG REDWOODS.

Three hundred and twenty acres of beautiful natural redwood forest adjacent to the town of Guerneville in Sonoma county may be purchased as a State park. State Senator W. F. Price of Santa Rosa has prepared a bill to present at the next session of the legislature. It will ask for an appropriation sufficient for the purchase. Something in the neighborhood of $100,000 will be required. The property is commonly known as Armstrong grove.

The promoters of the plan have been working hard to bring the various interested heirs to the property into unison and have them agree to hold off and let the State have a chance to buy the whole area as one beautiful park.

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135 KANSAS ST., SAN FRANCISCO.

PUBLISHER'S DEPARTMENT.

John Bird of Bird's Landing sends up a letter dated January 1, in which he encloses $2 for the thirty-ninth time. Mr. Bird says: "As I have taken the paper since its first publication, I cannot well do without it." The PACIFIC RURAL PRESS has many long-time subscribers and to such it owes much of its prosperity. To Mr. Bird we extend our best wishes for continued prosperity, health and happiness.

The Wells Medicine Co. of 28 Third St., Lafayette, Ind., with D. E. Newell Co. of Oakland as Western agents, advertise their Craft's Distemper and Cough Cure for horses in this issue of the RURAL PRESS.

T. H. Wilson of the Fresno Nurseries sends us the handsomest calendar for the New Year yet received. A bowl of fruit, done in rich colors, embossed and die cut, makes a very pretty effect. We don't know whether this firm have them for general distribution, but if so they are well worth writing for.

On our last page appears the large ad of A. Mitting of Santa Cruz. The berry advertised is well shown in the cut accompanying, and we advise all readers to look at this page and read what Mr. Mitting has to offer.

A new ad will be found in this issue from the Deming Spray Pump Co. of Salem, Ohio. This is a well established firm and fruit men will find it worth while to send for one of their catalogues.

A set of six calendars has been received from the International Harvester Co. of America. These calendars are works of art, being reproductions from fine old oil paintings. We understand that all agents of the company have these calendars for distribution, and are worth our readers' time in securing. This company has also prepared for free distribution an almanac which is full of information for the farmer.

The Pacific Implement Co. of this city send us one of their large, handsomely illustrated catalogues. This book covers the vast line of implements handled by the firm and is worthy of a place in the library of every farmer. To show how complete it is, fifty plows are illustrated, then harrows by the score, wagons, buggies, silos, ensilage machines, graders, scrapers, everything conceivable in the implement line is fully described and illustrated.

THE EVANTS CULTIVATORS

The Evants Cultivator, with 9 Circular V Teeth and Seat, Cutting 4½ feet; also with Wheels and Levers for Lifting Teeth out of Ground and Ratchet for Regulating their depth in the Ground.



1st Premium at State Fair 1907-8.

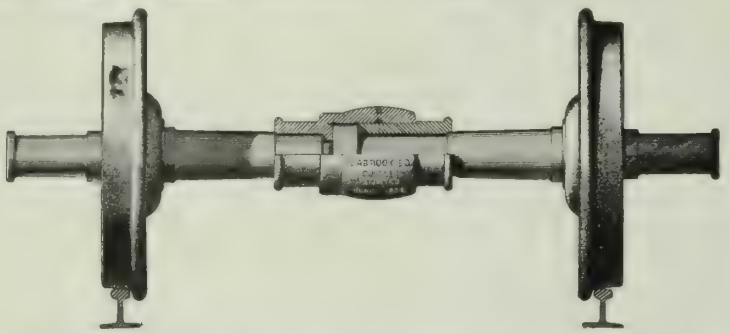
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THE officials and men of the Santa Fe Railway are very enthusiastic over the **Seabrook-Box Differential Railway Axle Coupler,** which is being applied to an 80,000 pound capacity oil car at the San Bernardino shops. The expression you hear among the men very frequently is, "SAVE YOUR MONEY AND BUY AXLE STOCK."

Mr. Seabrook, a prominent engineer of Los Angeles, has invented a Differential Railway Axle Coupler that promises to make more men rich than any other railroad device ever invented. Mr. Seabrook has had a very wide experience in railroad work, as he was General Manager a great many years for a company which employed from six hundred to one thousand men. Considerable of this work was in repairing and rebuilding locomotives and cars. He, therefore, realized the necessity of a Differential Axle for railroads.

Mr. Seabrook's device is the only device to which railroads of the world can look that will enable them to haul a much greater tonnage and reduce the expense of operation and maintenance.

An axle equipped with a Seabrook-Box Coupler is stronger by 50 per cent than a rigid axle.
It is pressed together in the same way that the wheels are pressed on the axle.
There are no bolts, screws, rivets or flanges employed in this axle coupler.
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It is more efficient in every way than the rigid axle.
It adds to the life of the axle at least 100 per cent.
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It adds to the life of wheels 200 per cent.
It enables a locomotive to haul from 25 to 35 per cent greater tonnage without the expenditure of any additional fuel or labor.
It never has to be inspected.
It does away with 75 per cent of the flange wear.
It never has to be lubricated, as this is accomplished at the time of its construction by the use of graphite and will last the entire life of the axle.
It is endorsed by Railroad Officials, Superintendents of Motive Power, Master Car Builders and Master Mechanics all over the world.

A small investment in this stock today will net you enormous returns in dividends. The stock is now selling at One Dollar per share, but will be selling very shortly at Two Dollars. It is the consensus of opinion that this stock will be worth Forty Dollars per share in a very few years and should be worth Five Dollars one year from today.

If you wish for further information we should be glad to supply it upon request. The stock may be advanced any day to Two Dollars, so be sure to send in your subscription immediately to the Fiscal Agents,

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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 3. SAN FRANCISCO, SATURDAY, JANUARY 16, 1909. Thirty-ninth Year.

Scaly Bark Gum Disease.

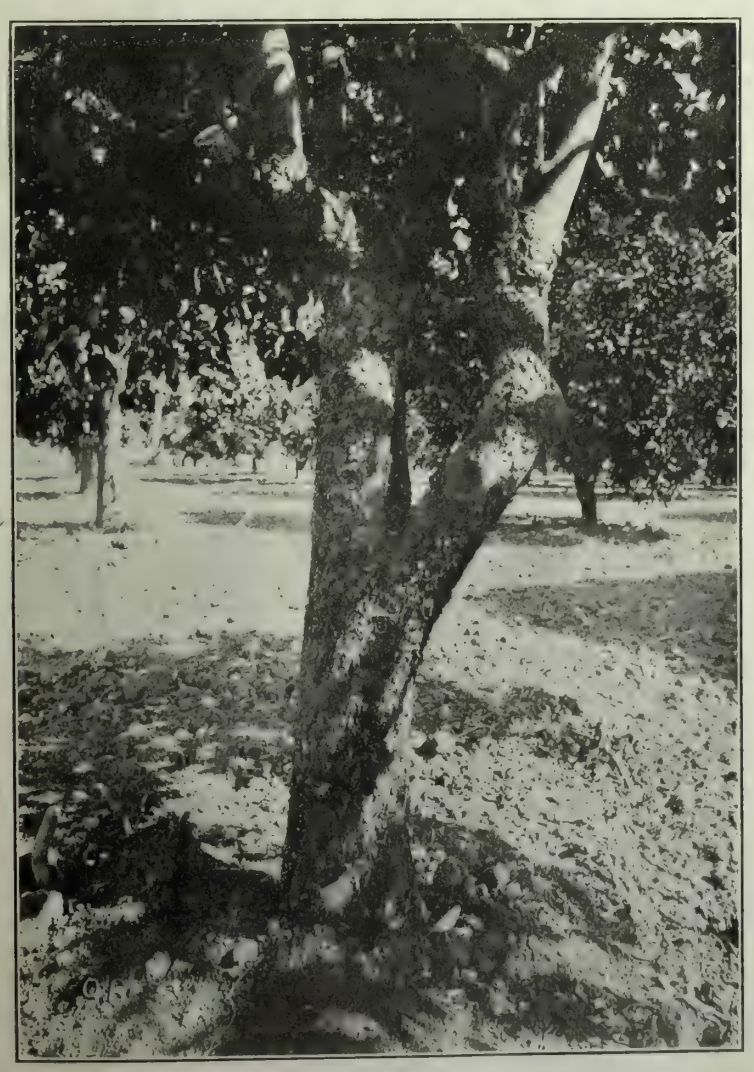
By Prof. R. E. SMITH of the University Plant Disease Laboratory.

In the PACIFIC RURAL PRESS of December 12 we gave an interesting illustrated account of the so-called lemon gum disease (because it is prevalent upon though not at all confined to the lemon), which strikes the tree at or near the ground line. The account was drawn from the published conclusions of Prof. R. E. Smith and Mr. O. Butler, experts of the University Experiment Station. The Plant Disease Laboratory at Whittier is especially devoted to such plant problems, and has demonstrated great value to the State. At this time we present another form of gum disease, which is called "scaly bark," or psoriosis, while the lemon form is called gummosis. Prof. Smith says that scaly bark is distinguished particularly from gummosis by its occurrence at any point upon the branches or trunk of a tree, with no apparent direction between the soil and the location of the affected area. Also by the scaling off in flakes of the outer bark, leaving the inner layer nearly intact, instead of a separation between wood and bark, as in gummosis. Most commonly the disease appears first upon the trunk, although often at a considerable distance from the ground in large trees, but it commonly breaks out in isolated spots upon the branches, even upon those of quite small size.

The appearance of the disease is suggested by its popular name. At a certain point on the trunk or branch the surface layer of bark begins to break out in scales which curl up and separate from the inner bark. This separation of the bark into scales does not occur at the cambium layer between the bark and wood, but involves simply the outer rough bark. The inner bark remains in its proper position and becomes more or less pushed out as the disease progresses, owing to the irregular growth of the wood beneath. The scaly portion is usually only an inch or two in diameter at first, but gradually spreads until it covers a large patch, or may involve the whole surface of the trunk and much of that of the limbs. There is no very abundant production of gum from the affected portions, but here and there a small pustule breaks out from which gum exudes of a similar nature to that seen in gummosis. The gum is less abundant than in the latter disease. Trees affected with scaly bark soon lose their healthy appearance as the disease develops, the foliage becomes sparse and light colored, and the branches die back so that the top of the tree becomes full of dead wood. Such trees, however, seldom die completely, but linger for many years, throwing out new shoots from the trunk and maintaining a feeble existence. Scaly bark is most commonly seen on old trees rather than young ones, and is especially common in some of our old seedling orchards or the oldest groves of the Washington Navel.



Scaly Bark Area on Orange Limb.



Orange Tree Affected With Scaly Bark.

The occurrence of this disease with reference to any particular condition of soil, cultivation, or climate is rather less evident than in the case of gummosis. It has no pronounced relation as in the latter case to heavy soils or excess of moisture, or at least not in the evident manner which is seen in the other diseases.

One feature of scaly bark that makes the determination of the causes which bring it about quite difficult is the fact that in the majority of cases affected trees have been in their present condition for a great many years. The disease shows no rapid spread or grealy increased prevalence, but so far as can be learned has been in much the same condition as at present for a long time. Many trees can be identified which have been affected for at least fifteen years, and while their appearance is very bad, it would seem from what can be learned that their condition has changed very little during this period. In the majority of cases the trees in an orchard affected by the scaly bark are scattered indiscriminately about, with no decided relation to each other or to any particular condition.

The treatment of trees badly affected with scaly bark is not a promising undertaking. When far advanced the condition becomes one of such a chronic nature that a satisfactory cure is almost out of the question. A general survey of the occurrence of this trouble in California makes evident the fact that the prevention of this disease is much more to be sought after than methods of treatment for its cure. Scaly bark is not a disease of common occurrence in our best orchards. While occasionally a tree may be affected even in some of the finest groves, yet such cases occur very largely where the soil is of uneven quality, and more often scaly bark accompanies poor culture, unfavorable soil conditions, or neglect. In a great many groves, as we have already mentioned, where the present methods of culture are good, the scaly bark trees are a relic of former trouble and have been in their present condition for many years.

The prevention of scaly bark appears to be best accomplished by the maintenance of uniformity in regard to moisture conditions. It is scarcely necessary to go into methods of accomplishing this in this article, but according to the nature of the

(*Continued on Page 49.*)

Pacific Rural Press

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., January 12, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	——	——	19.36
Red Bluff	2.12	9.47	11.43
Sacramento	2.02	6.61	8.19
Mt. Tamalpais	3.09	12.22	9.81
San Francisco	2.09	6.84	9.61
San Jose	1.70	5.00	9.61
Fresno	.51	2.31	4 18
Independence	.84	2.66	4.14
San Luis Obispo	3.43	8.07	7.67
Los Angeles	.81	4.90	6.08
San Diego	.10	2.36	3.87

The Week.

There are many thousands coming to make homes in California during the present year. We hear that transportation experts are anticipating a very active season in overland movement of locators, and it is sure that our correspondence never included so many requests for specific information. The prominence of California topics in all sorts of publications, from the heavyweights of governmental science and engineering to the airy creations of decorative art and magazinery, was never so marked. In fact, it is seldom that a piece of literary handiwork falls or flies from the press without illustrative reference or direct discussion of some form of California delightfulness and desirability, or of some phase of California life and work. All this is, of course, attractive, and exerts its influence upon all classes of people. The result is the wonderful recourse to California for investment, for industry, for a place to work hard or to live leisurely—as individual fortunes and desires may determine.

As ever, and for the reasons so fully set forth in our issue of December 12, California is getting the best of the people who are moving. If it is a method with millions, we get the men with the most of them; if it is a method with mind, which our varied and high-class agriculture especially invites, we get the men with the most of it. We do not intend to divorce money and mind, though the last sentence looks like it; we simply mean that California affords a field for both, and it is not our fault that people sometimes have more of one than the other. California is a good place for those who have enough of either, and it takes enough of either to get here in proper shape for success.

As there are, then, so many capable people moving this way, we are glad that we are having so good a year to receive them. The storm of last week continues, and it is reaching every part of the State. It looks as though there would be plenty of water for the only kind of dry farming which is worth doing anywhere, and the mountain gorges are filling with snow, which is a surety that wet farming will also be well provided for. The hard winter which they seem to be having at the East will probably be the last impulse needed to set the capable people moving westward in unusual numbers this spring.

In view of the coming of people to make homes upon California land, the old question of what they shall do, and how many acres they shall secure to do it with, again arises. We have always maintained that too minute subdivisions of land are liable to be disappointing, because they are always advocated upon exaggerated notions of what can be done upon a small piece, and almost utter disregard of the conditions upon which very high acre-products are occasionally secured. We have before us a gorgeous pamphlet published in the Middle West, entitled, "A Fortune in Five Acres," and find that the declaration is based upon five acres of eucalyptus. It certainly forces one to a moderate idea of a fortune, which seems out of place in this age of the world. We have seen other catchy pictorial eucalyptus publications which seemed to promise a living from five acres of eucalyptus, with a cottage in the grove and all kinds of vegetables and field crops growing beneath the tall trees. It looked really cozy and succulent.

But these conceptions of what can be done in California seem really underdrawn as we read of microscopic farming in Europe. There is a charitable project now on deck in France which makes the California subdivisions look very roomy. It is a scheme which may be summed up as "Half an Acre and a Homestead." We read that the Assembly sanctioned it in April last. The plan is now beginning to come into operation. What M. Ribot and the other promoters of the measure aimed at was to give workingmen in the towns and laborers in the country an opportunity to acquire on easy terms a plot of land and a modest homestead, arguing that this would be the more practical kind of provision for the evening of life than any old age pension fund. The field or garden must not cost more than $240, and its extent is limited for the present to 25 ares—a little over half an acre. The intending purchaser must possess $42.50. If not, he is helped by the State, and the moment he deposits the money he becomes proprietor of the holding. He must undertake that he or his children will cultivate it, and he must also insure his life. The State does not deal direct with the purchaser, but with an intermediary and guarantee company formed in each district. A capital of $20,000,000 has been set aside for loans at 2 per cent, and each local company must have a capital of $40,000, of which half is to be held in reserve. The original idea was to provide town or country workers with a home when they had reached the age of 50 or 60, but anyone who has saved one-fifth of the purchase money can at once become the possessor of "half an acre and a homestead."

It is, of course, questionable whether such a subdivision of land should be considered capable of agriculture at all. It is really nothing but a cottage lot, and its capability of production depends upon how closely the cabbages can be brought to the door and how quickly one can be brought to usefulness and another started in its place. It is the most intensive gardening and implies a maximum of hand work and the abandonment of everything which entitles agriculture to be considered an industry or a business. It is merely the small catch-penny vocations of the city pavements transferred to the country—vastly better in many respects, but the same old struggle against starvation under more wholesome surroundings, perhaps. Whether it is any better from the point of view of making a livelihood depends entirely upon the French thrift and industry, which alone can lift it from the starvation connection. Such things under the name of agriculture may be commendable in France: we do not know whether the thing is practicable even there, or whether it is the work of a visionary, for they have visionaries even in France. But it is not practicable even in California, nor will it be until in coming centuries we may reach the small things of Europe—which we are glad we shall never see.

The worst thing about the claims of a livelihood from the small areas in California is that they cannot be realized while one retains American ideas of what is necessary to a livelihood, because many of the things proposed to be done cannot possibly yield the returns which are necessary to command the comforts and decencies which Americans demand for themselves and their familiies. There are, of course, small areas which yield high returns, because of natural richness of the land, the possession of water, the investment of much money and time in the growth of trees, etc. It should be remembered that the capital thus rendered productive has often been loaned to the land rather than developed from it; also that the personal effort in direction and in actual labor has been of supreme excellence for the particular undertaking involved. The investor who makes a good investment in a small area of highly productive property buys many things which he does not see; the investor in other small areas, because certain the first area yields vastly, is very apt to see things which do not pass to him with the title, and to which he never attains because he has not the knowledge or the energy to endow the land with them.

All this is a very roundabout way of saying that many of the subdivisions of California land offered to people who know nothing of California agriculture are too small to yield the livelihood which is promised with them, not because the land is not good, but because the purchaser is not suited by knowledge, self-help and frugality to attain it. There have been, of course, too many instances in which bad land, exaggeration of returns and minimization of required effort have brought purchasers to bitter disappointment and loss. We are not thinking about such instances now, but rather of cases where more good land and a producing policy which the purchaser understood and had a taste for, would have made more prosperous and contented settlers. We heard the other day of a plan which seems to us more rational than many which have been adopted hitherto. It consisted, first, in abandoning the intensive horticultural idea, which so few Eastern farmers know anything about. Development in this direction may naturally come later. For a general basis there was to be forty acres of alfalfa, five acres of trees and vines, a line of eucalyptus trees around the property, a small farmhouse, barn and outbuildings, and enough empty land to make up an eighty-acre tract. The house, with its domestic water supply, gives the new family a home and frees the wife from homesickness while trying to live in a shack. The growing alfalfa gives the man something to get busy with at once, and feeds his animals. The small orchard and vineyard excite his curiosity and lead him to begin to educate himself in fruit. The bare land gives some pasturage and something to get ready to plant. If as much as 80 acres goes into the farm, the cost of improvements distributes itself so that the per acre price does not run too high to be reasonable, in view of the fact that the purchaser has a home

and not merely a place to put one. Of course, the total cost may be rather high, but it seems rational to start an Eastern farmer with a place to live and large enough to enable him to begin farming along a line which he understands—and then watch him grow in California wisdom. We understand that there are plenty of people who have money enough to start themselves in such a way, while there are, of course, others who wish bare land and the chance to make their own improvements. Both these classes will make their own way, and we believe they are the ones to turn our great valley plains into prosperous farms as fast as water is brought from ditch or well to pull the plains out of dry-farming categories. We have the impression that it is more rational to bring lands to intensive cultures, which yield high returns from high requirements, by allowing such cultures to develop as newcomers acquire knowledge and taste for them, from a basis of eighth-section farms, than to block them out at first upon vast plains and expect people who do not know anything about high cultures to make a livelihood out of them.

Queries and Replies.

Cherries Probably Need Restoratives.

To the Editor: I have a cherry orchard that is about 20 years old and has borne but one good crop. They are on sandy soil, and bear no better when free from frost. I have Royal Ann, Tartarian, and Republicans. They blossom very full and the cherries get as large as peas, then begin to drop, leaving only a few on the trees. What can I do to make them stick? If I should put anything on the ground around the roots, please tell me.—Grower, Monterey County.

As you have varieties associated, your trouble is probably not lack of cross-pollination. Probably the trees are lacking either plant food or water, and perhaps both. You do not say whether the trees bore well in their early years or not. If they did, they can be restored to bearing by giving a covering with stable manure, allowing it to be leached out by the rains, and plowing in after the heavy rains are over. A good irrigation in July would probably enable the trees to continue their fall growth and make stronger fruit buds for the following year. This prescription is somewhat at random, because you do not say whether the trees are making a good wood growth or not, and we are presuming upon the fact that they are not as thrifty as they ought to be, and therefore need both stimulants and a better water supply.

Orchard Cultivation.

To the Editor: I have an apricot orchard of about 2000 trees on apricot roots, standing on slightly rolling land. The trees are eight years old. The cultivation has been three to four inches deep and done in such a way that there is a mound around most of the trees, four to ten inches high. There is no irrigation. We had no late rains last spring, but a heavy crop of fruit. I noticed that the trees with the highest mounds dropped their fruit more than the others. All the trees are strong and vigorous. I am frank to say that I know nothing about cultivating an orchard, but it looks to me, if the land was cultivated six to eight inches deep, it would hold the rain better and if the mounds were removed it would let the rain into the tap roots and stop the dropping of the fruit. Would sheep manure be safe to put in an apricot orchard?—Subscriber, Ventura.

We should plow about as deep as you propose. Work the mounds up with a mattock, pulverizing the ground around the tree, and then work the ground from the centers back toward the trees, so as to get a level surface as nearly as practicable. Working the ground away from the trees too much and leaving the mounds of hard soil has promoted loss of water by evaporation and produced the result which you describe. Working the ground in this way is to save moisture everywhere under the level surface, for the roots are everywhere. It is not to turn more water to the tap roots, probably your trees haven't any.

Alfalfa as a Restorative.

To the Editor: We have about 30 acres of poor soil. The soil is weak. Adjoining soil grows fine apple trees. Even this soil will grow apple trees, but very slowly and with uncertain results. The soil seems wet enough, as the entire ranch is subirrigated, and on the ground in question water can often be gotten at 8 feet. However, it is weak. The soil consists of disintegrated granite. A few trees at 16 years are 15 feet high, but we had to grub out 30 acres of apple trees and almonds. The former refused to grow or bear, the latter became diseased with gum trouble and root knot. Now I believe that we can fertilize the soil so that it will get good and do its part. We are too far away from other places to get a great quantity of barnyard manure, and too far to pay to haul compound mixtures. Is there something that we can grow on the soil thus described that will, after planting several years, reclaim this soil? We are at an elevation of 4000 feet, with an average rainfall of between 18 and 20 inches, and although we have some dry years, yet this soil does not lack moisture except perhaps on the surface. The soil looks between a good granite soil and a better grade of river bottom sand.—Farmer, Mojave.

Nothing would reclaim your land better than alfalfa, if conditions for growing it are favorable, because it has the ability to root down into the moisture which you describe and maintain itself after it reaches it, without irrigation. This plant will certainly accomplish the enrichment of the soil if you can get it to grow well, and it should be started as early in the spring as would be safe from danger of sharp frost, so that it will have a chance to send its roots down before the moisture goes out of the surface soil.

If alfalfa does not succeed with you, such healthy legumes as common field peas and hairy vetches, to be grown during the rainy season and plowed under green, would be the next best suggestion. Some such operation as this, or recourse to thorough fertilization with a complete fertilzer containing nitrogen, phosphoric acid and potash, would be the only thing to suggest, inasmuch as free use of stable manure is out of the question. This latter treatment is, of course, best from all points of view, and if you could find it profitable to keep any kind of stock on the land for a time its reclamation might be accomplished.

Grown Crops for Cows.

To the Editor: I have a farm north of the bay which consists of reclaimed tule land and ordinary upland of varying quality. My idea is to run a dairy there, and I find it difficult to grow suitable feed for dairy cows through the winter. I can grow all the hay I require, but this alone is not a satisfactory feed for milk; I can purchase bran and mill-feeds, but at the prices which have been ruling for these commodities for the last two years, there is no profit in using them. During the past season I tried pumpkins on a small portion of the tule land with considerable success, but found that although they improved the quality of the milk, the quantity fell off, and I was obliged to purchase bran to keep the cows from going dry before spring. I have a lot of English seeds – mangels, swedes, kohlrabi and cabbage—and I wish to know the best times for planting them this spring.—Reader, San Francisco.

You could have had mangels for winter feeding by starting last May or June on land which retained moisture enough for good germination at that time. You could have had cabbage by starting the plants in September and transplanting with the first fall rains. Your work now would be productive of feed next summer and fall. All the plants which you mention are rather hardy and are not generally affected by light frosts. Sowing is, however, deferred, not so much for the sake of the frosts, but to be sure the ground is not saturated with cold water from heavy rains, which is apt to cause the seed to decay or the plant to spindle. If the winter is normal and the soil comes into good condition in February, as is customary, we should prefer sowing then than to wait until later in the spring. You will have to be governed more by proper soil condition than by any other consideration. You will hardly be likely to have any satisfaction with swedes and kohlrabi, unless you get them started early, for growth during the cool moist weather. They abhor dry heat, and although widely tried have been generally abandoned for stock purposes, even in the coast district of California.

Alfalfa the Most Likely to Do It.

To the Editor: I have considerable good land which I cannot irrigate. Do you think alfalfa will grow and do well on this ground? Will you kindly tell me if there are different kinds of alfalfa, also what time of the year is best to sow in this country? Do you think clover would do better than alfalfa with the above conditions?—Young Farmer, Shasta County.

You are up against the old and vexing problem of getting forage in the dry season without irrigation, and no answer is yet ready. Whether you can get a permanent stand of alfalfa on the land you speak of without irrigation depends almost entirely upon whether there is water underneath which the plants can reach. If so, it will maintain itself. To make a trial the alfalfa should be sown as early as convenient after danger of sharp frosts is over, in order that it may get rooted as deeply as possible with the moisture remaining from the winter rains. We know no clover that would be so likely to succeed as alfalfa, because others are mostly shallow rooting, excepting the so-called "Sweet clover" Melilotus alba, which is also a deep rooting plant, but is not as a rule relished by stock because of its rank flavor. There are two kinds of alfalfa now available—one the common alfalfa and the other the Turkestan, which it might be desirable for you to try, as seed of it is offered by our leading seedsmen.

Small Fruits in the Orchard.

To the Editor: This and the last year I have planted seven acres in cherries, Imperial and sugar prune trees. The trees are planted 25 feet apart each way. I am considering at present to plant berries between the trees. If two lines of berries, such as blackberries and the various hybrids, are planted between the rows of trees, will that set back the growth of the trees? What success can be counted on where cultivation would be the only means of keeping the moisture to the surface? In this case irrigation would be too expensive. Big money, I am told, is realized in berry culture, but I have never had the pleasure to meet one who has done so.—Grower, Napa valley.

We should say not. You are a year or two late in starting that line, which is not bad, because you ought not to start it at all. If you had started the berries with the trees and your land was deep, rich and retentive you might have done something with berries if you know how to grow and handle the crop. But you have all that to learn and your berries only due to fruit fully when your trees are also due to begin bearing and will need all the moisture and the best cultivation you can give them to retain that. You had better keep out of the berry business unless you have a better proposition.

Horticulture.

THE PEAR BLIGHT IN CALIFORNIA.

From a paper by Prof. R. E. Smith of the University of California at the State Farmers' Institute at the University Farm, Davis.

During the year 1908 the pear blight, to a very great extent, disappeared from the territory which had been so badly affected in recent years, so that but very little new blight was visible. In a great number of cases also trees which had been badly affected with the disease recovered to a remarkable extent, the blight organism dying out in the affected tissues and the trees starting a vigorous growth. While this condition is a most desirable and welcome one, it should not be made the basis for any great amount of optimism as to the future.

In the history of pear blight in this country, during the many years it has been known, these ups and downs in the occurrance of the disease have been very common. The organism which causes the trouble is very susceptible to climatic and other conditions which affect it directly, and also through the condition of the tree, which varies with the character of the season. The last season was marked by much dry, windy weather, even during the winter and spring, and this condition was effective in keeping down not only pear blight but also peach blight, pear scab, walnut blight, and many other common diseases of trees. The absence of blight last year is encouraging in showing that we may expect occasional seasons of comparative freedom from the disease. But all experience goes to show that such freedom cannot be expected to continue indefinitely. It is possible that the disease may be reduced for one or more years following this, on account of the set-back which it has received this season, but before any very extensive period has elapsed favorable conditions for blight may come again and the deadly germ multiply and spread with all its former vigor.

The Importance of Fighting.—It is not the purpose of the present paper to dwell at length upon the usual methods of pear blight control, since these have been thoroughly exploited in this State and every grower has had ample opportunity to learn how to handle the blight according to the best known system. We are aware that differences of opinion exist as to the effectiveness or profitableness of this method of treatment, but would simply call attention to the fact that at the present time the best pear orchards we have, following the severe attack of blight of the last few years, are those which have received the most careful and thorough treatment along the lines which were first recomended by Mr. Waite, of the United States Department of Agriculture. It is probably well known to all of the pear growers present how our State Legislature in 1905 made an appropriation for the eradication of pear blight, under the direction of the plant pathologist of the State University, and how in the following two years all the pear growing districts of the Sacramento valley and neighboring territory were thoroughly inspected by a considerable number of men employed by the University, the United States Department of Agriculture and the various county boards of horticulture. This work consisted, in general, of an effort to encourage the eradication of pear blight by inspecting the trees carefully and instructing the growers in the best methods of work. Every pear grower in those sections of the State which are largely interested in this crop was visited many times, 750,000 pear trees were carefully inspected, numerous meetings and demonstrations were held to promote the object of the work, and in general it can fairly be said that to the extent of practicability everything reasonable was done to suppress this destructive disease. It is difficult to see what further could be done under present conditions and in the light of present knowledge, but the work done has emphasized the necessity of changed methods and increased knowledge in certain respects. Along these lines appear to be the greatest hope for the future of the pear industry in California.

After the amount of work done in the field by the agents of the Experiment Station and Department of Agriculture, it does not appear to the writer probable that further work of this sort on a large scale could be of much profit. Our pear growers have had every opportunity to become thoroughly informed as to the methods of control advocated and to put them into practice. So far as these methods are applicable to existing conditions, there should be no further necessity for their demonstration.

California Behavior of the Blight.—One of the most valuable results from the work done thus far has been the experience gained as to the behavior of the disease under California conditions. Of these peculiarities there are two which seem of particular importance, since they are the factors which have most largely prevented complete control of pear blight in California; these are: First, the very large amount of infection of twigs and green shoots which occurs, with no relation to the blossons; second, the large number of trees which become infected in the body near the ground or in the butt under the ground. In the latter case the blight runs down into the roots and often girdles and kills trees which in the tops appear perfectly healthy, or only slightly affected with the disease. So far as the usual form of the disease is concerned, occurring in the top of the tree with the infection mostly through the blossoms, our growers have learned to handle it with considerable success by the usual methods, so long as the work is done carefully and properly.

The one most discouraging and baffling feature of the disease has been that mentioned, where large numbers of trees in an orchard apparently free from blight would suddenly be found affected in the butts and thus beyond redemption by the methods of handling blight in the tops. Could this difficulty be overcome, we believe that pear growing would again flourish on a sound basis, though requiring more care and attention than at present.

The Battle Under Ground.—During the year 1907-08 our chief activity in regard to pear blight has been along the line last suggested. This work has consisted mostly in an effort to determine the method by which infection takes place in cases where the green twigs and shoots contract the disease so abundantly, and also to investigate the possibility of growing trees in such a way as to avoid the butt blight mentioned above. It has been found that the latter form of the disease is a result of the other peculiarity mentioned, the infection of the butts taking place through green sprouts or suckers, sometimes when the latter amount to no more than a bud with only one or two leaves formed in the rough bark near the butt. Infection of this sort appears to be brought about in a similar manner to that in blossom infection; mainly by insects. Our investigations have shown that a great variety of insects which feed on the green shoots may carry the blight organism and thus produce infection. There is no apparent means of prevention of this form of the disease beyond that which has already been in use, namely the removal of sprouts from the body of the tree, and this has not proved very satisfactory.

The most promise is in the direction of growing trees upon a stock more or less immune, thus avoiding the killing of the trees by blight in the trunk or roots. It is well known that different varieties of trees vary in their susceptibility to blight. None are entirely immune under all conditions, but some are much more so than others.

How to Save the Bartlett.—The whole consideration of pear blight in California rests primarily upon the fact that the word "pear" in this State means ordinarily the Bartlett pear. This variety is so preeminently satisfactory that while it is one of the most susceptible to blight, and other varieties much less affected are to be found, yet the giving up of the Bartlett pear would mean practically the giving up of the pear industry. The development of a new variety as satisfactory as the Bartlett, but fairly resistant to the blight, would be a most uncertain undertaking. Our chief thought has been, therefore, as to the possibility of growing the Bartlett pear under some system by which the tree could be rendered less susceptible to destruction. The ordinary French seedling root upon which pear trees are commonly grown has two vital defects in relation to blight. It is very very free to sucker and it is very susceptible to the disease. These suckers become infected, the blight runs down into the butt and roots and the tree is killed while the top is still in good condition. The Bartlett pear tree trunk also suckers rather freely and blights readily. It therefore seems that it would be of great practical advantage if the Bartlett could be grown on a trunk and root somewhat resistant to blight and not given to sending up suckers. With a Bartlett top worked on this combination an orchard could certainly be kept free from serious injury much more readily than with the present style of tree.

The Le Conte Foundation.—The extensive experience gained in our work on pear blight has shown among the trees now growing in the State one suggestion of particular value. This is the growing of the Bartlett upon rooted cuttings of the Le Conte. The latter variety, while by no means blight-proof, is much less easily affected than the Bartlett. It roots readily from cuttings and produces a trunk decidedly free from suckers. Trees of this combination existing in the State have shown a most vigorous growth, considerably exceeding that of the Bartlett on the ordinary root. It should be clearly understood that there is no idea that the Bartlett top would gain any immunity from blight from growing on the Le Conte. The sole object is simply to grow the root and trunk free from the disease and confine the blight to the top of the tree where it can be more readily seen and handled and where its effects are less disastrous. As to the growth of the Bartlett on the Le Conte, what experience we can gather goes to show that the tree thus grown, while unusually thrifty and vigorous, is very slow in coming into bearing. This has been learned particularly from Mr. Richard Burton, of Vacaville, who has old trees of this sort, and whose experience forms the basis of most of what is said upon this subject. It has therefore been suggested that the trees be double worked, with some other variety between the Le Conte root and the Bartlett top, in order to promote early bearing. The Hardy suggests itself as one possibility for this purpose, as it succeeds well in California and has shown itself to be quite free from blight. For the purpose of a thorough investigation and demonstration along these lines, pear trees are being grown by the University Experiment Station, trying out various combinations as to root and trunk, along the lines suggested. The results already obtained give considerable promise of success. Our main object will be to demonstrate the posibility of growing a nursery tree with a Bartlett top which can be planted in the orchard and kept free from blight simply by keeping the disease out of the top.

Who Will Succeed With Pears.—We may say in conclusion that in our opinion the future of the California pear industry lies chiefly in the hands of the more careful, observant class of growers, who will make a specialty of pear growing and give the trees the unusual degree of attention which they will demand in the face of the blight. I believe, from experience elsewhere, that the disease will vary in prevalence from year to year, having periods of unusual virulence and again subsiding for a time, but that, in general, its ravages will continue indefinitely and that it will have to be counted upon as an unavoidable factor in pear growing. Under these conditions, anything which will help in offsetting the effects of the blight will certainly be of the greatest value, and we hope that our efforts in the line of growing trees upon blight-free roots and trunks may be of some avail. Such a tree, if it can be practically produced, will certainly be of the greatest value for future plantings.

Citrus Fruits.

THE USE OF GYPSUM AND LIME.

Written for the Pacific Rural Press
By Thomas C. Wallace.

So much misconception exists of the use of gypsum and spent lime for soil purposes that we feel justified in asking the readers' attention to this attempt to get at the facts. There is abundant evidence of the importance of lime to the land and it is a mistake to underrate it. Gypsum or any other form of lime cannot take the place of any other plant food, and while it is an important part of the tree's diet, it is much more important for its physical actions. There is no reliable set of figures tabulated for the amount of lime the soil

needs, as it depends on the nature of each soil and the condition resulting from the methods of work employed on them. If a soil is heavy because of its clay content lime will lighten it by floculating the clay, and the amount of lime needed depends wholly on the amount of clay in the soil and the depth it is desired to lighten the soil. Lime will work its way down into the soil, the time it will take to do so depending on the amount of clay, the amount of lime and the volume of water. Suppose we put one ton of gypsum in the first four to six inches of a clayey soil which contains only enough clay in twelve inches to combine with elementary the lime (calcium) of the gypsum, the balance of uncombined lime will gradually sink into and combine with the second six inches, thus loosening a foot depth of the soil. This action of sinkage of lime will become more rapid as the upper strata is freed by the floculation of the clay, because it allows free circulation of water and air. Suppose again, that we have a stiff sub-pan, called often a hard-pan, one or two feet under the surface and which holds up water so that the soil dries out. If a test of this sub-pan shows that it will absorb water and disintegrate when placed in contact with water in the open air, an application of lime to loosen the soil above the pan and allow the penetration of air with water will affect a loosening of the hard sub-pan if the water is properly applied.

We sometimes hear the expression that "lime loosens a clay and binds a sand." This is peculiarly true of gypsum, which binds together particles of sand and makes it coarser, but it can hardly be considered to stiffen it. Some silts come into coarser soil better with carbonate of lime than with gypsum (sulphate of lime), but caustic (burnt) lime does the work on silts better than either of the other forms of lime. The trouble with caustic lime is that it destroys the organic matter of the soil so rapidly that heavy manuring or mulching must follow its use. The action of ground lime rock or spent lime is slow and becomes greater or more noticeable with years, while gypsum acts more promptly and caustic lime acts the quickest. This physical action of lime is its most important service to agriculture, and as a rule the majority of soils under irrigation are benefitted by lime application about once every five years. The best results to be obtained from cover crops or stable manures can only be had with an abundance of lime in the soil. The value of commercial fertilizers is often doubled by an application of lime and bone and other phosphates owe much of their value to the lime content.

While the majority of soils are benefitted physically by lime, there are of course soils to which lime can give no such benefit. On such soils small applications up to as high as five hundred pounds per acre are advantageous about twice in a decade. This is simply to keep up a general supply of lime for the needs of the tree's food. If, however, bone or any other form of tribasic phosphate is freely used the application of lime for food may be omitted, because the lime of the bone supplies what is needed for plant feeding purposes.

The test of a soil for lime requirements should be physical rather than chemical, as it alone measures the requirements of the soil in this respect. A good rule to observe is that all soils under cultivation and irrigation need applied lime, but the quality required is variable. The amount of lime needed for irrigated soils that require it for physical effect is from one to even three tons per acre at intervals of five or six years. Small applications not being sufficiently effective are disappointing and lead to false conclusions. Looking at the matter from a chemical standpoint, gypsum lime liberates potash which may be present but unavailable to the trees owing to the compounds in which it exists. Lime assists in conserving the nitrogen liberated from the decomposition of manures and cover crops, and assists nitrification in conjunction with the nitrifying organisms in the soil. Lime may be said to sweeten the soil, as it readily combines with and reduces to basic or alkaline compounds the free acids formed in the soil from decomposition of organic matter.

As a plant food lime may be said to give bone strength to the tree and its fruit, hardening the wood and encisting on both walls of the cells to fortify them against the strains of cold and heat action, drouth and water. Trees have selective powers and this function regulates their structural capacity in wood and fruit. Trees that are fine and produce fine-grained fruit are rich in lime feeders and their capacity to grow and produce is enhanced by ample lime. It is true also that such trees need more pruning than those of coarser strain, as in time they become wood hardened as a result of the very function that makes them fine. Such trees need more potash, as it assists in keeping the wood freer for the translocation of starches and consequent sugar formation. The use of lime in citrus culture is therefore a business transaction, as fruit growing is a business. In farming, as nitrogen is king among the organic elements, so lime reigns over the mineral ingredients with which it classes.

Agricultural Science.

THE POSSIBILITIES OF PLANT IMPROVEMENT IN CALIFORNIA.

(*Continued From Page 24 of Last Issue.*)

By Dr. G. W. Shaw of the University Experiment Station at the State Farmers' Institute on the University Farm at Davis.

Relation to California Agriculture.—Having thus considered the general status of this subject, let us turn to it from a California standpoint.

California has long been noted for its liberal hand in dealing with whatever projects she determines to undertake, and I feel certain that when she realizes the great economic importance of this field of operation, she will stand second to none in this line of work.

That there is need of it no one will be likely to question when the absurdly low average yield of many of our field crops is mentioned. The return for 1907 shows as follows:

CALIFORNIA CROP STATISTICS, 1907.

Crop.	Acreage.	Total Yield, Bushels.	Average Yield, Bu.	Total Farm Value.	Average Value per Acre.
Wheat	1,388,000	20,520,000	14.0	$20,520,000	$14.70
Barley	1,040,000	30,056,000	28.9	23,444,000	22.54
Oats	136,000	4,556,000	33.5	3,235,000	23.79
Rye	65,000	1,251,000	19.0	1,063,000	16.16
Corn	54,000	1,836,000	34.0	1,561,000	28.91
Other Grains:					
Potatoes—					
Irish	48,000	6,960,000	1145.0*	6,264,000	130.50
Sweet	.....	350,000	....	210,000	....
Beans	.....	1,945,000†	....	2,917,000	....
Onions	.....	.....	....	750,000	....
Alfalfa	.....	838,730‡	....	6,703,000	....
Other forage crops	.....	109,745‡	....	658,000	....
Total value				$68,101,000	

*Pounds. †82 pounds per bushel. ‡Tons.

And this does not by any means include the entire list of crops.

It is safe to say that the twelve leading field and forage crops of California annually produce $75,000,000 worth of plant products, which by means of live stock and manufacturing processes are doubled in value, and if we admit the possibility of a 10 per cent increase by the adoption of methods above described, the figures speak volumes. Surely such an increase is reasonable, for experience has demonstrated it in repeated instances. It only requires the financial support of the people of the State in the work which has already been auspiciously begun under the appropriation of the last legislature for beginning the work of cereal improvement. Limiting our consideration to this line of crops alone, including wheat, barley, oats, rye, and corn, the valuation of these crops is as follows:

	Average Yield per Bushel.	Total Value.
Wheat	14.7	$20,520,000
Barley	28.9	23,444,000
Oats	33.5	3,235,000
Rye	19.0	1,063,000
Corn	34.0	1,561,000
		$49,823,000

We have a total value of approximately fifty million dollars valuation. A ten per cent increase in the valuation of this class of crops alone would mean an added source of wealth of $5,000,000 in increased yield alone, to say nothing of the added value from an improvement in quality of our wheat and barley, especially the former, which would mean still another $1,500,000 increase. This work is already begun, but under the conditions of the present appropriation it is limited to work in cereals, and some important results have already been secured.

Work Accomplished.—The work has developed a barley of the six-row type about ten days earlier than the common sort, and of superior brewing value.

Three varieties of oats have been found of markedly higher yielding promise than the common red oat, and one of remarkable drouth-resisting quality on account of its rapidity of growth and earliness. These oats, grown alongside of the common oats, gave double the yield in 1908 and substantial increase the previous season.

Two varieties of wheat which offer exceeding promise of being more favorable to our interior valley conditions than the common sorts, in that they are very heavy producers, mature within a short growing period and are of higher quality for milling.

The demonstration of the advantage of drill-seeding grain in the Sacramento valley is of great moment. On twelve varieties of wheat and four varieties of barley, seeded side by side, drilled and broadcasted, but with all other conditions the same, gave an increased return of two to four bushels of wheat per acre and four to six bushels of barley per acre in favor of drill-seeding. The general adoption of this practice by farmers would produce an added income in grain culture of from $3 to $5 per acre, and the added cost is not over 50 cents per acre. Is it worth while?

In the matter of direct improvement of the gluten content by selection and seeding, it may be said that it is yet too early to state results, except in a most general way, because the causes leading to this gluten condition are obscured, and it is a much slower process to obtain substantial results in this direction than in the matter of yield. Still, it may be said that in addition to numerous experiments upon the fundamental question as to the effort of environment upon gluten, the Station had in the cereal nursery over 60,000 seedlings of individual plants from selected high-gluten plants of last season, and many of them show a promising increase over last year's selection and over the average of the several plantings. But this work is only fairly begun, and must have the element of time for the completion of selection and fixing of characteristics.

We need a continuance of the appropriation for the further development of this work, and provision should be made whereby it could be extended to other field crops. The ultimate returns will repay a liberal support.

We need a continuance of the appropriation for further development of the work, which should also be extended to other lines.

An increase of a single bushel per acre to the wheat crop means an added wealth of $1,500,000, and to the barley crop another $1,000,000, and unless I am greatly mistaken, we have upon our stations now grains which will accomplish this result as soon as they can be widely distributed, and this is at a total cost of about $15,000.

There are other crops which are awaiting more active work on account of the lack of sufficient funds to properly handle them. Already there are upon our experimental grounds two types of alfalfa which are marked improvement over the common Chilean type, one that can be cut about every twenty-two days, and is much more leafy and with hollow stems, all of which improves its feeding value. Yet this is possible of greater improvement and wider adaptation.

The average yield of the Lima bean plant is not over 200 grams, but on some preliminary work during the past season individual plants were found yielding as high as 800 grams, or four times the average. There is a wonderful field for the development of greater financial returns in this direction. The adaptation of corn, the improvement in quality in island grown potatoes, the adaptation of green manure crops, and numerous

other lines, offer abundant fields of operation. The possible results are fraught with as much benefit to the people as the development of our irrigation resources, in which we are all so interested, and worthy of serious consideration. They effect an unusually large number of people and the resulting benefits are far-reaching. The possibility of increasing the field crop product of California by a million dollars per year is certainly a subject worth the while of her people.

This is purely a business proposition, and, so far as the writer knows, all those most competent to judge consider the figures and proportionate cost given above as a fair business statement. Certainly, the results being attained fully warrant these statements.

The State Fish and Game Commission is sending Hungarian partridges to various parts of the State, to stock preserves.

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WOOD

Is more or less prevalent in every orange and lemon grove, i. e., trees that are unprofitable. How many such have you in your orchard? Would it not pay you to put paying trees in their stead?

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FOWLER NURSERY CO.,
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AGRICULTURAL REVIEW.

HORTICULTURE.

A ten-acre orange grove at Globe, Tulare county, was sold last week for $1000 per acre.

A large consignment of dried fruit and olives is being prepared by W. S. Ritchie of Riverside for shipment to Africa.

About all the apples have been shipped from the Pajaro valley. During the past season there were sent out a little over 3100 cars.

The late cold spell did not hurt the orange trees around Modesto. Several more small groves will be set out there this spring.

The seventeenth annual Citrus Fair will be held at Cloverdale, Sonoma county, commencing February 18 and continuing till the evening of the 22d.

Estimates are being prepared for Watsonville fruit men as to the cost of erecting a cold-storage plant with a capacity of from 150,000 to 500,000 boxes of fruit.

A good crop of apples was raised at Cayucos, San Luis Obispo county, last season. One thousand boxes were shipped from there to San Francisco last week.

The Phalanx Rhubarb Co. is now shipping from Ventura county winter rhubarb by the carload. The vegetable is finding ready sale at good prices on the Eastern markets.

El Dorado county has postponed the appointment of a horticultural commission pending the action of the State legislature in modifying the law governing this office.

Santa Barbara will make a great walnut exhibit at the coming Seattle exposition. On "Santa Barbara day" of the fair, 2000 sacks of walnuts will be distributed.

A new variety of walnut is reported from Santa Clara county. Frank Willson of Sunnyvale claims to have in the new nut an early bearer, blight resistant and the nuts of very large size.

E. J. Brannigan, from the State horticultural office, was at Marysville last week, making an inspection to discover whether or not the white fly had been exterminated in that section.

A new board of horticultural commissioners was appointed for Glenn county last week, consisting of C. L. Donohoe of Willows, Frank S. Reager of Orland and Fred Crook of the river section. The new board is to serve without pay.

The orange crop in San Bernardino county is not as large as first announced, and the conviction is growing that oranges will go higher in price. Buyers are said to be securing all the groves possible, either in lumps or by the pound.

An organization of table grape growers was perfected at Lodi last Saturday, at which time forty-five prominent growers joined the organization. Another meeting will be held at the same place to further the organization, Saturday, January 16.

Earl Morris, Entomologist of Santa Clara county, in his annual report, says that the general condition of the orchards are such as to expect normal crops in 1909. He advises not to replant fungus infested areas with either peach, apricot or almond roots.

The Horticultural Commission of Fresno county, in its report last week, stated that "with the beginning of 1909 we can positively state there does not exist today in Fresno county any insect pest or disease that in any way menaces our horticultural interests."

Secretary Pease of the San Bernardino county horticultural commission in his report for December states that the ex-

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pense of the commission was $3837 and the receipts $10,877. The principal work for the month was fumigating orange trees. Deciduous fruit growers will soon commence spraying with Bordeaux mixture for the blight and leaf curl.

AGRICULTURE.

Two million pounds less of hops were consumed in the United States during 1908 than during the preceding year.

The 350 acres of cabbages in the Coachella valley are making good growth, and the prospects for a good an early crop are fine.

In the southern part of the State buyers claim there is plenty of hay in the country, but that the farmers are holding for higher prices.

All the seed growers in the Gilroy section predict a good growing season for the coming spring, based on the present condition of the soil.

About half of the Maine potato crop is yet in the hands of the growers. One county (Arostook) raised about 13,000,000 bushels of spuds last year.

The demand for seed at Corcoran is the heaviest ever known there and with a favorable season an immense quantity of grain and hay will be raised in that vicinity.

The rains since the first of the year have placed the ground in fine shape for growing crops. As most of the grain has been seeded the prospects are fine for good yields.

Owing to the competition between the two sugar factories, the Sacramento Valley Sugar Co. and the Alameda Sugar Co., the acreage to be devoted to this crop the coming season in the Sacramento valley will be largely increased.

Several hundred acres are to be planted to potatoes this year on land near Shreveport, La., which had to be given up for cotton growing owing to the boll weevil. Potatoes from that locality will be ready to market two weeks sooner than Arkansas or Oklahoma spuds.

LIVE STOCK.

According to the State Board of Health it is unlawful to feed the meat of tuberculosis cattle to chickens and hogs.

I. W. Hellman, owner of the Alamitos ranch, in Los Angeles county, is stocking it with high-grade sheep and cattle.

F. A. Cowee, a dairyman from near Gridley, is receiving $135 per month from the milk of thirteen cows. His feed consists of alfalfa grown on the place.

Prof. W. L. Carlyle has been appointed superintendent of the stock department of the Alaska-Yukon Pacific Exposition to be held at Seattle from September 27 to October 9.

Cattle receipts at the Portland Union Stock Yards were very light last week, the prices of $4.75 for top steers not being tempting to shippers. Higher prices will doubtless he had from now on.

The beekeepers' associations of the State will ask an appropriation of $2500 from the legislature to be used in carrying on the investigation of bee diseases and to prevent diseased bees from being sent into the State.

A pitched battle between a gang of cattle thieves and a vigilante committee took place near the boundary line south of San Diego last week. Several of the cattle rustlers were killed and the gang is thought to be broken up.

MISCELLANEOUS.

A box factory is to be erected at Redding.

A local chapter of the Grange was organized at Visalia this week.

A new alfalfa mill is being erected near Tehama, and will be ready to handle the spring crop.

A section of land three miles from Willows, owned by F. N. Lutts, is to be placed under irrigation and subdivided for settlers.

The old Fair ranch in the Sacramento valley, consisting of 9700 acres, is to be reclaimed and placed under irrigation and cut up into small tracts.

The Pomona Grange of Santa Clara county and all the subordinate granges of the county held joint installation services at Mountain View last Saturday.

An effort will be made to have the present legislature pass a law reducing the bag limit of ducks from thirty-five to twenty-five and to prohibit market hunting.

Marysville is asking the State legislature to pass an appropriation to build the State Fair buildings on ground to be donated near that city. Sacramento is not favoring the project.

The raisin growers' pool of Fresno and Kings counties has discovered that it cannot carry through their proposed seeding and packing contracts, as the Cartwright anti-trust law stands in the way. The legislature is to be asked to repeal the law.

A meeting of the South San Joaquin irrigation district members was recently held at Stockton, and it was decided to give each of the five sub-districts representation on the board of five members each. The proposed district as a whole contains 60,000 acres.

A meeting of the wine growers of the State was held last week, and the new bill prepared by Senator Perkins to legalize the use of sweet wines in the manufacture of patent medicines was approved. If the bill becomes a law it will add several million dollars to the wine grape growers of California.

Orange county, the smallest in the State, produced $9,000,000 worth of products last year, nearly all this wealth coming from the irrigated sections. The hay and grain crops were valued at $750,000, celery at $402,000, oranges and lemons over $1,250,000, walnuts nearly $1,000,000, dairy products and live stock over $1,000,000.

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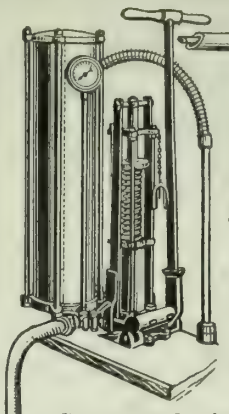
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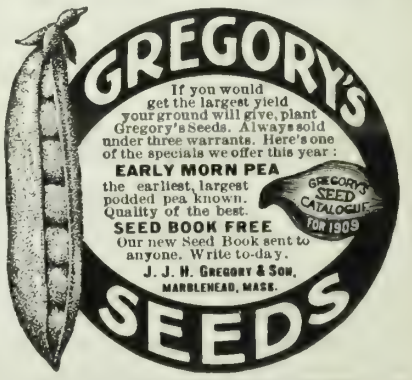
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THE SHIPPING GRAPES OF ALMERIA.

Written for the Pacific Rural Press
By Prof. F. T. Bioletti

Many attempts have been made to grow the Ohanez, or grape of Almeria, in California. None of these attempts has been a commercial success. Usually the vine has failed to produce satisfactory crops. In the cooler regions the climate is unsettled, and in the hotter unsuitable methods of training and pruning have been adopted.

An interesting account of the growing of this grape in Spain has recently appeared, and it offers some suggestions which may be of value in California. It has been proved experimentally that this vine can be made to produce large crops of grapes by appropriate pruning in the upper San Joaquin valley, and it seems likely that it could be grown with success commercially, both there and in Imperial county. On rich irrigated land, if the vines are planted 8 by 16 feet and trained on the unilateral cordon system with two wires, there is little doubt that in the hottest grape regions good crops could be obtained. The grape has such superior shipping qualities that with our Californian methods of packing we could place the grapes in New York in perfect condition without the use of cork dust.

The following is a partial translation of the article by M. Poirier which appeared in a recent number of the Revue de Viticulture:

From Malaga to the Cape of Gata the plains bordering the sea produce sugar cane, sugar beets, grapes and almonds. The adjoining hilly regions produce grapes and olive oil. The grape of Ohanez, known all over the world, is produced principally on the plain of Almeria. The soil here is covered with a compact calcareous crust of Quarternary origin, sometimes resembling a conglomerate. It has been necessary by means of blasting to break this shell, which varies from one to four feet in thickness, in order to reach the sandy, micaceous soil, fairly rich in humus and more or less gravelly, which lies beneath, and which is admirably suited to the growth of vines in "parales".

This whole country is a mass of verdant vegetation. The vine ripens its fruit on a horizontal trellis work placed 10 feet above the ground, and whose meshes are about 20 inches square. The vines are planted 15 to 20 feet apart. The vigor of the young vines is so great that they reach the trellis the first year. The trunks, from which the old bark is carefully removed, then branch into three or four arms, bearing from 10 to 20 fruit canes for each vine. These fruit canes are from 3 to 5 feet long and are tied to the trellis. During the winter beans or potatoes are grown beneath the vines. The "parales" are always established in irrigable land. As a rule two or three irrigations are given, the first in March, at the starting of the buds; the second at the end of May, after blossoming, and the third in July, when the grapes commence to ripen. Instead of the "parales," the unilateral cordon system of training is sometimes adopted, very long fruit canes bent in a circle or even a double circle being left.

At present, phylloxera has spread throughout the province. On the plain, Riparia gloire is used as a resistant stock and in the calcareo-silicious hill soils the Rupestris du Lot and the Aramont Rupestris No. 1 are giving good results.

The grape known as the Uva de Casta, ripening in July, is grown, and supports the journey of eight or ten days to London. The principal variety, however, is the large fruited, golden yellow Uva de Ohanez or Embarque. The Ohanez is grown in many parts of Spain, and has been seen by the author in good condition on the vines as late as Easter, at Gijona, near Alicante. The Molinera Gorda is a remarkable variety, with superb bunches and rose colored berries. The Rozada is also a valued variety. All these varieties have a common characteristic, in that the firm crisp pulp adheres strongly to the thick tough skin. It is to this characteristic that they owe their keeping and shipping qualities and the resistance to hard usage which has made it possible to ship them to all parts of the world.

During the blossoming period, which is very short, the operation of "engarpe" or artificial pollination is practiced. These varieties are much subject to coulure, especially the Ohanez, which has very short stamens. Wild vines, called "flores," which produce abundant pollen, are planted here and there throughout the vineyard. The Aramont Rupestris No. 1 has also been employed successfully for the same purpose. Even with these precautions, however, artificial pollination is found indispensable, and is carried out by hand with considerable labor.

During the blossiming the shoots are pinched off at four or five leaves above the bunch. The varieties grown are somewhat subject to cryptogamic diseases, and the "parales" system of training makes treatment difficult. The crop can be much increased by fertilization and more irrigation, but the keeping qualities of the grapes are impaired. The average crop is estimated at nine tons to the acre. At the commencement of the vineyard work the English merchants, who buy two-thirds of the crop, advance the growers 5 pesetas per barrel.

Exportation commences about the end of August, the grapes being packed in barrels weighing 62 pounds gross and 50.6 pounds net, representing 2 arrobas of grapes. The arroba is about 16 liters. The barrels, which cost 15c. not made up, are of Italian or American oak. Certain white Spanish woods, and latterly pine, are also used. The hoops, of chestnut, come from Italy.

The grapes are packed in coarse cork dust from which all humidity and fine dust have been removed. For the two million barrels which are annually exported from Almeria is needed 3000 tons of cork dust, which costs on the average 2¼ cents per pound.

Of Uva de Casta, 150,000 barrels are exported, selling this year at $1 to $1.50. The Ohanez is sold in England for from 75 cents to $2.50, and in America for from $2 to $4. Lately the acreage has been much increased, and the increasing exportation reached two million barrels this year. The overstocking of the markets often results in decreased prices, and the packing methods, which are capable of much improvement, sometimes lead to serious losses.

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WHOLESALE GROWERS OF
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Ornamental, Shade and Deciduous Fruit Trees.
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SEND FOR CATALOGUE
CHICO NURSERY COMPANY, Chico, California.

Grafted Walnut Trees
On Black, Soft-shell and Resistant Roots.
Seedlings, Citrus, Deciduous, Berry Bushes, etc.
A. R. RIDEOUT, MAGNOLIA NURSERY, WHITTIER, CAL.

ORDERS FOR
PEACH TREES

PROMPT DELIVERY OF
MUIRS
LOVELLS
PHILLIPS
TUSCANS
ELBERTAS
IN
2 to 3 feet.
18 to 24 inches.
12 to 18 inches.
6 to 12 inches.

Sizes INSURED by Ordering NOW.

Are making CARLOAD shipments WEEKLY.

OREGON NURSERY COMPANY
Salem, Oregon.

TREES

Peach Trees

In connection with our large assortment of Nursery Stock, we have a surplus of extra choice, bright, thrifty, well-rooted stock in Muir, Lovell, Phillip and Tuscan Cling and Elberta Peaches, all grades, including 4 to 6, 3 to 4, 2 to 3 foot and 18 to 24, 12 to 18 and 6 to 12 inch stock.

Shipments made promptly.

CAPITAL CITY NURSERY CO.,
Salem, Oregon.

PEACHES

OREGON GROWN

65,000 Elberta
35,000 Lovell
10,000 Muir
12,000 Phillips
10,000 Tuscan

All grades. Special prices in large quantities. Write today.

ALBANY NURSERIES
ALBANY, OREGON.

TREES STANISLAUS NURSERY
Pormerly Analy Nursery, of Sebastopol.
T. J. TRUE, Modesto, R. D. 1
PRICE LIST ON APPLICATION

SCALY BARK GUM DISEASE.

(Continued From Page 41.)

soil and other conditions the grower must endeavor to maintain uniform moisture rather than to allow the soil to become alternately wet and dry. Frequent examination of the soil by digging to a considerable depth in different parts of the orchard will be found a most profitable practice when there is any uncertainty as to the moisture conditions.

The individual treatment of affected trees may proceed on much the same lines as that described for gummosis. It is useless, however, to attempt to cut out or strip off the affected bark if the disease is far advanced. When the scaly areas are still small they may be cut out, taking care to cut all the discolored tissue around the edges, particularly at the upper end. The wound may then be covered with the wax previously described. Where large areas of scaly bark exist on the tree it is useless to try to cut them out, and in most cases it is practically impossible to do anything for permanent benefit. If the condition is not too bad, the scaly areas may be scraped to take off the rough bark, leaving the green inner bark, most of which is alive. A few slits may be cut through this to allow the escape of the gum, and the place then painted over with some softened substance, such as a one-tenth solution of potash or neat's-foot oil. The worst affected trees may profitably be pulled out and new ones planted in their places, after first working over the soil deeply to make sure that no injurious condition, such as hardpan or large rocks, exists at that point. Frequently an affected tree can be cut off near the ground below the scaly bark areas, and upon the sprouts which come up buds can be inserted, and a new tree can be obtained more quickly than by replanting. If these sprouts come from above the original point of budding, no rebudding will of course be necessary.

LOOK OUT FOR THE RECOIL.

We do not do much large tree transplanting in California, because young trees grow so fast, but still the following story, with a sylvicultural moral, is interesting. Under the direction of Arthur Pettit on Long Island, N. Y., four Italians were at work transplanting trees from the Jamaica estates to the Garden City estates. They had got the dirt all removed from around the roots of an elm, and by ropes which had been previously fastened around the upper branches the four men pulled the big tree slowly to the ground.

The roots, although uncovered, were still deep in the soil, and the trunk of the tree bent like a huge bow until its upper branches touched the ground. The Italians held it there and Pettit sprang among the branches to oversee the rest of the work. He gave an order to free the roots.

Instead of one man obeying it, all four men dropped the rope together and started for the other end of the trunk. They had scarcely taken a step, however, when the tree snapped back upright like a catapult and Pettit was seen flying through the air like a stone from a sling. He alighted 40 feet away, while the tree swayed back and forth. Pettit was senseless from the shock of the fall. Besides suffering from shock, he was found to be injured internally.

MODESTO NURSERY.
Complete Line of Citrus and Deciduous
TREES,
BERRIES, VINES AND ORNAMENTAL STOCK.
Write for PRICES NOW.
SHERLOCK & CARDWELL, Modesto, Cal.
Box 272.

TREES TRUE TO NAME
AND
Propagated from the Best Specimens of Their Kind
TWO IMPORTANT FACTORS
PLACER NURSERIES
(ESTABLISHED 1878)

Our assortment comprises all the best commercial varieties of

Peaches	Apricots	Apples
Plums	Almonds	Persimmons
Pears	Cherries	Grapes, Etc.

and our stock is the best that years of experience, care in selection and care in growing can produce. That is what you want.

ORDER NOW WRITE US

Catalogue and price list mailed on application.

THE SILVA-BERGTHOLDT CO.
NEWCASTLE, CALIFORNIA.
Agents Wanted.

SEED
TREES PLANTS BULBS

If you are interested in the **best seed,** etc., etc., write for our 1909 Seed and Plant Annual, which will be mailed to you **Free.**

Trumbull Seed Company
(SUCCESSOR TO TRUMBULL & BEEBE)
61 California St., - - - - San Francisco.
Please mention this paper.

½ Million Eucalyptus Trees (in Variety.)

Transplanted in flats of 100 each. We prefer orders of 1,000 rather than 10,000; outside limit 20,000. Our trees are of the highest standard in quality. Correspondence invited. Our Booklet telling when, how, and what to plant free to our patrons only. Address

W. A. T. STRATTON, Nurseryman, Petaluma, Cal.

SMYRNA PARK NURSERIES
Trees, Vines, Plants all kinds and varieties.
Let us know quantity wanted and we will give you special prices on same.
CAMPIN & MOFFET - - - - - - - - Ceres, Cal.

EUCALYPTUS
Growers of Commercial and Ornamental Eucalypti.
EKSTEIN & EKSTEIN, Modesto Euc. Nursery, Modesto, Cal.
EKSTEIN BROS., Vignolo Euc. Nursery, Anaheim, Cal.

Apiculture.

ORGANIZATION OF THE CALIFORNIA CENTRAL COAST BEEKEEPERS' ASSOCIATION.

Written for the PACIFIC RURAL PRESS
By RALPH BENTON of the University of California.

As a result of the interest aroused in beekeeping matters in the Central coast counties at the recent Farmers' Institute for Beekeepers, held at Monterey December 28 and 29, a new district association was organized, to be known as the California Central Coast Beekeepers' Association. The counties embraced in this new organization are Monterey, San Benito, Santa Cruz, Santa Clara, San Mateo, San Francisco, Alameda, Contra Costa, Marin, Napa and Sonoma. All beekeepers within these counties are invited to become members. When the final meeting for the election of permanent officers and the adoption of by-laws takes place next month it is hoped that vice-presidents will be selected in each county, so that each county will not only have a representative on the board of directors, but so that each county will have a local official representative of the association with whom beekeepers can communicate in their respective counties. Temporary officers were selected to hold office until the election of permanent officers at the coming meeting as follows: President, Vernon Townsend, Soledad, Monterey county; vice-presidents, J. Whitam, King City, Monterey county, Ed Smith, Hollister, San Benito county, Patrick Keating, New Almaden, Santa Clara county, W. A. Pryal, College avenue, near 59th, Oakland, Alameda county, and N. S. Stewart, Danville, Contra Costa county; and secretary, K. F. Henneken, Monterey, Monterey county. Beekeepers interested in the association movement, and we take it this means of course all beekeepers, are requested to communicate with the nearest temporary officer of the association in regard to membership and suggestive matters to be considered at the final meeting for organization in the near future. Some of our coast counties have county entomologists and these officers will be glad to receive names of beekeepers. They are: W. H. Volck, Watsonville, entomologist, Santa Cruz and Monterey counties; Earl Morris, San Jose, entomologist Santa Clara county; and J. S. Hunter, San Mateo, entomologist San Mateo county.

Monterey county is the only county in the district having an inspector of apiaries, Mr. K. M. Henneken holding that office. Mr. Henneken's address is Monterey, and he will no doubt be glad to communicate with beekeepers in regard to joining the association or upon other bee keeping matters.

One of the principal topics receiving attention at the gathering of beekeepers at Monterey was the subject of bee diseases. This subject was approached in its various aspects, of causes, symptoms and treatments of the several diseases common to bees. Many of the coast counties are infected with the most dreaded of all bee diseases, that of foul brood. This is a specific bacterial disease, is very contagious, and its ravages, when once infection of an apiary in a community occurs, are inestimable unless protective measures are promptly taken with a view to eradication. The insidious nature of the disease is realized when it is borne in mind that it is a disease of the brood of bees, and as such it attacks the colony at one of its most vital points, namely, the young. The life of an ordinary bee is but six weeks in the working season to perhaps six months in the less active winter season, and so a disease in any way seriously impairing the rearing in rapid succession of a series of young broods, strikes at a most vital point in the existence of the colony.

As a result of the discussions on foul brood and other diseases of bees, and especially as a result of the review of special local problems in the matter of the control of bee diseases, a resolution similar to the one passed by the Northern California Beekeepers' Association at its recent meeting in Sacramento, and published in the issue of the PACIFIC RURAL PRESS for January 9, pages 29 and 30, was introduced and passed, receiving the unanimous support of the beekeepers of the coast counties present. Copies of these resolutions are being circulated among the beekeepers of the several counties in the central coast district, and every beekeeper should see to it that he gets his name on one of these resolutions in the interest of the beekeeping industry in California.

The time and place for the meeting of the association in the coast counties will be duly announced in these columns when it is settled upon, and all beekeepers are urged to have the meeting in mind and to work for its success. If you have any ideas in regard to organization or lines of profitable co-operative efforts, communicate them with some one of the officers, for they are looking for such suggestions, and it is the duty of all concerned with the California Central Beekeepers' Association to be of service to all beekeepers in the territory it covers.

NORTHERN APPLE PRIZES.

Michael Horan, an orchardist of Wenatchee, was awarded a prize of $1000 for the best apple carload exhibit at the National Apple Show held recently in Spokane. H. M. Gilbert of North Yakima, formerly president of the Washington Horticultural Association, was given the second prize of $500 for a car containing 70,560 Winesap apples. Messrs. Kress & Carey of Montana received the third prize of $200 for the best car of McIntosh Reds.

Horan will receive almost $8000 for his carload exhibit. In addition to the $1000 prize, he won a prize of $200 offered by W. T. Clark, and $225 from a spraying company. James J. Hill, chairman of the board of the Great Northern Railway Co., and Louis W. Hill, president of that system, have brought 150 boxes for $1500.

The fruit bought from Horan is to be sent to New York and Boston for exhibition, afterward going to London. King Edward and members of the House of Lords are to receive boxes of apples as presents.

About $33,300 was given in premiums to growers in other competitions, representing practically every apple belt in the country. The Wenatchee district carried off the majority of first prizes, including one for the largest perfect apple.

AN APPRECIATION OF "CALIFORNIA FRUITS."

A Fresno county purchaser writes:

"I wish to express my profound satisfaction with your new edition of 'California Fruits.' It is at once a study and a delight for months to come. My orchard partner has read your chapter on 'Pruning' six times, and he is a practical orchardist of years of experience in this and the Santa Clara valleys.

"We shall hope that a reprint of your equally valuable work on 'California Vegetables' will soon appear."

Our vanity leads us to conclude that the six readings were prompted by enjoyment, and not required by the turgidity of the writing, and give thanks accordingly.

Peaches
Apricots
Walnuts
Figs

TREES

Oranges
Olives
Grape Vines
Rose Bushes

New Cling Peach

THE SIMS

Possesses all merits of Phillips Cling, without any of its faults. Fruit large to very large, almost perfectly round, skin golden yellow, of very fine texture, firm and rich, with excellent flavor and clear yellow to the pit, which is quite small. The canning qualities of this peach have been fully determined by several years of actual trial, and we regard it as the very best clingstone, for canning, in existence today, and recommend that it be extensively planted. The following statement from Messrs. Griffin & Skelly Company, one of the prominent canning and dried fruit firms in California, bears out our statement as to the commercial value of this peach, for which we predict a great future.

Griffin & Skelley Company,
16 California Street,
San Francisco, Cal., Oct. 6, '08.

Mr. Geo. C. Roeding, President, Fancher Creek Nurseries, Fresno, Cal.—Dear Sir: Regarding the Sims Cling Peaches, samples of which were delivered to our cannery at Fresno.

We packed these samples and are most favorably impressed with them. We find the peaches to be of fine texture, rich color and particularly fine flavor, and the best late Cling Peaches we have ever had in our cannery. They seem to ripen between the Orange Cling Peaches and the Phillips, and there has been an urgent demand for Clings that would come in just at that time, as it would enable canners to materially increase their output of Cling Peaches, and we shall welcome the day when a sufficient quantity of these peaches is available for canning purposes. If we were planting today, we should certainly put out a considerable quantity of these Clings. Yours truly,

Griffin & Skelley Co.

Luther Burbank's New Creations

FORMOSA,
VESUVIUS AND
SANTA ROSA
PLUMS.

RUTLAND PLUMCOT.
PARADOX AND
ROYAL
WALNUTS.

We are sole propagators and disseminators. Beautifully illustrated Burbank Booklet, containing colored plates and numerous half-tones, 20 pages of descriptive matter, sent postpaid upon receipt of 25 cents.

CALIMYRNA FIGS

Without question we stand supreme in the production of Calimyrna Fig trees in America. The market is wide and the supply of real genuine Calimyrna Figs very limited. The Calimyrna Fig which originated with us is the genuine Smyrna Fig of Commerce and the only Fig that is worth while Planting.

CALIFORNIA HORTICULTURE
The Fruit Grower's Guide
By GEO. C. ROEDING. New—Just Off the Press

120 pages, profusely illustrated, beautiful lithograph cover, color plates inside. This book fully describes various kinds of citrus, deciduous and ornamental trees, roses, vines, plants, palms, etc. Gives very valuable information about planting and shipping. By far the best book of its kind ever published on the Pacific Coast.

Mailed Postpaid Upon Receipt of 25 Cents.

ANNUAL PRICE CATALOGUE MAILED FREE.

(Paid-Up Capital $200,000.00)

Fancher Creek Nurseries

GEO. C. ROEDING, President and Manager.

P. O. Box 18. FRESNO, CALIFORNIA.

LOCATION OF BULLETIN SMYRNA FIG TREES DESIRED.

To the Editor: The Bureau of Plant Industry of the U. S. Department of Agriculture desires the address of every fig grower in California who has one or more trees of the true Smyrna variety, distributed by the San Francisco Bulletin in 1880, 1882, the winter of 1882-83, or the winter of 1885-86. The original record showing the name and address of every subscriber who received Smyrna fig cuttings, that was preserved in the Bulletin office, unfortunately perished in the San Francisco fire.

Investigation shows a considerable difference in the quality of the figs of different localities, especially in thickness of skin, in which respect none of the California figs yet examined are quite equal to the best imported fruit. It is well known that the finest imported figs are grown in a relatively small district in the foothills of the Meander valley in Asia Minor.

The principal object of this request is to get in touch with the owners of any Smyrna fig trees growing in the foothill regions of the Sierra Nevadas or of the Coast range, in order to determine by trial whether it will prove possible to grow thin-skinned figs of the best quality in this State. This may be considered an open question, since the cooler summers and earlier rains at the higher altitudes may make the season too short for the proper ripening of the best Smyrna figs.

If any grower has one or more Smyrna fig trees that fail to bear, it is probably for want of the blastophaga or fertilizing insect. The undersigned, having undertaken to handle this matter for the U. S. Department of Agriculture, will in proper season, June or July, depending upon the climate of the locality, send capri figs containing the insect in sufficient quantity to fertilize from one to three trees, free of any expense whatever, on condition that the recipient will furnish for the Department of Agriculture a dozen specimens of his dried product for comparison.

Please address the undersigned, stating the size, age and number of trees, as well as the character of the soil and the altitude of the locality where grown.

G. P. RIXFORD.

1813 Pierce St., San Francisco.

RAISIN POOL QUITS.

John Fairweather of Fresno, chairman of the raisin pool, announced Tuesday that, owing to the refusal of the consolidated packers to handle the pooled crop, there was nothing to do but quit. The packers claim that, owing to the Cartwright anti-trust law, they could not handle the crop. The disbandment of the pool means that each grower will be at liberty to sell his crop as best he can, and it is thought that many tons will soon be sent east in 50-pound boxes. The small stemmers throughout the State are being called into use, and already quite an amount of raisins has been sent out in this way.

Acting on the suggestion of the National Nut Growers' Association, conveyed in a letter from the secretary of the organization, J. F. Wilson of Poulan, Ga., the California Promotion Committee has taken up with those interested the idea of forming an organization among the nut growers of California to be styled the Nut Growers' Association of California or some similar title. It is expected that word will be received within the next two or three days from the Chamber of Commerce of Santa Barbara county about the views of the growers of that district, which is one of the largest producers in the State. The committee points out that much good would result from the formation of an alliance among the producers of nuts in California, which in 1907 produced 12,000,000 pounds of walnuts and 2,000,000 pounds of almonds, and that organization would be simply in line with the tendency of the other horticultural and agricultural interests of the State.

GRANGE INSTALLATION.

On Saturday the 2nd, the officers elect for the year 1909 of Dinuba, Orosi and Tulare Granges were duly installed by W. V. Griffith, Worthy Master of the State Grange, P. of H., California.

Orosi Grange invited Dinuba and Tulare Granges to join them in a joint installation of officers at their Grange Hall by Worthy Master Griffith. Bro. Griffith has just returned from attendance at the National Grange at Washington, D. C., and stopped over for the purpose of the joint installation.

The installation ceremony when properly done, as it was on this occasion, is quite impressive, and every officer of the three Granges was present and in his place. Sister Emily L. Burnham, Secretary of the State Grange of California, assisted in the installation.

Worthy Master Griffith also organized a County Pomona Grange, with a membership of 52, and installed the officers.

The meetings of Tulare County Pomona Grange will be held quarterly, and alternately in the halls of the three Granges. The first meeting will be in Tulare, on the 30th of this month.

There was a fine attendance, about 150 being present. Dinuba and Tulare Granges were the guests of Orosi Grange, which had provided and served well a most excellent dinner for all. The meeting, the good attendance and the organization of a Pomona Grange is very encouraging, as it will be the means of bringing together the members of the order and of unifying their work.

The Worthy Master gave an interesting account of the National Grange. A vote of thanks was given Orosi Grange for its hospitality, and a vote was passed that the Delta Orchard of Bros. Thomas and Morphew Jacob is by all odds the most charming place for a picnic in Tulare county, and with their kindly fraternal permission and approval the Granges of Tulare county will next spring have a picnic there. J. T.

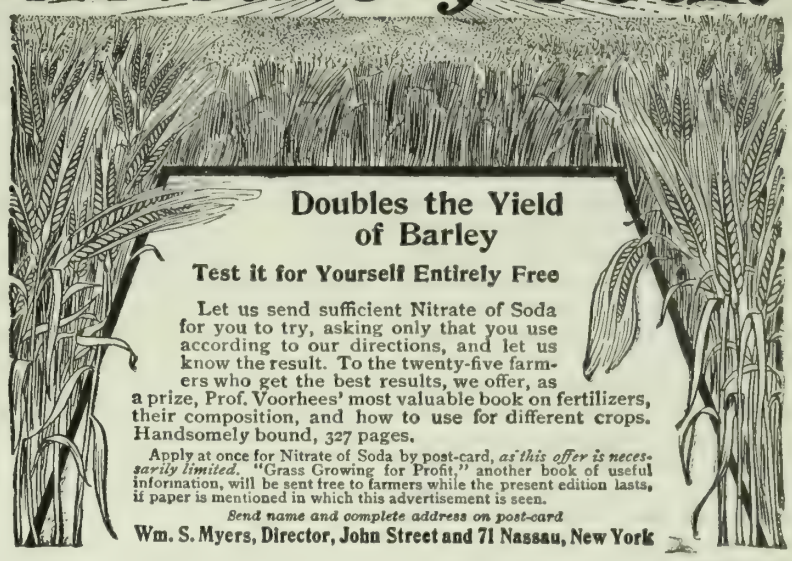
SOWING ALFALFA WITH A DRILL.

We discussed in the PACIFIC RURAL PRESS of July 11 last the possible advantage of sowing alfalfa later in the season on land not so thoroughly pulverized, the seed to be brought up by irrigation. The use of a drill in this connection may be considered. We read Eastern accounts of the use of a drill as follows:

The best way to sow alfalfa is to drill the seed in rows, and most growers prefer to sow the seed in drills six inches apart, while with grain the farmer desires to plant it in rows seven or eight inches apart. Most grain drills have the furrow openers set at an arbitrary width or distance from one furrow opened to the other. However, the Hoosier grain drill, manufactured by the American Seeding-Machine Co., Inc., Richmond, Ind., is an exception to the rule, because a farmer can change the spacing between the discs so as to plant his small grains eight inches apart, and then sow his alfalfa six inches between the rows. Two styles of force feeds are to be had—the double run internal or fluted—and they are positive in the handling of all known grains and seeds. The fluted feed is so constructed that it will sow alfalfa without extra attachments, by simply placing the seed in the large hoppers. Hoppers are large and roomy, with divided lids.

If this claim proves valuable in handling alfalfa acreages, no doubt all drill manufacturers will render such adjustments available.

Nitrate of Soda



Doubles the Yield of Barley

Test it for Yourself Entirely Free

Let us send sufficient Nitrate of Soda for you to try, asking only that you use according to our directions, and let us know the result. To the twenty-five farmers who get the best results, we offer, as a prize, Prof. Voorhees' most valuable book on fertilizers, their composition, and how to use for different crops. Handsomely bound, 327 pages.

Apply at once for Nitrate of Soda by post-card, *as this offer is necessarily limited.* "Grass Growing for Profit," another book of useful information, will be sent free to farmers while the present edition lasts, if paper is mentioned in which this advertisement is seen.

Send name and complete address on post-card

Wm. S. Myers, Director, John Street and 71 Nassau, New York

FERTILIZE WITH

Nitrate of Soda

May be purchased in large or small lots from

R. A. HOLCOMBE & CO.

24 California St., San Francisco, Cal.

Free Literature sent on application.

GOLDEN RULE NURSERIES

MRS. L. L. CROCKER, Proprietress
Loomis, Cal.

The celebrated Crocker Bartlett Pear, guaranteed immune from blight.

Golden Rule Summer Apple, dormant buds.

Crocker's New Free Peach, 50 cents each; 5,000 left.

Deciduous Trees and Grape Vines.

EUCALYPTUS

GROWN IN SUNSHINE

with roots balled while growing in flats. Saves all roots; make sure success when removed to the field and good growth the first season.

Sample lots at wholesale rates. Can take from flats and send in tight packages to save cost, risk and time.

HENRY SHAW,

320 River St., - - - - Santa Cruz, Cal.

BARTLETT PEARS

I have a large stock of Bartlett Pears that cannot be excelled for size and quality, grown on whole roots one year old. Prices reasonable. Those desiring in any quantity, address,

R. P. EACHUS, LAKEPORT, CAL.

Onion Sets 12½c. a Pound

Special Prices on Larger Quantity.

Headquarters for all kinds of Seeds. Catalogue upon request—FREE.

NAVLET BROS., 520 K Street, Sacramento, Cal.

The Ruehl-Wheeler Nursery

Fruit, Ornamental and Citrus Trees.
Strong Field-Grown Roses.

PHONE BLUE 1396 **BOX 826 SAN JOSE**

For **DUST SPRAY** Use

VIGORITE BRAND HYDRATED LIME

MANUFACTURED BY

THE HOLMES LIME CO., Inc.

Mutual Savings Bank Building
San Francisco

Write for Samples and Prices.

THE "BOSS"

TREE PROTECTOR



MADE OF YUCCA PALM.

Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES

12 in. long,	$ 9.00	per 1000
14 in. long,	10.00	per 1000
16 in. long,	11.25	per 1000
18 in. long,	12.50	per 1000
24 in. long,	15.00	per 1000
30 in. long,	17.50	per 1000

Agents Wanted Everywhere.

YUCCA MANUFACTURING COMPANY

1380 WILLOW ST., LOS ANGELES, CAL.

MAN, OH MAN!!

Why do you neglect your orchards when Warnocks Remedy cures blight and all the tree diseases. Send for booklet.

GOLDEN RULE NURSERIES
Loomis, Cal.

AGENTS WANTED

WANTED

1000 Cuttings of Prarie Belle Wild Rose
1000 Cuttings of Minetta Wild Rose

Address, J. S. WHITE, Jr.,
Holtville, Imperial Co., Cal.

Live Stock and Dairy.

SHORT-HORN SALE.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES.

One of the largest and most representative gatherings of stockmen it has been my pleasure to see in this State at an auction sale, attended the Special Combination Sale of Short-horns on January 5. The attendance of most of the important beef breeders and stockmen of this State was augmented by purchasers from Oregon, and Honolulu, T. H. Mr. H. F. Brown of Minneapolis, Minn., president of the American Short-horn Breeders' Association, and one of the oldest and most successful Short-horn breeders in the country, was introduced to the gathering and spoke a few words. Mr. Brown has been a breeder of Short-horns for 39 years, and has held 29 annual public sales. He believes in the future of this region as a cattle producer.

A vast territory is open to the stockmen of this Coast, as the constantly increasing demand for improved stock for the Orient and Mexico is already proving. One district in Mexico imported over 1000 head of pure bred stock in the last year. Mr. Brown is the breeder of King Spicy, Kingalier, Ramsden Lad, and Pioneer. The sale must have had an added interest to Mr. Brown, as a large number of the animals were sired by bulls of his breeding.

Altogether the sale was a decided success, both to purchasers and sellers, and it marks San Francisco as the center for cattle sales in the future. We understand that it will become an annual affair with the Howard Cattle Co., and we trust it will appeal to other breeders as well. The advantages we mentioned before were instrumental in gathering together a number of purchasers whom we are quite positive would not have felt they could have attended if the sale had been held in the interior.

English Lady 15th topped the sale, going to Mr. J. W. Goodwin of San Francisco for $510. She is a large red cow, out of English Lady 13th, by Topsman, with a red bull calf at foot by King Edward. Ed Lancaster, a red yearling bull out of Imp. Lancaster Bride, by King Edward, topped the bulls, and was also sold to J. W. Goodwin, for $450. This was probably the best bull in the sale, and one with great promise as a show bull and herd leader.

Two young bulls of promise are Tule Boy and Tule King, being twins, out of Greenwood Mary by King Edward, and were calved January 22, 1908. The principal purchasers were J. W. Goodwin, president of the Estrella Ranch Co.; Wm. M. Newhall, owner of several ranches; H. A. Jastro, of the Kern County Land Co.; Geo. Chandler of Baker City, Ore.; Henry Cowell and T. B. Gibson, Rose Lawn Stock Farm, Woodland, Cal.

Col. Geo. P. Bellows of Missouri came to the Coast to do the selling. The list of sales follows:

COWS AND HEIFERS.

Barrington Maid 2d 15710, red, calved February 15, 1907, Henry Cowell, San Francisco $105
Diana Duchess, red, little white, calved September 5, 1905, G. Bloss, Atwater, Cal. $100
Barrington Maid 15709, red, calved December 5, 1904, Sam Aftergut Co., San Francisco $185
Favonia 2nd, roan, calved May 1, 1907; J. T. Dunne, Hollister $90
Violet Queen, red, calved December 24, 1901; J. W. Goodwin, San Francisco $235
Hopeful 84th, roan, calved February 27, 1906; J. T. Dunne, Holister $85
English Lady 15th, red, calved February 16, 1902, and red bull calf at foot by King Edward; J. W. Goodwin.....$510
Aster Duchess 3d 19120, red, calved September 7, 1906; J. W. Goodwin....$100
Spicy's Diana, red, calved March 20, 1904, and red cow calf at foot by The Lad for Everybody 259669; J. W. Goodwin.$150
Greenwood Leaf 36028, roan, calved June 5, 1907; Geo. Chandler, Baker City, Oregon $225
Philomena 71st, red, calved May 16, 1904, and red cow calf at foot by Lovely Acher 290520; J. W. Goodwin.....$110
Philomena Duchess 9th, red, little white, calved December 23, 1907; J. W. Goodwin $60
Golden Rose 2d, red, little white, calved January 8, 1907; J. W. Goodwin...$220
Gustina 19122, red and white, calved October 21, 1906; J. W. Goodwin.....$80
Greenwood Maid 36029, red, calved January 26, 1908; T. B. Gibson, Woodland, Cal. $155
Miss Harold 34th, red, calved May 10, 1904; J. W. Goodwin $100
Harold Duchess 4th, red, calved January 3, 1908; J. W. Goodwin $85
Greenwood Queen 15714, red, calved March 10, 1907; S. H. Cowell.....$140
Gustina 2nd 19123, roan, calved October 23, 1906; J. W. Goodwin.....$75
Lonella Valley View 3d 15716, red, calved January 10, 1907; S. H. Cowell....$160
Gustina 3rd 19124, red, calved October 31, 1906; J. W. Goodwin $100
English Lady 17th 36022, red, calved September 3, 1907; L. W. Symmes, San Francisco $150
Perfection Lass, red, calved February 21, 1905; J. W. Goodwin $180

BULLS.

Marksman 303754, red, calved June 15, 1907; Jerger Bros., Clarksville, Cal.$150
Hano 276495, red, little white, calved March 26, 1906; Grenada Ranch Co., Montague $150
Moscow Mark 292027, red, calved November 11, 1906; H. A. Jastro, Bakersfield $210
Prince Rover 276499, red, little white, calved April 4, 1906; H. A. Jastro, Bakersfield $220
Ed Lancaster 299834, red, calved November 26, 1907; J. W. Goodwin $450
Quinto Duke 28th, red, calved June 27, 1907; H. A. Jastro, Bakersfield, Cal.$125
Red Star 304971, red, calved September 16, 1907; Wm. M. Newhall, S. F...$115
Marksman 292025, red, calved December 13, 1906; H. A. Jastro, Bakersfield.$165
Quinto Duke 30th, red, calved July 23, 1907; Henry Able, Milpitas $130
Pilot Royal 292028, red, calved March 22, 1907; Jerger Bros, Clarksville, Cal.$180
Kink Spicy 106th, red, calved July 31, 1907; Wm. M. Newhall, S. F.....$145
Tule King 304655, red, calved January 22, 1908; A. W. Foster, San Rafael.$375
Lord Lancaster 5th, roan, calved August 5, 1907; Wm. M. Newhall, S. F. $155
Maxwell 292026, roan, calved March 22, 1907; Wm. M. Newhall.....$135
Quinto Duke 31st, red, calved August 7, 1907; Henry Able, Milpitas, Cal...$135
Jolly Joe 292024, red, calved April 10, 1907; Grenada Ranch Company; Montague $200
Quinto Duke 32nd, red, calved August 10, 1907; Henry Able, Milpitas, Cal...$140
Onward Lad 304968, red, little white, calved August 28, 1907; Mrs. L. R. Fancher, Merced $230
Quinto Knight 3rd, red, calved September 10, 1907; Wm. M. Newhall.....$115
Glides Gloster 2nd, 304651, red, calved September 2, 1907; T. B. Gibson, Woodland, Cal. $100
Straight Archer 3rd, red, calved October 31, 1907; H. A. Jastro, Bakersfield.$180
Star of Morrow 304972, roan, calved October 10, 1907; Wm. M. Newhall...$105
Straight Archer 4th, red, calved November 5, 1907; Wm. M. Newhall.....$115
Western Star 304974, red, little white, calved November 3, 1907; Geo. L. Dillman, San Francisco $155
Pioneer 8th, red, little white, calved November 27, 1908; Wm. M. Newhall..$115
Waterloo 304,973, red, little white, calved November 17, 1907; Wm. M. Newhall, San Francisco $115
Straight Archer 5th, roan, calved December 26, 1907; Wm. M. Newhall.....$140
Grand Star 304963, red, calved December 8, 1907; Wm. M. Newhall $85
Quinto Duke 35th, red, calved February 13, 1908; F. Steinzel, San Leandro.$125
Star of Oregon 304516, red, calved January 2, 1908; H. Cowell, S. F.....$180
Satellite 2nd, red, calved March 3, 1908; Wm. M. Newhall $125
Lassie's King 304,652, red, calved January 21, 1908; W. M. Van Arsdale, San Francisco $200
Straight Archer 7th, red, calved March 21, 1908; J. W. Goodwin, S. F.....$55
Tule Boy 304654, red, calved January 22, 1908; Geo. Chandler, Baker City, Oregon $225
Lovely Archer 2nd, red roan, calved April 9, 1908; W. T. Dillingham, Honolulu, T. H. $100
Violet King 304653, red, calved February 22, 1908; Geo. Chandler, Baker City, Oregon $175
Lovely Archer 4th, red, calved April 20, 1908; Wm. M. Newhall, S. F.....$85
Lovely Archer 6th, red, calved May 2, 1908; W. G. Rossi, Slatington, El Dorado, California $85
Lovely Archer 7th, red and white, calved May 3, 1908; J. W. Goodwin, S. F...$85

Twenty-three females sold for $3400, an average of $147; 39 bulls sold for $6375, an average of $163; 62 head sold for $9775, an average of $157.

Mr. J. W. Goodwin, president of the Estrella Ranch Co., was the largest buyer. The company owns about 40,000 acres in San Luis Obispo and Monterey counties, about 15 miles east of Paso Robles, and is running about 3500 head of grade Short-horns on its ranges. Mr. Goodwin has decided to raise his own bulls for his ranges, judging by the character of the animals purchased. He has acquired some excellent individuals, which should make a wonderful improvement in his range stock. It is encouraging to see pure-bred bulls put onto these large ranges, as the use of grades of average quality has been too common for the good of the range stock.

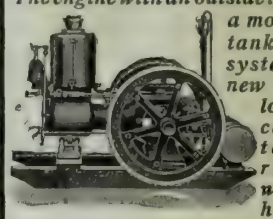
Mr. Newhall was another heavy buyer for his ranch near Paso Robles. Several dairymen were present and watched closely the offerings from the milk strains sired by Oxford Grand Duke 10th, or out of the Mazurkas, the best milking strain from W. O. Minor's Oregon herd. A number of the bulls were sold to dairymen of San Lorenzo and Milpitas.

The average obtained for the animals was a little over $159 per head, which shows the confidence the buyers had in the quality of the offerings. The Howard company and Mrs. Glide did well to procure the services of Col. Bellows. A large part of the success of an auction depends on the man handling the bids, and a thorough knowledge of the Short-horn qualifications and the value of each individual is a protection to both seller and buyer, which Mr. Bellows assured the stockmen at this sale. The sale was held in Fred Chase Co.'s sales pavilion, and was easy of access and well handled, no delays or other inconvenience being met.

Among those in attendance were J. W. Goodwin, A. W. Foster, Prof. E. W. Major, Wm. M. Newhall, H. A. Jastro, President of the National Livestock Association; H. F. Brown of Minneapolis, Minn.;

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P. H. MURPHY, Perkins, Sac. Co., Cal. Breeder of Shorthorn Cattle and Poland-China Hogs.

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GEO. V. BECKMAN, Lodi, San Joaquin Co. Cal. Registered Poland-China Hogs, both sexes

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

M. BASSETT, Box 116, Hanford, Cal. Registered Poland-China Hogs, and Plymouth Rocks.

J. D. Dickerson, Fresno; T. B. Gibson, Woodland; P. F. Maloney, San Mateo; O. H. Cowell, San Francisco; G. Bloss, Atwater; J. T. Dunne, Holister; Geo. Chandler, Oregon; L. W. Symmes, E. J. Molera, A. J. Molera, and Sam Aftergut, of San Francisco, and A. J. Balfour, of Balfour-Guthrie Co., San Francisco.

THE COMING CONVENTION IN LOS ANGELES.

The convention of the American National Live Stock Association in Los Angeles, January 26 to 28, will be one of the most significant agricultural assemblies ever held in this State. There is, of course, always direct significance in a formal assembly of those engaged in a great industry, and there is reflected or indirect significance in the choice of the place for such an assembly. It was very creditable to California that the State could offer a stockman like Mr. H. A. Jastro of Bakersfield for the presidency of a national association, and to have him elected to such an honorable position, and it was patriotic of Mr. Jastro to secure the convention for his own State. We trust that all Californians will pay attention to the meeting and crowd it to the doors.

It is perfectly true, as Mr. T. W. Tomlinson of Denver, Secretary of the Association, writes us in a private note: "As you know, there were formerly many ranches in California, and the live stock industry here in earlier days was of relatively greater importance than it is in California at present. The day of large ranches in California is past, and the small farmer does not seem to devote as much attention to live stock raising as he should. The future prosperity of California would be more greatly assured if there were a greater diversification of the products of the soil, and more attention were paid to stock raising than seems to be the case at present."

Concerning the coming meeting, the official call issued by President Jastro gives the outline of the needs of the industry which will come up for action:

Never before in the history of the live stock industry has the need for concerted action been more imperative. Many questions of great interest to stockmen will be considered by the next Congress and the legislatures of the different States, and it is vitally important that all concerned in the prosperity of our industry should now forcibly express their views through this national organization.

Some revision of the tariff will undoubtedly be attempted by the next Congress, and already certain manufacturing interests are clamoring for reduction in the duties on hides, wool and live stock. In all previous tariff legislation the manufacturing interests, by reason of intelligent organization and persistent effort, have been able to secure many favors to which they were not justly entitled, and, as a consequence, our meat food products are barred from many Continental European countries. In past years this Association has favored such reciprocal trade agreements as would permit the admission of our meat products to those countries, and now is the time, while the tariff is under consideration, to secure such favorable legislation. The special committee, representing the Departments of Agriculture, Bureau of Commerce and Labor, and the Treasury, which went to Europe for the purpose of ascertaining commercial conditions abroad relative to an increased sale of our farm and live stock products, has returned, and their very elaborate report will be available for consideration at our meeting.

This Association at its last convention recommended, by an almost unanimous vote, a bill providing for federal control of the grazing on the unappropriated public lands in the semi-arid States and Territories of the United States. That bill was introduced in the last Congress, and this winter a vigorous attempt will be made to secure its passage. The necessity for some intelligent supervision of the public range, protecting the ranchman and conserving at all times the rights of homesteaders, is daily becoming more apparent, and the increased difficulties of a promiscuous use of the range is continually making new converts to such policy. At our convention the subject will be open for the widest discussion and all concerned in this important question will be given an opportunity to express themselves.

The administration of the Forest Reserves by the Government will also come up for consideration, and the Hon. Gifford Pinchot, Forester and Chairman of the National Conservation Commission, will be present and address the convention.

THE SHORT-HORN OUTLOOK.

President H. F. Brown of the American Short-horn Breeders' Association, who is well known in California, at the recent annual meeting of that association in Chicago gave the following broad outlook to his favorite breed, which includes Short-horn activity upon this Coast:

"How about the future for Short-horns? Some of you may say we are going to fill up with Short-horns and there will be no room for more. Look at our own United States; look at our western range of country that is yet unoccupied—Colorado, Nevada, Montana, California, if you please; look at the South, though that is a small field; and, as I told you last year, look at the Republic of Mexico. There is a good big field. You may say that will soon be supplied. Grant it, if you please; but have you thought of the opening of the Panama Canal and what it is going to bring to our door when this country is filled up? By the time the Panama Canal is opened, we will take it for granted that we are going to be pretty well supplied, but we will be only starting on the road at that time. The opening of that canal will bring to our market a strip of country on the Pacific Coast 5000 miles in length, including an area of some 9,000,000 square miles, containing today some 20 small republics, inhabited today by a population of about 70,000,000 people—almost as large as the United States—and all unoccupied by any of the improved breeds of cattle, or virtually so. The only part of that whole coast of Mexican, South American and Central American country that has been improved with Short-horn cattle is the Argentine. They have been improving their stock down there for quite a number of years, largely with Short-horns, for the reason that they have a great big city down there, and that required a better grade of beef. The Argentine itself contains only about six million people, but Buenos Ayres is a city of twelve hundred thousand people—a great, big, prosperous, growing city, growing faster than any city of the United States, save perhaps New York and Chicago. I will hardly except St. Paul and Minneapolis. That was the reason, gentlemen, for demanding an improvement of beef in the Argentine. See the prices they have been paying for Short-horns. Have you noticed the sale they had there not long ago? Some eighty bulls of home production were sold at an average of $2200 in gold. The cattle that you are selling here today for $200 will before very long be bringing $500.

"Now, to my mind, we have just started on the road; it does not even end with the countries that I speak of. Cuba is a coming field for Short-horns, once the political questions are settled down there. The Orient is just getting ready to start. I had a contract almost closed a year ago for a shipment of cattle to Japan, and I am taking that up now with the originals and they are taking their agents here to investigate different breeds of cattle; so we have a tremendous field to supply. When you stop to think of it, you will agree with me that we are just in our infancy in supplying Short-horn cattle for the world."

TWENTY DAIRY SUGGESTIONS.

The Dairy Division of the Department of Animal Industry has recently issued the following suggestions to dairymen who desire to operate on an advanced sanitary plan. All cow-keepers will be interested to know the requirements of such a plan:

1. Have the herd examined at least twice a year by a skilled veterinarian. Promptly remove all animals suspected of being in bad health. Never add an animal to the herd until certain it is free from disease, particularly.

2. Never allow a cow to be excited by fast driving, abuse, loud talking or unnecessary disturbance; do not expose her to cold or storms more than necessary.

3. Clean the entire body of the cow daily; hair in the region of the udder should be kept short by clipping.

4. Do not allow any strong flavored food, like garlic, cabbage or turnips, to be eaten, except immediately after milking. Changes in feed should be made gradually.

5. Provide fresh pure water in abundance, easy of access and not too cold.

6. The cattle should be kept in a stable, preferably without cellar or loft, and where no other animals are housed.

7. The stable should be light (4 square feet of glass per cow) and dry, with at least 500 cubic feet of air space per animal. It should have air inlets and outlets, so arranged as to give good ventilation without drafts of air on cows.

8. The floor should be tight and constructed preferably of cement; walls and ceilings should be tight, clean, free from cobwebs, and whitewashed twice a year. Have as few dust-catching ledges, projections and corners as possible.

9. Allow no dusty, musty or dirty litter, or strong smelling material in the stable. Haul manure to field daily or store under cover at least 40 feet from the stable. Use gypsum daily in gutter and on floor.

10. Have a light, clean, well ventilated and screened milk room, located so as to be free from dust and odors.

11. Milk utensils should be made of metal, and all joints smoothly soldered. Never allow utensils to become rusty or rough inside. Use them only for handling, storing or delivering milk.

12. To clean dairy utensils, use only pure water. First rinse the utensils in warm water. Then wash inside and out in hot water in which a cleansing material has been dissolved, and rinse again. Sterilize with boiling water or steam. Then keep inverted in pure air or sun, if possible, until wanted for use.

14. Use no dry, dusty food just previous to milking.

The milker should wash his hands immediately before milking, and milk with dry hands. He should wear a clean outer garment, kept in a clean place when not in use. Tobacco should not be used while milking.

15. Wipe the udder and surrounding parts with a clean damp cloth immediately before milking.

16. In milking, be quiet, quick, clean and thorough. Commence milking at the same hour every morning and evening, and milk the cows in the same order.

17. If any part of the milk is bloody, stringy or unnatural in appearance, or if by accident dirt gets into the milk pail, the whole should be rejected.

18. Do not fill cans in the stable. Remove the milk of each cow at once from the stable to milk room. Strain immediately through cotton flannel or cotton. Cool to 50 degrees F. as soon as strained. Store at 50 degrees F. or lower.

19. Never mix warm milk with that which has been cooled, and do not allow milk to freeze.

20. A person suffering from any disease, or who has been recently exposed to a contagious disease, must remain away from cows and the milk.

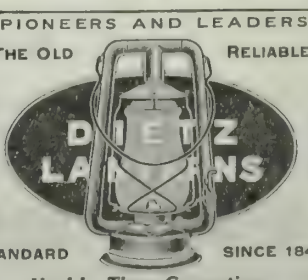
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As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.
Every bottle of Caustic Balsam sold is Warranted to give Satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address
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SILOS AND THE GUILL DAIRY NEAR CHICO.

Mr. John Guill, Jr., of Chico, gives the Alta Californian an interesting account of his experience with dairying largely on a silo basis:

The most common style of silo is the stave and hoop kind, although many more expensive ones are made of cement blocks or brick. Nearly all are round, as that shape allows the ensilage to settle more evenly, and all are high in relation to their diameter. Ours are stave silos and are 16 feet in diameter by 24 feet in height.

Silos are very popular in the old dairy States, especially where corn is the principal crop, although other plants such as alfalfa, clover or weeds may be successfully put up. We have sometimes used the first cutting of alfalfa, and the cattle were very fond of it, even when full of weeds.

In the matter of space a silo makes a great saving, for a large amount of feed may be put into a small silo. One hundred tons of corn may be put into a silo with dimensions of 16 feet in diameter by 26 feet in height, whereas it would take a barn several times that size to hold the dry fodder.

Ensilage has the same physical effect upon stock as green feed, in that it offsets the binding effects of dry hay. Hence in time of drought when there is no pasture the value of a tank of silage is very apparent.

Corn is the principal ensilage crop, for in a fair year 8 or 10 tons, and sometimes as high as 15 tons per acre can be grown. It is an excellent supplementary feed to alfalfa hay, being rich in carbo-hydrates while the alfalfa is rich in proteins.

We use the yellow dent varieties of corn as they produce large amounts both of fodder and of grain. If possible, we plow our ground deep in the fall and then disc and work into a good seed bed before planting in the spring.

Planting is usually done about April 1, after the danger of heavy frosts is over. This is done by a two-row drill and the depth of planting varies with the condition of the soil.

The first cultivations—until the plant gets five or six inches high—are often done with a pig tooth harrow, the teeth being slanted slightly backward. After that we have a two-row cultivator to keep the weeds down and prevent excessive evaporation.

Corn is not harvested for the silo until it passes the roasting ear stage. The plant then has its highest feeding value and makes a sweeter ensilage. For harvesting we have a corn-binder that cuts the stalks near the ground and lays them in convenient bundles. It is our aim to keep up with the binder in hauling, so that the corn will not wilt. Fresh green corn goes through the cutter with least trouble and packs best. In case the fodder wilts or is dry we add water to it in the silo.

Our ensilage cutter is a 16-inch machine. It cuts the stalks, ears and all, into inch bits and will take all the corn that one man can pitch into it. It is run by a 7½ horse-power electric motor. The cut corn is thrown into the top of the silo by an endless chain carrier, where it is spread and tramped. It is necessary to keep the surface of the corn higher around the edge of the silo, and most of the packing should be done there, because the corn settles most around the edges, and if care is not taken the mass in settling will draw away from the sides, leaving an air space, which always allows a considerable amount to spoil.

We have used our silos for about ten years and would not think of doing without them.

NEVER TRUST A BULL.

We have made many exhortations on this point, because tame bulls do nearly as much killing as automobiles, and vastly more than railway trains. Remember the recent case of a prosperous dairyman of Merced county, who came near meeting with a serious, if not fatal, accident. He was attacked by an infuriated bull. As it was, he was rendered unconscious for a half hour, and lay in the field an hour before he was discovered by a neighbor who noticed the saddle horse without a rider and found the man where he had fallen from the horse. The doctor found the victim had been injured about the head and suffered internal injuries, causing nausea. The man was unable to tell what happened after the bull struck the horse and both fell. The horse made its escape, pursued by the bull, which had always appeared peaceable until that time. It is fortunate for man and horse that the animal had been dehorned, but remember also that dehorned bulls can deliver a killing stroke.

TOO MUCH WATER IN THE BUTTER.

Butter to the amount of 12,000 pounds into which water had been worked, it is claimed, to the extent of one-third of the entire weight, was seized by Burt Thomas, special agent of internal revenue, at various cold storage warehouses, stores and wholesale houses last week, as being offered for sale in violation of the internal revenue law directed at oleomargarine products.

All of this butter, says the account in the Chronicle, was made by the Chism Creamery, at Reno, Nev., and brought down here by S. H. Overstreet, representing the Nevada Packing Co. There is no claim that any adulteration other than the product of the pump was used in produring the butter, but the revenue law provides that butter may not contain more than 16 per cent of moisture, while some of that seized runs as high as 48 per cent of moisture, with an average for the lot of 33 1-3 per cent.

Under the law, butter containing more than 16 per cent of moisture is taxed at the rate of 10 cents per pound by the internal Revenue Department, and in addition the manufacturer is required to take out a special license, at a cost of $600 per annum. Wholesale dealers are assessed a special tax of $486 per annum, and retail dealers have to pay $48 per annum.

As in this case the buyers are considered innocent of any knowledge that the butter had been soaked, it is not thought that criminal prosecution will follow, although the matter has been referred to Washington for determination of that point.

In addition to this seizure of 12,000 pounds by Thomas in this city, 15,000 pounds has been seized in Reno by Deputy Collectors Debra and Blow, acting under the direction of Collector Shipley of the Fourth Internal Revenue District. Unless the license tax is paid it is probable that the butter will be destroyed.

HOGS ON BOTTOM LAND.

To the Editor: I have a tract of low level bottom land suitable for the growth of all kinds of root crops, and would like to devote this land to the raising of hogs. Can you tell me what roots give the best results for winter feeding for hogs? Are

Announcement of Season's Sales

We are now permanently located at our new sales yards and stables, located at the S. E. corner Tenth and Bryant streets, with room for 500 head of horses, 74,000 square feet of space under cover, 200 stalls, all concrete floors. Auction sales take place as announced, rain or shine, afternoon and evening.

Consign your horses for sale at auction for the following dates, January 28th, February 16th, March 2nd, 16th and 30th, April 13th and 27th, and thereafter every two weeks during the entire season.

We are sole agents for the famous double square brand ⊞ or horses from Nevada, weighing from 1000 to 1400 lbs., all broken to work and ride.

Also the justly celebrated Wagon Tire mountain, Horse-shoe bar ⊓ brand of horses, from Eastern Oregon, weighing from 1000 to 1400 lbs., all broke to work.



100 of These Horses will be Sold at Our Opening Sale,

JANUARY 26, 1909,

together with a large number of other horses of all kinds, including draft horses, fast roadsters, and farm, work, and all purpose horses.

As usual, we shall guarantee all horses to be as represented and allow 24 hours for inspection and delivery.

Over one thousand head now on feed and being prepared for this season's San Francisco market.

200 Head will be Offered at our Opening Sale, Tuesday, January 26, 1909,

100 head of the double square brand, and 100 head all purpose gentle broke horses, weighing from 1000 to 1600 lbs. 100 head will be offered beginning at 1 p. m. and 100 head at 8 p. m.

All cars transfer to Eight and Tenth street lines, which pass our sales yards. All horses purchased by country buyers delivered f. o. b. cars or steamers. Consignors write for terms and dates. No unsound or cast off horses will be offered at these sales. Consigned horses should arrive in San Francisco not later than Saturday, January 23rd.

Western Horse Market, E. Stewart & Co., Auctioneers & Live Stock Dealers

S. E. COR. TENTH AND BRYANT STREETS, SAN FRANCISCO, CAL.

there any parties in California who are raising hogs on a large scale where I can see the industry carried on? I would like to know the nature of the feed they are using in raising hogs without corn, and if any success is had without corn.—A. L. M., San Francisco.

I have had excellent results from planting the Jerusalem artichoke and allowing the hogs to do their own harvesting. This root deserves more popularity than it seems to have at present. If your soil is a light loam, or better, a peat, you will get some exceptional yields and a very good hog feed.

Most of the large ranches in the State raise hogs in different numbers and by different systems. You would do well to visit some of the swine breeders advertising in this paper, who could give you much valuable advice and show you the industry from the standpoint of the breeder of pure-bred stock. Generally speaking, the hogs in this State are not fed corn to any extent. Alfalfa, and finishing with barley, and oftentimes wheat, is the most general, though nearly every hog raiser has his own particular method of finishing.—L. W. S.

PROFITABLE HANDLING OF A SMALL BEEF HERD.

The closing out of so many cattle ranches in the Southwest is bringing the attention of raising feeders by farmers who keep small herds of cattle. This phase of cattle raising can be made a profitable one to owners of small farms. From necessity the farmer of the future will be compelled to keep a small bunch of cows, whether they be pure breds or not, for growing steers. This fact brings the cost of maintenance to one of prime interest to every farmer. Anticipating the condition of the future, the Illinois Experiment Station is at work on a problem of determining what will be the best system to pursue by men maintaining herds for steer breeding. The proper feed and manner of keeping cows solely for the purpose of raising calves is not a new proposition by any means. Any farmer who has kept one dozen to 50 breeding cows has long since solved the system by which he derives the most profit. The Experiment Station, however, has 30 grade Aberdeen-Angus cows, very similar in size, which they are using for this experiment. They range from three to six years of age, and are one-half to three-fourths pure bred. These cows are divided into three lots of as nearly equal age and condition as possible. Lot 1 was fed on corn ensilage, clover hay and oat straw; lot 2, shocked corn, clover hay and oat straw; lot 3, on corn stover and oat straw, supplemented a part of the season with clover hay. The lot fed silage, clover hay and oat straw made on average daily gain of 1.07 pounds; on the lot fed shocked corn, clover hay and oat straw the gain was .75 pound, while on the lot fed corn stover and oat straw supplemented by clover hay, the gain was .41 pound per day. The experiment proves conclusively that breeding cows of the beef type may be wintered without grain, provided they are given good wholesome roughage, and also proves what many farmers have already worked out by experiene, that a herd of beef cows can be carried the year round with practically no grain at all and yet yield a handsome return in raising a valuable, quick maturing steer.

DE LAVAL CREAM
SCORES HIGHEST AT GREAT DAIRY SHOW

At the great National Dairy Show held recently in Chicago cream skimmed with DE LAVAL separators won all highest honors. The cream exhibits were made in two classes and the winners in each were as follows, all being users of DE LAVAL hand separators:

MARKET CREAM

1st Prize, Gold Medal, G. C. Repp, Ohio - - - - Score 98¾
2nd Prize, Silver Medal, W. R. Newberry, Ohio - - Score 94

CERTIFIED CREAM

1st Prize, Gold Medal, Tully Farms, New York - - Score 94½

The contest was under the direction of the Dairy Division of the United States Department of Agriculture, Washington, and Mr. Repp's winning exhibit in the Market class was pronounced practically perfect and given the highest score ever awarded by the Dairy Division.

For the past twenty years butter made from DE LAVAL cream has won all highest honors in every important contest. Sixteen of the largest 1908 State Fairs awarded their first prize to DE LAVAL butter, and now comes this sweeping victory for DE LAVAL cream in the big Dairy Show contest, which only goes further to prove that DE LAVAL machines are head and shoulders above every other skimming device in every feature of separator use.

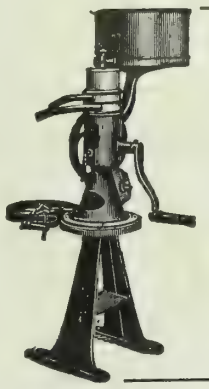
A DE LAVAL catalogue tells why DE LAVAL cream is always superior. Ask for it today, or, better still, let us demonstrate the merits of a DE LAVAL separator in your own dairy.

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107 First Street PORTLAND, ORE.
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THE EMPIRE

Once more the Empire Cream Separator Co. comes to the front with a 1909 catalogue that is both beautiful in design and complete with descriptive matter.

This catalogue should be in the home of every rancher who has two or more cows. It will help you to decide on a cream separator, and give you some interesting reading matter. Send us your address today and have this mailed you.

We also have two sizes of Gasoline Engines which are being used for all kinds of light work. Every rancher who needs a gasoline engine should have one of our catalogues.

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85 North Sixth St., Portland, Ore.



Made of wire that is all life and strength — wire that stretches true and tight and yields just enough under impact to give back every jolt and jam it receives.

Made of materials selected and tested in all the stages from our own mines, through our own blast furnaces and rolling and wire mills, to the finished product. Our employment of specially adapted metals is of great importance in fence wire; a wire that must be hard yet not brittle; stiff and springy yet flexible enough for splicing—best and most durable fence material on earth.

To obtain these and in addition apply a quality of galvanizing that will effectually protect against weather conditions, is a triumph of the wiremaker's art.

These are combined in the American and Ellwood fences—the product of the greatest mines, steel producing plants and wire mills in the world. And with these good facilities and the old and skilled employes back of them, we maintain the highest standard of excellence possible for human skill and ingenuity to produce.

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75 head of high grade yearlings on hand.
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Analysis (from Bulletin 164, Jan. 1905—University of California.)

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Linseed Oil Cake Meal	**24.4 per cent**	Shorts	12.2 per cent
Cocoa Cake or Meal	**26.4 "**	Mixed Feed	9.6 "
Wheat Middlings	12.2 "	Corn Meal	6.4 "
Wheat Bran	11.2 "	Wheat Hay	3.6 "

If you feed for Protein you get Results.
Ask your jobber for prices or write

PACIFIC OIL & LEAD WORKS, - - - SAN FRANCISCO, CAL.
PORTLAND LINSEED OIL WORKS, - - - PORTLAND, ORE.

The Poultry Yard.

FEATHERS: THEIR USE AND SIGNIFICANCE.

Written for the PACIFIC RURAL PRESS
By MR. A. WARREN ROBINSON.

The saving of poultry feathers is a valuable item overlooked by many poultrymen who operate small plants. Official figures state that the output of feathers in Missouri in 1905 represented 1.26 per cent of the total valuation of the poultry and egg product. If other States are to be rated in like proportion it is estimated that the feather crop of the United States in 1905 represented a value of $6,300,000. During the same year this country imported crude feathers and down to the value of $2,036,791, while the exports of feathers for the same year amounted to $239,256.

We import on an average over $2,000,000 worth of feathers, while the exports fall short of a quarter of a million dollars.

According to one of the leading feather dealers, there is a yearly consumption of poultry feathers in the United States at the present time which exceeds 20,000,000 pounds of the finished material. Vast quantities are used in making feather and down pillows, in millinery goods and feather trimmings.

For a pillow about three pounds are required and their life is about twenty years. A cheap grade of feathers is imported from China. Germany, Austria and Russia supply the better grade of geese feathers and down. One company operating in Germany represents $4,000,000 capital. The price of eider down ranges from six dollars to ten dollars per pound, and the supply has never exceeded the demand.

The chief source of feathers in the United States is the South and West and Chicago. It is estimated that the annual receipts of feathers in Chicago will exceed four hundred carloads. Hen feathers range in price from 3½ cents to 7 cents per pound, averaging 5 cents for the best quality. Duck feathers range from 25 to 30 cents. White duck feathers would sell for as high a price as geese feathers were it not for the fact that they have an odor that cannot be removed by any known method.

The best white geese feathers bring, in the Chicago market, from 45 to 55 cents the year round. The ordinary body feathers of the turkey sell for from 3 to 6 cents per pound, the stiff feathers from the wings from 8 to 10 cents, while the tail feathers, if they are clean and dry, sometimes bring as high as 21 cents.

Feathers are brought from the farms and poultry plants in sacks and are cleaned in the large warehouses by steam and dry air. Ten pounds of dirt and other matter are sometimes removed from one hundred pounds of feathers. Fischel, the noted breeder of White Plymouth Rocks, says that the feathers of those fowls bring today 28 cents per pound, while those of the parti-colored fowls bring only 2½ cents.

The value of feathers is an important reason for dry picking the birds, as dry body feathers from chickens bring from 18 to 19 cents per pound. The demand is steady the year round. Prime geese feathers are listed at from 60 to 62 cents; duck, white, 42 to 44 cents; chicken, dry body picked, 3½ to 4½ cents; scalded, 1 cent. Turkey feathers, body, dry picked, choice, 90 cents; white turkey, body, prime, 60 to 70 cents. Tail feathers, choice and clear, 40 cents. "In picking turkeys," says the Shipper's Guide, "save all the feathers that grow on the tail, also those on the two joints of the wings next to the body."

Picking fowls dry has become an art and there are in all the large markets men who have become very expert in the business. For some years experiments have been made in picking fowls by machinery, using dry air, or two powerful currents of the same, to effect the purpose. While these machines have not yet reached a perfect state, they are proving quite successful.

The feathers of the oldest bird known (fossils of which have been discovered) were essentially like those of the majority of birds now existing and nature has not been able to improve upon the admirable combination of lightness and firmness since the Jurassic period.

Feathers do not, like hairs, grow indefinitely. Where they have attained full size the vascular papillae enclosed in the quill dries up, forming the pith, and from that moment no further growth, nor any renewing of tissue takes place. Therefore, as soon as the feathers are worn out they are all thrown off and replaced by new ones. They are thrown off gradually on each side of the body, the feathers of one wing simultaneously with the corresponding ones of the other.

A complete feather consists of a shaft and a vane, which is the web-like expansion along the sides of the shaft, or quill, the use of the feathers being to give warmth and protection from cold and wet, being non-conductors, checking radiation, because of the air they contain, forming a blanket of dry air around the body.

Feathers were in use in England for filling beds as early as the time of King Henry VII, and it is not known how much earlier.

The Romans used feathers for beds. Pliny says: "The geese that come from Germany are most esteemed. We have reached such a state of effeminancy that nowadays not even men can lie down without the aid of goose feathers and pillows." The earliest period we have knowledge of that quills were used for writing in England was in the sixth century, and from that time onward until the introduction of steel pens, in the early part of the nineteenth century, they formed the principal writing implements of civilized countries.

Since the introduction of steel pens the quill has disappeared from correspondence. M. Bardin of Paris raised annually 2,000,000 geese for their quills for the manufacture of quills for writing. The substitution of steel pens threatened him with disaster, so he hit upon the plan of using quills for tooth picks.

In regard to the feather industry in San Francisco a prominent firm of that city says: "This market is practically in its infancy and as yet has no standing among the large buyers of the world. The quantity of local grown stock is so small and so imperfectly handled by first hands that such a thing as fixed types or grades has not as yet been arrived at.

"In the larger markets of the world great care is taken in the picking and storing of the feathers, thereby establishing a firm type for market purposes. The feather markets of China and Japan are very well known to the large handlers the world over and the bulk of the low priced stock is picked and graded in these countries for shipment, these goods being disposed of throughout the world from samples which are verified by the contents of the bales.

"If the local growers of poultry did their own plucking, and preserved the identity of white duck feathers, white goose feathers, chicken feathers, white and dark colored and picked them carefully in marketable condition, we would be able to establish, from time to time, according to the fluctuations of Eastern markets, a firm offering for local supplies. But as yet there is no section of this part of the country which has produced enough feathers to warrant any such condition."

Years ago a tribe of Indians claimed the Yosemite valley as their home. For them the valley was named. There they hunted the wild game of the adjacent towering mountains, caught the wily trout in the rapidly, clear flowing Merced river as it threaded its winding way through the center of the valley and laid up in store for their winter sustenance acorns, hazelnuts and other humble articles of food.

We who have any acquaintance with the Digger Indians naturally think them utterly devoid of all sentiment, and yet this mountain tribe, whose grade of intelligence is very low, have had handed down to them, through untold years, one of the most beautiful legends. They had a cherished tradition that a powerful and benificent guardian angel constantly looked after their welfare. It was she who made the valley they loved so well, hidden deep in the rock-ribbed everlasting hills, for their secluded home. She it was who defended them from the savage attacks of the warlike neighboring tribe of Indians and it was by her power that the huge Half Dome was cut away and removed, no one knows whither.

As this beautiful provident angel flew over the valley on her frequent errands of mercy, feathers from her lovely wings often floated down through the clear invigorating mountain air and found lodgment among the soft green grasses of the upland meadow. Here they rooted in the turfy soil and sprang up as beautiful snow-white violets which annually make their appearance and which you, kind reader, may gather in large quantity whenever it shall be your good fortune to stroll through the lovely, indescribable Yosemite valley, reminding you of the kind and all-powerful Guardian of the children of nature, one time numerous in that locality, now numbering less than a score.

Twin Lakes, Santa Cruz, Cal., Dec. 15.

ANSWERS TO QUESTIONS.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

POULTRY MANURE.—"Inquirer" of San Diego writes. "I have quite a stock of poultry. What is the manure adapted for in forcing early truck. Do not do anything in lettuce, radishes or greens; my location is almost frostless."

This fertilizer is a most valuable by-product of poultry and should be preserved by keeping till needed in boxes or barrels and covered with dry earth. It is beneficial to any garden crop and may be applied at any time, if mixed with dry, sandy soil, as a top dressing. It is especially good for truck gardening, for it is not a hotbed for grubs, flies and insects which prey upon garden sauce like barnyard manure is. The Maine Experiment Station bulletin says: "Poultry manure is especially adapted as a top dressing for grass crops because of its high content of nitrogen in the form of ammonia compounds, which are nearly as quick in their effects as nitrate of soda. Fresh poultry manure at the present value of fertilizers would be worth 60 cents per 100 pounds." A scientific analysis gives the following proportions:

Poultry manure contains 2.43 per cent of phosphoric acid, 2.26 per cent potash and 3.25 per cent nitrogen, as ammonia and organic matter. Compared with well-rotted barn manure there are 48.60 pounds of phosphoric acid in hen manure to 6 in barnyard manure; 41 pounds of potash to 10 in barnyard manure and 67 pounds of nitrogen to 11 pounds in barnyard manure. If properly kept and judiciously applied to land, poultry manure is worth one-half the cost of the food the fowls get, and yet little or no account is made of the droppings when an estimate is made of the profits.

The new pigeon farm of Drs. Cooper and Fox, located near Modesto, is shipping its output to the San Francisco market. Last week over 1500 pigeons were sent out at one time.

POULTRY.

BUFF ORPINGTONS—Sullivan's famous buffs excel all others. Eggs for hatching, stock for sale. Catalogue for the asking. **W. SULLIVAN,** Agnew, Santa Clara Co., Cal.

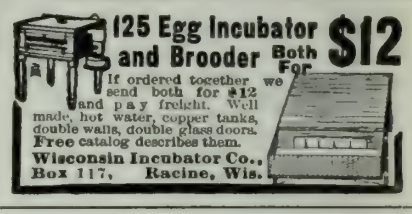
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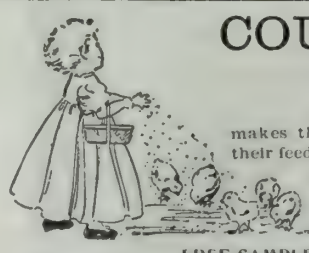
You Get the Most for Your Money

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It contains the best quality of everything they require for first six weeks, **except grit.**

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Coulson Poultry and Stock Food Co.
PETALUMA, CALIFORNIA.

The Home Circle.

The Working Man.

The noblest men I know on earth
  Are men whose hands are brown with toil;
Who, barred by no ancestral groves,
  Hew down the wood and till the soil,
And win thereby a prouder name
  Than follows king or warrior's fame.

The working men, whate'er the task,
  Who carve the stone or bear the hod,
They bear upon their honest brows
  The royal stamp and seal of God;
And worthier are their drops of sweat
  Than diamonds in a coronet.

God bless the noble working men
  Who rear the cities of the plain,
Who dig the mines, who build the ships
  And drive the commerce of the main;
God bless them! for their toiling hands
  Have wrought the glory of all lands.

"Simple Simon": His Simple Life.

The church clock at the top of the hill struck eleven. Its deliberate tones floated down over the house-tops and across the fields to where William Dodd was working in his garden. A gleam of satisfaction came over his face. He stood upright, his knuckles at what might have been called by courtesy the small of his back, and stretched himself. Then he got together his fork, his hoe and his wooden garden basket and went off to the house.

He was round and short and elderly. Forty years before his pink face, wide open eyes, and air of innocent bewilderment had earned him the name of Simple Simon from his fellow clerks at the London bank at which he had been employed, and middle age had only served to make it more appropriate.

He had on a pair of striped trousers, very baggy at the knees, a tail coat of a greenish hue, still black in places. He was wearing out the clothes he had at the time of his retirement. When the time came to buy another suit, it would be of the pattern called pepper and salt.

It was a fine sunny morning in May. Larks were singing, poised somewhere in the blue over the meadows. Simple Simon had been aware of them in the hour in which he had been weeding. He had also taken notice of the fresh sweetness of the country air, of the smell of the earth, of the vigorous spring growth that was going on, almost visibly around him, of the bright colors of the flowers on the borders of his vegetable ground.

He put his tools away in the shed he had built for their accommodation, cleaned his boots on the iron scraper outside it, and then went along the bricked path to the back of the house and called out, "Now, then, mother! Eleven o'clock."

Mrs. Dodd appeared at the door with a tray, upon which were a jug of beer, a glass, a hunk of bread and cheese. She, too, was stout and round, and her comely face wore the same look of placid contentment as her husband's. She had on an immense apron over her neat stuff dress.

"Been making the arbor, father?" she asked, as she deposited the tray on a wooden bench by the door.

"Arbor?" echoed Simple Simon, taking his seat beside the tray. "Why, your wits have gone wool gathering. The arbor's from eleven till one. Going to start on it now. What have you been doing?"

"Counting the wash and trying to knock some sense into that girl's head. Now I'm going over the glass and china cupboard till dinner time."

"Ah, you'll like that. Lor, what a life it is. Never a moment without something pleasant to do, and nobody got a right to come along and tell you to do something else. Now, mother, is it as good as we figured it out, or isn't it?"

"Go along with you," replied Mrs. Dodd. "You know well enough what I think. I can't stop talking here all the morning."

She disappeared into the house. Her husband finished his morning's refreshment, and sat for a few minutes, rubbing his hands on his knees, his face turned toward the sun, that had already begun to color it. Then he got up briskly and went to his shed for another set of tools.

Simple Simon was in his usual position of having realized a life-long aim and of having gained as much satisfaction from it as he had anticipated.

When he had mirried, thirty years before, with only the salary of a young bank clerk upon which to support himself, his wife and a possible family, it would have seemed out of the question that his prospects would have enabled him to buy a little house with a large garden in the country and live in it for the years that remained to him after his work should be finished. But that was the end that he and his wife had in view all through the years of youth and middle age; and the end has been accomplished.

They had saved a little every year from the first, except in the year in which their daughter had been born, and that other black year in which she had rheumatic fever and they had nearly lost her. As time went on and Simple Somon's salary increased, they saved more. It came to be a pleasure to do without things and add something to the store. For every shilling they denied themselves they gained a sovereign's worth in anticipation.

Simple Simon, upon his marriage, had gone into a little house in a quiet but pokish street in Kentish Town, and he had lived in that little house for thirty years until he bougnt his own in the country.

He thought of those years now, as he measured and sawed and hammered in the spring sunshine, with the peace of the country surrounding him.

They had not been bad years. The little house at the end of the dull street, under the high wall, had always been clean and cozy within, and if in summer time it was disagreeably hot and airless in the midst of these miles of streets, and as disagreeably cheerless in the bad days, there was always the great emancipation to look forward to and take on a brighter aspect by contrast with present surroundings.

And there was Hampstead Heath not far off and the pleasanter suburbs, in one of which Simple Simon might even then have been living if he had not set his heart upon something still better in the years to come. He and his wife and his little girl made expeditions together on holidays and on summer evenings. They were known in the street where they lived as "The Happy Family." But they kept much to themselves.

It seemed to Simple Simon, as he worked away by the blossoming lilac, that those years had covered a very short space of time. There had been scarcely any change in them. There would have been none, year after year, if it had not been for their growing daughter.

She supplied the landmarks. In this year she had scarlet fever, and they took her to Lowestoft for a holiday; in that she first played at the school concert; in that she gained her scholarship at the academy; in that she was so ill; in that she got her appointment as music teacher at the big school in which she had been educated; in that she was married; in that her child was born.

Simple Simon's face softened as he thought of the child. He was the fondest of grandparents.

Yes, she had been a good girl. Life in the little house in Kentish Town, even with the great emancipation to look forward to, would have been dull without her.

And perhaps it was just as well that her husband, who had been the drawing master at the school, was not very well off. Simple Simon had been able to help his girl, and was helping her now. There was plenty for that. He and mother would not be so contented as they were if they had nobody but themselves to think of and spend their money on.

The church clock struck one. Simple Simon drew himself up again and gathered his tools together. It was time to go in and wash and change his clothes. In the afternoon, after a nap in the armchair in the dining room window, framed in honeysuckle, he would occupy himself with the lighter phases of gardening, pottering about with a hank of bast and a pair of garden clippers until tea time. After that he and his wife would go for a stroll by field paths and country lanes, and return in the evening to their quiet, pleasant little home.

And so the days and the years would pass, and they would grow old together, in peace and contentment, with their child and their child's child to ward from them the desolate loneliness of age.

A thrush sang in the lilacs. A light breeze blowing over a bed of wall flowers wafted fragrance. The sun shone on a clump of tall lilacs.

Simple Simon lifted his gray head and looked round him. His eyes were moist. "I don't know what I've done to deserve to be so happy," he said.—London Mail.

Women in the World's Work.

A woman has been elected county clerk for Salt Lake county, Utah.

Miss M. Heilbron of New York city has invented a letter opener that will open 400 letters in a minute.

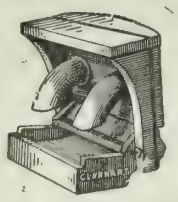
Ada county, Idaho, is represented in the State legislature by a woman, Mrs. D. McFadden, who will devote herself to the pushing of laws tending to the betterment of women and children.

The Women's University Club of New York city, says the Sun, has a membership of some 785 women and is fast disproving all the theories of the sterner sex as to the ability of women to manage a business organization successfully. The members boast that they have solved the problem of running a club better than men have, for they can do it without the revenue from a bar.

An old employe, Miss Jennie L. Doane, of the Packard shoe factory in Brockton, Mass., has been chosen by the heirs of the late proprietor, who died suddenly without a will, to administer his half-million dollar estate and have full charge of his business. The late Mr. Packard often declared that Miss Doane had more brains than any two men of his acquaintance.

One woman in New York city, suddenly thrown upon her own resources by the death of her husband, is making an excellent livelihood for herself and child as a "what-not mender"—repairer of "any old thing from a silk glove to a kitchen range," as she explains it. She gave some bits of her experience to a Sun reporter that are worth while the consideration of women (and how many there are) who are up against the question of a livelihood. This woman, who was unused to work except as the mistress of a Southern household with negro servants, took her satchel in her hand and started out to hunt for employment. The first thing she found was a large washing which the regular wash-lady had left in the suds, as it were. She promptly took hold of it, though she had never done "more than wash pocket handkerchiefs and precious bits of old lace"; but she realized that it was the only way to get an opening in a strange city. She did the washing, and did it well, but she has never had to do the second washing, and has now been established for four years as a what-not

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We receive messages like the above daily from San Francisco's leading business houses. They call on us because they know we have the right kind of young men in our school, and because they know we are giving the right kind of training. If you are interested in the opportunities offered by the new San Francisco write us for particulars.

San Francisco Business College
733 Fillmore St., San Francisco, Cal.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

mender with an average income of $18 a week. She says:

"The secret of my success has been taking what I could get to do and working toward what I wanted. I now devote nearly all my time to what might be called fancy mending, but when a piece of rough work offers itself I do it. It is my theory that work is degrading only when done in a degrading manner. When the worker is incompetent or coarse then she degrades the work, not the work her. Let a worker prove herself a woman of refinement and she is pretty apt to be treated as such. One of the first evidences of refinement is to do conscientious work and give her patrons the worth of their money."

THE HOME CIRCLE CHAT.

Breakfast Cakes.

There are a number of breakfast cakes that may be quickly prepared, which are quite as light and wholesome as toast and much more toothsome for a change, especially to the men folks. When time is very limited in the morning, the ingredients of the cakes may be gotten in readiness at night and where one has a quick oven they may be put together and the whole trick turned in half an hour with the delicate muffin or biscuit smoking on the table.

Corn Muffins.—White meal is better than yellow for these and sour milk or buttermilk than sweet milk for all kinds of corn bread. With sour milk use instead of baking powder one level teaspoon of soda to each pint of milk; if the latter is very sour allow a little more soda. When neither sour or sweet milk is at hand, use water and add a tablespoon of butter to this recipe.

To one beaten egg add two cupfuls of sweet milk, into this sift all together one scant teacup of cornmeal, one-half teacup flour, one teaspoon baking powder, a level teaspoon of salt and a heaping tablespoon of sugar; beat quickly into the milk and if the batter is at all thick add a bit more milk or water, else the cakes will be dry and tasteless, especially if made with sweet milk or water. Drop into a hot well greased gem pan and bake in a hot oven.

Crumb-Corn Cakes.—Soak stale bread or crumbs over night in a quart of sweet or sour milk; rub through a colendar and add one tablespoon melted butter, two of sugar, and either baking powder or soda as required and in proportions as in above recipe, and enough white meal to make a thin batter and last, beat in two well whipped eggs; bake in gem pans. These are excellent and furnish a good way to utilize stale bread.

Graham Gems.—Two cups sweet milk, two level teaspoons of baking powder sifted with two cups of flour, two tablespoons of molasses, a bit of salt, one tablespoon of melted butter, one egg; beat well and bake in gem pans.

White Flour Muffins or Gems.—One heaping teaspoon of baking powder and a little salt sifted with one pint of flour, one tablespoon melted butter, one teacup of sweet milk, two eggs; beat the eggs separately and add the whites last; bake in muffin rings or gem pans.

In the line of what are generally known as pancakes there is nothing so wholesome and delicate as

Rice Griddle Cakes.—To a cup of cold rice boiled dry so that the kernels are saparate, add the well-beaten yolk of four eggs, one tablespoon of melted butter, two pints of sweet milk, a level teaspoon of salt and two heaping teaspoons of baking powder sifted with one scant quart of flour; beat all well together and then add the stiffly beaten whites of the four eggs; bake on hot well greased griddles to a rich brown; place between hot plates and serve. For extra occasions these may be buttered as baked, sprinkled with maple sugar, or spread with nice jelly, then rolled and served on a hot plate. These are delicious and make a handsome breakfast dish.

Breakfast Biscuit.—These, if rightly made and well baked, need not be tabooed to even the delicate stomach. With one quart of flour sift three well-filled teaspoons of baking powder; after sifting work into the flour a scant half teacup of good butter mixed with a half pint of sweet milk; roll thin and cut with biscuit cutter; prick with fork and bake an even rich brown on both sides in a hot oven. Their wholesomeness is assured by being cut out thin, not much more than one-quarter of an inch and a half an inch when baked is right, and baking them well. For a quick breakfast these may be warmed over in the morning by dipping into cold water and placing a few minutes in a hot oven. If done just right, they cannot be distinguished from the fresh article.

Mr. Highbrow—It was Michelet, I believe, who oberved that "woman is the salt of a man's life."

Miss Keen—Quite true. Young men aren't half so fresh after they get married.—Boston Transcript.

"So you believe in telepathy?"

"Yes," answered Mr. Meekton. "My wife knows what I am going to think about some time before I have made my mind up on the subject myself."—Washington Star.

THE MARKETS.

San Francisco, Jan. 13, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Some change in spot prices is noted, the first that has taken place for several months. The top quotation on White Australian is 5 cents higher, and both Northern Club and Bluestem have advanced about 2½ cents. The speculative market is very quiet, with prices unchanged. The feeling is very strong all over the country, and Northern shippers are getting stiff prices. The local millmen are confining their operations to narrow limits, but are bringing in considerable grain from the North.

California White Australian	$1.75	@1.85
California Club	1.67½	@1.70
California Milling	1.70	@1.72½
California lower grades	1.45	@1.60
Northern Club	1.67½	@1.70
Northern Bluestem	1.75	@1.80
Northern Red	1.62¼	@1.65
Turkey Red	1.75	@1.80

BARLEY.

Feed is a little higher again, other varieties showing no change. The market is not especially strong, and with only a moderate demand trading is quiet. While stocks here are moderate, arrivals from the North are sufficient for the immediate demand. Supplies in the Northern States, however, are now running low.

Brewing	$1.45	@1.52½
Shipping	1.45	@1.52½
Chevalier	1.57½	@1.62½
Good to Choice Feed, per ctl.	1.40	@1.45
Common Feed	1.35	@1.38¾

OATS.

Some demand for seed oats is reported, though the market has not yet taken on the active tone that was looked for. Supplies here are light, and prices have begun to respond to the shortage in the North. White are nearly 10 cents higher than formerly quoted, and a still greater advance has taken place on grays and reds. Black oats, however, are somewhat lower. Feed grades are quiet.

Choice White, per ctl.	$1.77½	@1.85
Gray	1.77½	@1.85
Red, seed	1.80	@1.90
Feed	1.65	@1.75
Black, seed	2.30	@2.50
Feed	1.50	@1.55

CORN.

There is practically no California corn on the market at present, and it is no longer quoted. Some advance is noted in Western grades, and while the present prices are lower than were quoted a few days ago, the market is fairly strong, with indication for a further advance.

Western State Yellow	$1.60	@1.85
Mixed, in bulk		1.47
White, in bulk		1.51

RYE.

Practically no rye has been moved for some time past, and buyers pay very little attention to the market, all present requirements being provided for. In the absence of business, quotations are nominal and unchanged.

Rye	$1.42½	@1.50

BEANS.

Notwithstanding the fact that stocks of beans are very light, the amount of business being done is exceedingly small. Holders in this city and elsewhere find that dealers are disposed to use up present supplies and keep their stocks at a low point. Probably the higher freight rate has some bearing on the case. In spite of the slow business, prices are held firm and the tendency is rather toward higher than lower prices. There has been a slight advance in bayos, partly due to the destruction of a considerable quantity in a warehouse at Sacramento. There seems to be a little speculating in large garvanzos, and the price for these has been marked up somewhat. Small garvanzos are being neglected. Both whites and pinks are strong. Late estimates place the stock of limas in California at from 460,000 to 500,000 sacks and of blackeyes at 100,000 sacks.

Bayos, per ctl.	$2.90	@3.10
Blackeyes	3.00	@3.20
Cranberry Beans	2.85	@2.95
Garvanzos	2.00	@3.25
Horse Beans	1.50	@2.00
Small Whites	4.50	@4.65
Large White	3.65	@3.85
Limas	4.00	@4.25
Pea	4.50	@4.75
Pink	2.45	@2.60
Red	3.75	@4.00
Red Kidneys	3.40	@3.50

SEEDS.

Prices are steadily maintained at the same figures as before. Supplies on hand are considerable, but from now on there should be a good demand. Business is a little more active, but a more general buying movement should take place as soon as the weather clears. Local dealers ask the following prices:

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

Eastern brands are a little higher, and local grades are quite firm at the recent advance. The market is decidedly quiet, as there is little export trade from this port, and local dealers are holding off as long as possible. Stocks, however, are not heavy, and more buying is looked for within a month or two.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

Receipts of hay are increasing somewhat, the total for the week being 2600 tons, but the demand has proved equal to the increase and very little has accumulated. Prices are as firm as ever and on many lines the top figure has been moved up a little under the stimulation of the increased buying of the past week or two. Notwithstanding the rains, which are expected to decrease the demand for alfalfa and some other grades by increasing the amount of green feed available, dealers here do not expect any dropping off in prices for some time to come. Alfalfa hay continues to be brought into California from outside points to meet the steady demand for feeding stock. With the increase in green feed and the steady advance of prices in other markets, it looks as though the importing would soon come to a standstill some heavy shipments of straw have reached this market and the price has weakened.

Choice Wheat, per ton	$21.00	@23.50
Other Grades Wheat	17.00	@21.00
Wheat and Oat	16.00	@21.50
Tame Oat	16.00	@21.00
Wild Oat	15.00	@17.00
Alfalfa	14.50	@18.50
Stock	12.00	@14.00
Straw, per bale	50@	85c

MILLSTUFFS.

The only change of price this week has been on rolled barley, which is considerably lower. Bran is fairly firm at the recent decline. The demand here is now rather light, and will probably be still lighter, but with small supplies on hand and limited production by the mills, there is no prospect of any further decline for some time.

Alfalfa meal, per ton	$23.00	@24.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	1.20	@1.25
Cocoanut Cake or Meal at Mills	25.50	@26.50
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Mealfalfa	23.00	@24.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake Meal, per ton	38.00	@39.50
Rolled Barley	27.50	@30.00
Shorts	33.00	@33.50

VEGETABLES.

Oregon onions are now appearing in the market in considerable quantities, and are moved without difficulty at $1.50 per ctl. Local stock is quite scare and firm, with nothing obtainable at the inside figure quoted last week. Plenty of mushrooms are offered at 40 to 75 cents per box. Tomatoes are considerably higher. Green peas are easy, and rhubarb is rather plentiful, with the less attractive lots offering at a reduction. Green peppers are higher and marrowfat and Hubbard squash shows a marked advance.

Onions—Local Yellow		$1.25
Oregon Yellow		1.50
Garlic, per lb.	8@	10c
String Beans	12½@	15c
Green Peas, per lb.	6@	8c
Cabbage, per ctl.		$1.00
Marrowfat Squash, per ton	$20.00	@25.00
Tomatoes, crate	1.00@	1.50
Turnips, sack		60c
Bell Peppers, lb.	10@	15c
Chili Peppers, lb.	4@	5c
Egg Plant, lb.		20c
Cauliflower, doz.		65c
Celery, dozen	50@	60c
Rhubarb, box	1.25@	2.00

POULTRY.

Arrivals of Western stock are about up to the recent average, but the market remains quite strong, some varieties bringing a little better prices than last week. There is little movement in California poultry, as only a few small lots are arriving, and buyers take little interest in them, but offerings are kept fairly well cleaned up. Quotations on turkeys are practically nominal, as there is hardly any live stock arriving, and only a few lots of dressed. Choice dressed turkeys are quoted at a slight advance.

Broilers	$ 4.00@	5.00
Small Broilers	3.50@	4.00
Fryers	5.50@	6.00
Hens, extra	8.00@	9.00
Hens, per doz.	6.00@	7.00
Small Hens	4.50@	5.00
Old Roosters	4.00@	5.00
Young Roosters	6.00@	7.00
Young Roosters, full grown	7.00@	8.00
Pigeons	1.00@	1.25
Squabs	2.00@	2.50
Ducks	4.00@	8.00
Geese	2.50@	3.00
Turkeys, live, per lb	Nominal	
Turkeys, dressed, per lb.	20@	25c

BUTTER.

Butter has been arriving in only moderate quantities this week, and with a good demand prices are firmly maintained on all grades, extras being quoted 1 cent above last week's market. Trading is quite active, and all arrivals are moved off rapidly. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	35 c
Firsts	32 c
Seconds	27 c
Eastern Storage Ladies, extra	23 c
Cal. Storage, extras	30½c

EGGS.

There is a marked shortage in the south, and large lots of Eastern stock are moving into consumption. The local market has been very active, with extras closely cleaned up and few coming in. The demand, however, is now running mostly to the lower grades. Little storage stock remains on hand, and Eastern storage extras have been marked up 5 cents. Fresh extras and firsts are 1 cent above last quotations, and a still greater advance has been made in thirds. Pullet eggs are now being quoted. The following quotations are given by the San Francisco Diary Exchange:

California (extra), per doz.	45 c
Firsts	45 c
Seconds	40 c
Thirds	35 c
Fresh Cal. Pullets	41½c
Storage, Eastern, extras	33 c

CHEESE.

Prices on the Exchange are unchanged since last week. This market shows no feature at present, as the demand is light and supplies are fully sufficient for present requirements. New California flats are steady to firm, with some weakness on storage stock. Y. A.'s and Oregon flats are also weak.

Fancy California Flats, per lb.	14 c
Firsts	13½c
New Young Americas, fancy	16 c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

The potato market shows more activity than for some time past. The local consumptive demand appears stronger and speculative buying is a distinct feature. Salinas Burbanks are becoming scarce. Only a fair amount of Oregon stock is offering and river stock is well cleaned up. Prices for all grades of Burbanks are higher, but Early Rose and sweet potatoes are unchanged.

River Whites, fancy, ctl.	$ 1.00@	1.25
Common	80@	90c
Salinas Burbanks, ctl.	1.50@	1.60
Oregon Burbanks, ctl.	1.15@	1.35
Early Rose	1.35@	1.50
Sweet Potatoes, ctl.	1.25@	1.85

FRESH FRUITS.

The weather has been against an active business in fresh fruits, and the trade is buying only from day to day. Stocks of apples are large and buyers take little interest in them. Pears also are quiet. The outside quotation is no longer asked for cranberries, the demand for which is very small. Occasional lots of southern strawberries arrive and bring about $1.50 a crate.

Apples, fancy	85c@	$1.50
Apples, common	40 @	75c
Cranberries—		
Cape Cod, bbl.		$15.00
Pears, box, Winter Nelis	75c@	1.50
Other varieties	50 @	75c

CITRUS FRUITS.

Business in all lines of citrus fruits is confined to narrow limits, and there is a heavy oversupply of oranges. Prices range about as before, with a reduction on the less desirable offerings. Choice grape fruit is higher. Quotations on lemons and limes are unchanged, though concessions are frequently given to move large lots.

Choice Lemons	$2.00@	2.50
Fancy Lemons	3.00@	3.25
Standard	1.25@	1.50
Limes	4.00@	5.00
Oranges—		
Fancy Navels	2.00@	2.50
Standard	1.50@	2.00
Tangerines	1.00@	1.25
Grape Fruit	3.00@	4.00

DRIED FRUITS.

The market on dried fruits shows no particular feature, conditions both here and in the East being about as they have been since the holidays. Buying in all lines of California fruits is very limited, and prices show practically no change. There is some demand in the East for Oregon prunes, but California stock is being very firmly held at present, on account of the strong statistical position, and buyers are not willing to pay the prices asked. Apples are fairly strong and peaches are firm, but little trading is done in either line. Apricots are high and firm, and buying is accordingly limited to immediate needs. The Fresno raisin deal seems to have encountered unexpected difficulties, and this has further unsettled the market, which was dull and easy before. Eastern buyers are paying little attention to offerings, and seem to expect a further decline in the near future, while the local packers appear very bearish in regard to prices. While little fruit is moving out of the hands of growers at present, some business is being done and local packers are offering the prices quoted below.

Evaporated Apples	4@ 5c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

The demand is now very small for either walnuts or almonds, the trade in general being supplied for several months to come. Few almonds now remain in growers' hands and packers are taking on only an occasional lot at reduced prices. No further change is reported in walnuts, the Association prices being quoted below. Local packers offer the following prices for almonds:

Almonds, Nonpareils	10 c
I X L	9½c
Ne Plus Ultra	9 c
Drakes	8 c
Languedoc	7 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

This market is quiet and shows no new feature, as all present requirements are amply supplied and little inquiry is received from outside markets. Hardly any stock is now being offered by the growers, and supplies in first hands are limited. Packers offer the following prices:

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼@ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Most of the last crop has already been disposed of by the growers, only a small percentage being held back. The growers in general are not exerting any pressure to sell and somewhat higher prices are quoted on the better offerings.

Hops, per lb	5@ 10c

WOOL.

Prices show no particular change. At the current figures there is little difficulty in disposing of California clips at present, but the market is very quiet, as offerings are small.

Red Bluff (f. o. b. Red Bluff) free	6 @ 7½c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 5 c
Mendocino, free	7 @ 9 c
Defective	5 @ 7 c

MEAT.

The quotation on wethers is a little higher than last week, but otherwise the quotations stand. There is a pronounced firmness on practically all lines, supplies of beef and mutton being limited, with small arrivals.

Beef: Steers, per lb.	7 @ 7½c
Cows	6 @ 7 c
Heifers	6 @ 7 c
Veal: Large	8 @ 9 c
Small	9½@10½c
Mutton: Wethers	10 @11 c
Ewes	9 @10 c
Lambs	11½@12½c
Hogs, dressed	8 @ 9½c

LIVESTOCK.

Steers, No. 1	4¼@4½c
No. 2	4 c
No. 3	3½c
Cows and Heifers, No. 1	3¼@3½c
No. 2	3 c
Bulls and Stags	1¾@ 2 c
Calves, Light	4¾@ 5 c
Medium	4¼@4½c
Heavy	3¾@ 4 c
Sheep, Wethers	4 c
Ewes	3½c
Lambs, lb.	4½@ 4¾c
Hogs, 100 to 150 lbs.	5¾@ 6 c
150 to 250 lbs.	6 @ 6½c
250 to 325 lbs.	5½@5¾c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Jan. 12.—Cold weather back East and plenty of snow does not seem to make our fruit shippers feel very blue. They all seem to feel that conditions are bound to be good, and in the very near future. The real basis of the expectation is that they believe that nearly all the suspected fruit is now out of the way, and that when there is no very cheap fruit to offer, the jobbers will have to meet their prices, or at lest advance their ideas, or there will be mighty little fruit shipped in the next ten days. Already there are indications that they mean this, for the shipments are slacking up and the rains will still further tend to help matters along this line, preventing those from picking who are crazy eonugh to ship good fruit onto the market under present circumstances. Hold back is the cry all along the line, but they are like race horses at the barrier, all afraid that the other horse is going to get away first. No need to rush this fruit out and there are many reasons why it should not be. Give Florida a chance to clean up a little. Even if our fruit does bring a little more than the Florida stock, it is no reason why we should take so much less now than we can get later; what's the use?

Prices are not so bad to date, but the bad weather and the amount of fruit may combine to hurt prices on the unsold fruit now out. It is estimated that there are 1300 cars of fruit now rolling and the greater part is unsold. This stock may get pinched very badly, but every car of fruit leaving California from now on should bring a good price or it should be held.

Lemon prices are very good. At the last sale of Sicily lemons held in New York last week, prices rose a dollar a box and the price may go higher. There are now 34,000 boxes in sight and available within the next 30 days, as against 40,000 boxes last year and 50,000 boxes in 1907. Orange shipments are running about 90 cars a day and lemon shipments 12 cars. Citrus fruit shipments have now topped the 3000 mark, which is less than had gone at this time a year ago.

PUBLISHER'S DEPARTMENT.

The H. C. Shaw Co. of Stockton are again advertising in our columns. This is a very strong house and we are glad to carry their announcements.

A very good firm, new to our columns, is the Pomona Mfg. Co. of Pomona, who advertise their deep well pumps. Mr. Fulton, the head of the company, is a master at the work and a very fine man to do business with.

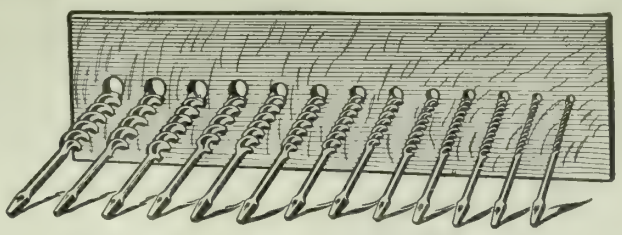
Among the nursery and seedsmen advertisers in this issue will be noted the large advertisement of the Fancher Creek Nurseries, the new announcement of the Germain Seed Co. of Los Angeles, and the tree ad of Mr. Scheidecker of Sabastopol. All good firms.

Among the new announcements this week our readers will notice several in our stock department. E. Stewart & Co. of San Francisco advertise a big sale of horses for the 26th inst.; the Howard Cattle Co. have a lot of fine Short-horn bulls for sale (send for their catalogue); the Empire Cream Separator Co., Ltd., of Portland, ask that the merits of their separator be investigated before purchasing; the Pacific Oil and Lead Works are again offering their oil cake meals to stockmen, and the American Steel & Wire Co. call attention to their fence material. All the above firms are worthy of patronage.

MORE KIND WORDS.

Mr. Chas. A. Chambers, secretary of the Board of Park Commissioners, Fresno, says: "I have noticed what a fine paper you people are getting out at the present time. It can hardly be improved in any way that I can see. It is full of live matter, up-to-date and you are to be congratulated for bringing it up to this point.

Our good friend, A. Warren Robinson, of Twin Lakes, in a recent letter pays the following handsome compliment: "Surely the RURAL PRESS is improving wonderfully of late. The last twelvemonth has seen marked progress in your columns. Am glad to add my humble tribute, wishing the paper and all connected with it prolonged and useful lives."



Good Natured Tools

It is not necessary to *force* Keen Kutter Tools. Keen Kutter bits, for example, work quickly and easily in any kind of wood. Lips are long, strong and perfectly tempered, adding years to the life of the tool.

Keen Kutter Tools like hard work. The edged tools never lose their temper—handled tools never work loose or fly off—hammering tools keep their faces straight.

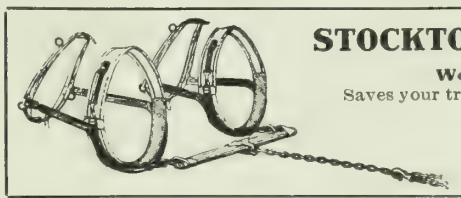
KEEN KUTTER
QUALITY TOOLS

include tools of all kinds—Saws, Chisels, Bits, Drills, Gimlets, Awls, Planes, Hammers, Hatchets, Axes, Draving-knives, Pocket-knives, Screw-drivers, Files, Pliers, Glass-cutters, Ice-picks, and a full line of Farm and Garden Tools, Scissors, Shears, and Cutlery.

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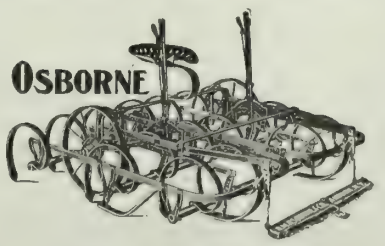
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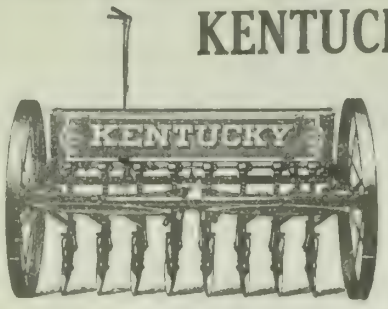
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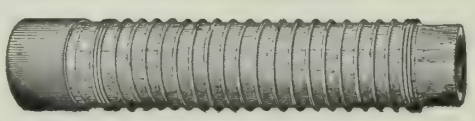
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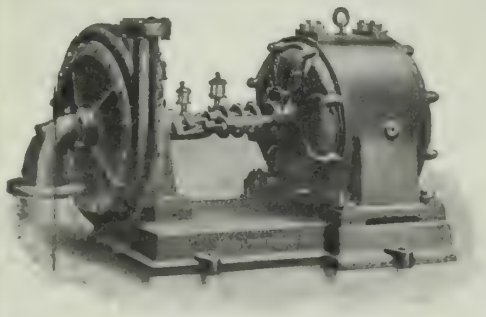
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AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 4. SAN FRANCISCO, SATURDAY, JANUARY 23, 1909. Thirty-ninth Year.

CERTIFIED MILK.

WHAT IT MEANS AND HOW IT IS PRODUCED.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES, Agricultural Engineer.

The recent increase in the demand and supply of this character of milk in California induces us to present this subject to our readers, trusting that it will be of interest and may possibly explain what "certified milk" means; how it originated, and the requirements necessary for its production.

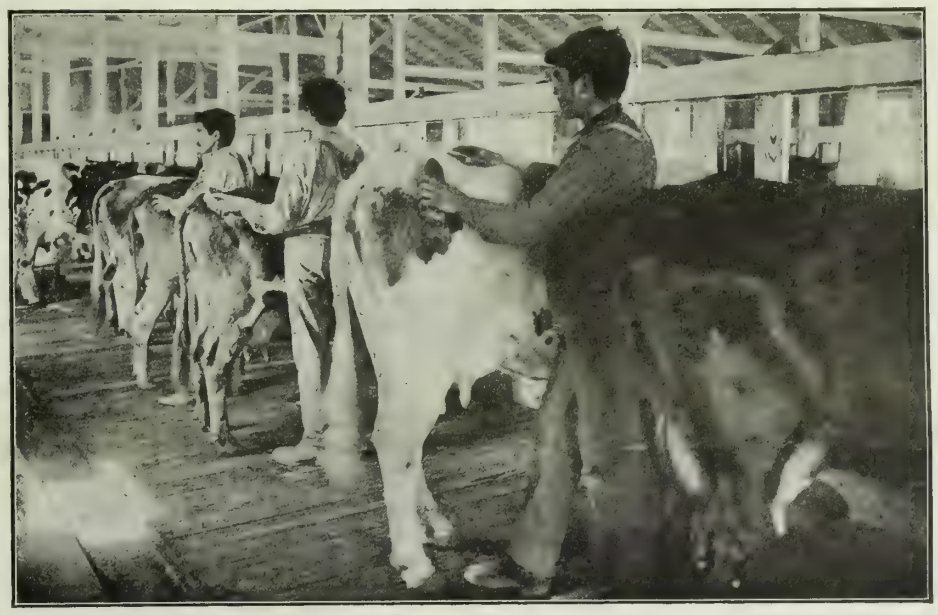
We realize that it is not on every farm that certified milk can be made, and it is not every man who can expect to achieve success if he goes into the business. Only those who are naturally the most careful and painstaking can hope to achieve success, and not every dairyman can enter into the making of certified milk and make a profit above that received from his present system. Still, we must all bear in mind that past methods in milk production will not bring success today. The public is demanding a better product; they are entitled to it, and must and will have it; but it costs more to produce, and they must meet the producer half way and be willing to pay the cost.

Certified milk was first made for the medical profession; that is, for their patients and the infants in their charge, so that milk of a known quality could be guaranteed them. It is invaluable for infants and patients, where milk is the important food item, so it is only right that it should command the highest price. It can generally be said that the people in most cases are getting as good milk as they are paying for. Considering the increased cost of labor, lands, and feed, there is not the margin of profit in market milk production today that there was a few years ago, while the demand calls for a better product, which requires a greater cost of production.

The demand for certified milk will be met by an adequate supply, as soon as the consumers are willing to pay the necessary cost. So it is for a cleaner market milk that dairy farmers, as well as boards of health and other public officials having the people's milk supply in charge, should bend their energies.

Certified milk is of comparatively recent origin in California, and, in fact, it is only within the past few years in the East that a trade has grown up for so-called "sanitary" or "certified" milk. The demand for this kind of milk is growing here in California, so we believe a knowledge of what it is, and how it is produced, will be of benefit to all dairymen, whether or not it is within their means or desires to produce it.

As soon as the demand for this milk was manifest in the East, unscrupulous dealers began to call anything "certified," with the result that in the State of New York a law was passed making it a misdemeanor to use the word "certified" unless the milk was made under the inspection of some qualified body. Hence certified milk in New York State stands for something; namely, a rich, pure, unadulterated milk, produced in accordance with rules and regulations laid down by some recognized medical society or board and indorsed (certified) by them. Similarly, in other States and cities milk is produced and marketed as "certified milk," being endorsed principally by medical milk commissions, composed of members of the medical profession in the different cities and States.



Grooming Cows Before Milking at Ideal Farms in Marin County.



Milking Time: Note the Cleanly Appearance of Cows and Milkers.

To Dr. Henry L. Coit, of Newark, New Jersey, the consumers of certified milk are indebted for the guaranteed excellence of this important food product. The organization of a Medical Milk Commission in Newark, New Jersey, on April 13, 1893, was the result of a conference of a little band of earnest men. Appalled at the yearly death rate of young children in their own city, they came together to discover, if possible, the underlying cause, and to formulate plans for the betterment of this milk supply, as Dr. Coit believed this food supply of children to be directly responsible for the high death rate. For years Dr. Coit had been endeavoring, through the agencies of legislative enactment and municipal ordinance, to better the milk supply of the city. After five years of effort it became evident that if any progress was to be made it would have to come from individual initiative. Dr. Coit then sought a dairyman who would meet the requirements of the commission, and found such a man in Mr. Stephen Francisco of Caldwell, N. J., whose earnestness, sympathy and conscientious cooperation with the objects of the commission have done so much to make this movement a success.

For more than fourteen years the Essex County (New Jersey) Medical Milk Commission, founded by Dr. Henry L. Coit of Newark, N. J., has been inexistence. We may rightly call Dr. Coit's commission the parent of the numerous medical milk commissions throughout the United States. It was organized to establish correct chemical standards of purity for cows' milk, to become responsible fo a periodical inspection of the dairy under its supervision, provide for chemical and biological examinations of the milk produced, and to secure frequent inspection of the stock by a competent veterinarian.

The commission as now constituted consists of twelve members; the number, however, is not fixed, but is continued large enough to be representative, and yet not so large as to defeat the purpose of the commission. The motives of the commission are disinterested, and the members of the commission, by the terms of the contract, can

(*Continued On Page 75.*)

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., January 19, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	5.56	23.76	21.52
Red Bluff	3.44	12.91	12.42
Sacramento	3.52	10.13	9.16
Mt. Tamalpais	6.30	18.52	10.85
San Francisco	3.51	10.35	10.70
San Jose	.93	5.93	6.77
Fresno	1.35	3.66	4.60
Independence	2.18	4.82	4.53
San Luis Obispo	3.00	11.07	8.80
Los Angeles	.53	5.43	6.76
San Diego	.74	3.10	4.47

The Week.

The storms have proved generous in amount and duration beyond desire and expectation. There have been interruptions of travel and mail delivery and loss by land submergence which are unavoidable under the present condition of things, for until we get our rivers into rational condition for ample water carriage and transportation there will continue to be such losses and vexations every time the rainfall reaches figures which make dry farming profitable or irrigation supplies adequate to summer requirements. If those who are working zealously for river improvement and for appeal to the general government to do its part in river improvement had had the making of the present winter's rainfall serve their measures they could hardly have planned better in time and measure. The legislature now in session at Sacramento is having the best kind of an opportunity to judge how important such river improvement is, and we trust will be suitably impressed by it. One who appreciates how valuable water is in California is also impressed with the urgency of proceeding with reclamation enterprises in the Sacramento Valley which will store the surplus waters before they enter upon their destructive courses through the valley, and let them down easily during the dry season when they are needed to grow crops and to float boats to carry them to tidewater shipping points. All these are proper flood-season reflections which California has indulged in quite freely enough during the last half-century, and we hope the present legislature will give them a good lift on the way toward realization. How to have such a grandly generous rainfall and not the great losses with it, is the question. At present the joy over the great production of 1909 on the basis of plenty of water everywhere is dampened by the thought of the losses which come to so many individuals and enterprises, nearly all of which are capable of prevention. From a State-wide view, these losses come just at a time when with a maximum amount of production the commonwealth can best afford to incur them, but this does not greatly help the individual loser to carry his burden. The whole people should welcome taxation to an extent which would rule out the possibility of such losses.

But we like to escape losses, both privately and publicly, if possible, and it may brighten someone on a dark day to know that, according to the statistics of the Department of Labor and Commerce, two chief Pacific ports have escaped from the decline in foreign trade which affected the whole country in 1908. These ports are San Francisco and Portland. San Francisco shows an increase from $27,000,000 in 1907 to $28,000,000 in 1908, but its imports fell off from $50,000,000 to $41,000,000. Portland showed a fall of $1,000,000 in imports from a total of $4,000,000 in 1907, and an increase from $12,250,000 to $15,750,000 in exports. Puget Sound imports fell off from $23,000,000 to $20,000,000, and its exports from $37,000,000 to $35,000,000. Increased exports from the Pacific Coast consisted chiefly of wheat. The greatest falling off in foreign commerce was at Atlantic ports. The total decrease was about $500,000,000. We hope all ports will have a different experience this year. San Francisco is pretty sure to go ahead, because these rains will give a good surplus of wheat and barley, if not for other reasons.

A very good idea has cropped out in commercial San Francisco, and the foregoing good news of the standing of the port may bring warmer support to it. The proposition is to enlist the cooperation of the commercial, industrial and civic bodies, patriotic individuals and the manufacturers, to start a movement for an industrial week, a prosperity week, a progress week, or industrial carnival, affording an opportunity to show what San Francisco and its immediate vicinity can do for its home manufacturing, and to show to the world what San Francisco has accomplished within three years. It is suggested that April 18 may be the most oportune day for the opening of that prosperity week or industrial carnival, which will the more emphasize that the people of San Francisco are again on their feet and that commerce and industry are again normal. It will be a great time for floral demonstration, and the beautiful open air of the bay district will be at its best. Let us bury the city in flowers for a few days. The world will not hear the end of it for years.

If we are going too fast and too far in national projects for forest reservation and dry land reclamation it will be just as well to know it, and if we are not going too fast or far, the demonstration will help us to go faster and farther. This is the way we are inclined to regard the agitation for a review of these branches of the public service which is being made in the interior range States and in some parts of California. Those who are complaining may be serving private interests in some way or other, but even such a motive may result in public service. There can be no doubt, we think, but that these two great services in forestry and reclamation are the greatest governmental provisions of recent years, and capable of benefits to coming generations which are beyond computation, but if the machinery through which they operate is not of the best, let us have it improved. At a meeting of the National Wool Growers' Association in Idaho last week it was charged that the Forestry Service "make their own laws or rules, decide our rights, and enforce their own decrees. In the judicial functions of the service lies the greatest danger. It passes upon our rights involving thousands of dollars, often without evidence, save reports from forest employees. A wrongdoer within the ranks of the navy or military service is tried before a court-martial, which has the power to summon and examine witnesses as in other courts, but with the administration of the Forestry Service, dealing directly with the rights of the people, no such power is given."

Perhaps the plan of the Forest Service is too imperialistic; if so, Congress should look after it, correct it if the charge is well founded, or continue it if it is good. If such affirmation should come from Congress, it would be good for the whole country, because there is too much opposition now, or at least too much said about opposition. If the opponents are wrong, let it be known, and public sentiment will take care of them. If, when they declare in a public meeting that Forestry Service agents are men whose "unreliability is a by-word in the West," and when such a meeting resolves formally against them, Congress should take up the matter, even if it is only for the purpose of defending public servants who cannot adequately defend themselves.

A somewhat similar state of opposition seems to be developing to the Reclamation Service, for Congressman Elglebright of California has introduced a bill limiting the expenditure by the Secretary of the Interior of the reclamation fund without consent of Congress. It forbids examinations and surveys, the construction and maintenance or reclamation of any lands without consent of Congress. It also requires, besides other reports required by law, an annual detailed statement of all receipts for the current fiscal year. It also requires a statement regarding deterioration that has taken place in existing works and probable cost of restoring them.

Now we are not at all sure that the best public service is to be had in this way. We are inclined to believe that the way to get the best service is to place it in the hands of thorough experts who have given their lives to such work, but certainly the facts of their work and the soundness of the policies they are pursuing can be made out clearly enough by examination by other experts, so that the public can judge whether it is being well served or otherwise. For this reason we believe that the affairs of both the Forestry and the Reclamation services should be clearly expounded to the people, and we entertain this belief because we expect that investigation will make for support and strengthening.

A horse thief is one of the most detestable of criminals in a rural community, and there is wide satisfaction when a bold offender in this line is brought to grief. We are, however, in doubt at the present moment of the public sentiment toward one who operates on a uniquely large scale, or whether there is some immunity for a great rascal in this line, as there is said to be for colossal stealing in other commodities. It is reported from Klamath Falls that stock men have traced to San Jose an entire carload of horses that were stolen in Klamath county. The horses were shipped by Walter Welch to a Sacramento stock dealer named Stuart. Welch has since disappeared, and it is now believed that Stuart knew that the horses were stolen. Deputy Sheriff Walker of Klamath county found that 21 of the horses were sold near San Jose. Stealing by carload seems rather a large way, and we wait to see whether it is anything else than ordinary horse stealing.

The agricultural element of our population does not as a rule like bonded debt, and it is perhaps well to be conservative about it; but when it comes in contrast to two things which are worse, the issu-

ance of bonds does not look so bad. Two things we claim are worse than bonds. First, the present condition of our highways, which taxes to death everyone who tries to move produce over them; second, the plan of State appropriations for special pieces of road which are not properly connected through anywhere. The report from Sacramento is that Governor Gillett is standing firmly back of his State highway bond issue of $18,000,000, and it is believed that a number of road bills which have been introduced in the Assembly and in the Senate will be sacrificed for this bill. Bills calling for $150,000 of road work are now in. The Governor, however, desires his scheme to be submitted to the vote of the people of the State, and none of the legislators expect any aid or sympathy for any separate road bills. The Governor makes the point that it would be advantageous to await the passage of a bond issue such as he has proposed, and to undertake all road building under a general plan. Still, there are certainly some roads which should not wait longer than necessary, and these, if honestly built, would make the proceeds of the bonds go further or lessen the amount of them to be sold. It does not matter in what honest way it is done, so much as it does to have, or not have, good, durable and serviceable highways.

Queries and Replies.

Corn and Alfalfa.

To the Editor: I have a piece of land mixed with a little adobe; also red land and loam soil. The adobe is greater than either of the other kinds. This land is rather low and when we have a wet winter a quantity of water stands upon it and drowns out plants. Some years it is difficult to get anything, such as wheat or barley, from it. It lies so that by good drainage methods we help it considerably, but not fully as yet. I have been thinking of planting it to corn this spring and later on—next fall, perhaps—sowing alfalfa upon it. It has occurred to me that I might sow both the corn and alfalfa together this spring if advisable. I wish to ask you if such a course would be practicable. I want to build up the soil and make it pay at the same time. Would the two seeds be too strong for the soil if used together? Or would it be better to follow the corn with the alfalfa seed sown this fall before the rains begin? —Farmer, Solano county.

You will not get anything satisfactory from a combined sowing of corn and alfalfa. If the corn is grown in the ordinary way it must be summer cultivated in order to get a crop. If (because the land is moist, as you describe) you are thinking of broad-casting corn for fodder, you can be quite sure that the dense growth of corn would destroy any alfalfa that might make a start, and the corn would probably also use up all available moisture. You had better pursue the other plan—put in the corn, keep the land well cultivated, and get an early start with the alfalfa with this falls' rains.

Winter flooding of alfalfa will do no injury while it is dormant, but it certainly would be a question whether you would get a satisfactory stand of alfalfa if the ground water is too near the surface during the growing season. In such situations alfalfa is always short lived.

Brown Apricot Scale.

To the Editor: I have a prune orchard that is badly infested with brown apricot scale. I am told by some neighbors that it will not hurt the fruit, by others that it will. Which is right? I have read that I should use resin wash for spraying. Where can I get it? What effect will the scale have on fruit and wood growth if not sprayed?—Old Subscriber, Sonoma county.

The brown apricot scale will seriously injure the tree when it becomes abundant, and even before it noticeably injures the thrift of the tree it will render the fruit worthless by the smutting which follows the dripping of honey dew from the insect. The resin wash is the proper dose. It is made at home according to the recipe which Prof. Quayle, of the University Experiment Station, approved after his experiments with this scale:

Resin	10	pounds
Caustic soda (76%)	3	pounds
Fish oil	1½	pounds
Water	50	gallons

The resin is broken up into small lumps, and together with the caustic soda is placed in the boiler with three or four inches of water. The mixture should be stirred occasionally until the resin is dissovled. About one-fourth of the water should be added, and at the end of a half hour after it has begun to boil it is ready for the spray tank when the rest of the water is added.

The wash when ready for use is a black-looking liquid resembling strong coffee in appearance. There is no grit or heavy materials present, and it sprays very readily through any sort of nozzle. The wash when applied warm gives no trouble in the nozzles; but the precaution should be taken, when through using at night, to run hot water through them in order to prevent the resin from remaining in the parts of the nozzle and hardening. The spraying is to be done while the tree is dormant.

Raspberry Borer.

To the Editor: I send a small insect, with black body cross-striped with yellow and looking like a small wasp, which I found in a raspberry cane last summer. Please tell what it is and how to treat it.—Grower, Alameda County.

The insect which you send is one of the raspberry borers, known as Bembecia marginata. It generally does most harm to the root, finding its way to the root after having entered the cane. Its work in the cane is generally indicated by a discoloration of the surface, or sometimes by a wilting of the leaf. One should always look out for such indications during the summer, and cut below them, destroying the insect in its burrow. Canes which have fruited should be removed as soon as they have finished fruiting, so that any borers which may be in them may not have a chance to go to the root, as they would if the cane were allowed to stand until the end of the season. No method of fighting these insects has been suggested except these efforts to catch it soon after its entrance into the plant.

Pears and Pecans on Alkali.

To the Editor: I have level land in Tulare which can be irrigated. The first six feet is a very fine silt soil that contains, per acre, 30,000 pounds of salsoda, 2000 of common salt, and a trace of carbonate, evenly distributed through the six feet. Under this is a more clayey soil. We struck water 30 feet down, so strong in salt as to be unfit to drink. There is some heavy frost in winter. Will you kindly state through the Pacific Rural Press your opinion as to the fitness of such soil for the cultivation of either the pecan nut or the Bartlett pear?—Reader, Visalia.

It would seem as though pear trees would thrive in the soil which you describe, supposing the alkali is pretty well distributed through the depth you mention and not concentrated on the surface, and pear trees would continue to thrive providing you practice such thorough cultivation that concentration of the alkali near the surface by evaporation would be practically prevented. Of course, if you use irrigation with sweet water, and also practice cultivation, the tendency would be to the reduction of the alkali content, providing the drainage water could be disposed of.

We cannot tell you what the pecan tree would do under the circumstances, for lack of observation of its behavior.

Strawberry Plants and Runners.

To the Editor: Can you tell me how to make strawberry plants brought here from a cold climate produce plants after the first year? The plants brought here produce an abundance of plants, but those plants reset make no runners whatever.—Enquirer, Watsonville.

We never heard of such behavior as you mention, and must doubt the accuracy of your observation. Nearly all the strawberries we are growing in California came from the East, beginning with the Wilson and Longworth Prolific, half a century ago. If plants taken from these original introductions would not make runners, how in the world did we ever get the acreage we now have? There may be something in your immediate locality which represses the plants, but we are quite sure that your conclusions will not stand as a general proposition. Who can explain the matter?

Eradicating Ferns.

To the Editor: I am troubled with ferns in a field which I plant to grain for hay. I have picked up and pulled (after plowing) the roots, but it seems they are spreading. How can I get them out of the land? The soil is of a sandy composition, lying to the north. Most of the soil is deep and clear of stones.—Enquirer, San Luis Opispo.

We know of no way to get rid of ferns except by grubbing out and by the use of the land, if it is suited to it, for same cultivated crop until the ferns are subdued. If it is not practicable to grow a cultivated crop you will have to continue grubbing from time to time, or put the land through a thorough summerfallowing, either plowing or using a flat-toothed cultivator or weed cutter, from time to time during the whole dry season.

Sunburn on Young Trees.

To the Editor: I have a lot of peach trees planted last spring which are somewhat sunburned near the ground. Shall I trust them to grow or pull out and put in new ones?—Planter, Fresno county.

If you find the bark dead to considerable distances around the little trees it will be much better to plant new ones and protect at once by whitewashing. If the tree has made a good growth and is only partly burned, the probability is that it will recover and catch up with its more fortunate neighbors. You have to determine, then, whether to leave or to replant entirely by the conditions which you find on examination.

Bull-pine Corral Scrapings.

To the Editor: I have on my place a grove of sea-shore pines, locally known as bull-pines, whose correct name I don't know. For many years they have been used as a shelter by the cows, and there is a large quantity of compost under them which looks as if it would be a valuable fertilizer, but the people here claim that the pine needles are poisonous to the soil. Do you know if that is correct, of if such a compost would be of any value? —Rancher, Mendocino county.

We should not hesitate to use the stuff, for if the needles are of little account in themselves they are valuable for their absorbed contents and adherents. Because of their lightness and coarseness they should be preferably used on clayey rather than on sandy soils. On a light soil you could probably render plants unthrifty with clean pine needles, but they would act as moisture robbers rather than specific poisoners, but comminuted needles with corral accumulations are more apt to be valuable than otherwise.

Horticulture.

SERIOUS DANGERS IN IMPORTED WALNUTS.

To the Editor: About two years ago I imported a hundred pounds of Mayette walnuts from France, which were to be taken from trees from which the scions were to be cut which I had ordered. I made this order, so that I might be sure of getting the genuine Mayette. However, this is beside the question concerning which I am now writing.

I found that these nuts had been infested by a worm while in the growing state: the blackened edges of the kernel where eaten showing very clearly this to be the case, and the hole eaten through the walnut shell, where the worm had emerged, also showing the same fact. Not only that, but I found quite a number of worms of all stages of growths in these walnuts, where they were evidently making their winter quarters and feeding upon the kernel as they were growing. It is needless to say that before I went to bed I burned every pound of these nuts in my fireplace.

I send you herewith No. 337 of the daily Consular and Trade Reports, under date of January 2, 1909, which is a daily publication issued by the Government of the United States, which contains the report of Vice-Consul Charles Roy Nasmith from the Limoges district of France, concerning English walnuts. You will notice that he casually uses the phrase, concerning the crop of 1907, "many of the nuts being wormy." Now, I think you ought to sound a note of warning about the importance of not importing nuts from that country; for if they are imported to the walnut growing districts of this country, we are sure to get a very formidable pest from which we are now free. When you have read the article, kindly return the number to me for my files.

I find these consular reports very valuable, and think every fruit grower and business man generally ought to send for them. They will be sent free by addressing the Bureau of Manufacturers, Department of Commerce and Labor, Washington, D. C. S. F. Leib.

San Jose.

Judge Leib's note of warning is very important and we hope it will be heeded. We have no doubt that Mr. Jeffrey, Mr. Ehrhorn and the various county authorities will do the best they can to exclude dangerous material and all growers should be on the lookout also.

The publication to which Judge Leib refers is the more significant from the fact that it is not a scare report. Vice-Consul Nasmith mentions the subject incidentally in discussing the French walnut product and the warning must be found between the lines. He says in one place: "In 1907 in most sections where walnuts were harvested the quality was poor, many of the nuts being wormy, moldy and diseased." In another place he says: "My own personal experience has been that the quality this year is much better. Last year over half the walnuts bought for the table proved to be wormy or moldy."

The county statistician of Yolo county states that during 1908 the products raised there were as follows: Number of acres devoted to cereals and hay was over 100,000, and the value was $1.576,860. Total number of fruit trees, 328,270. Value of fruit and vegetables, $3,251,183. Value of wines, $67,000. Total production of dairy products estimated in value at $431,785. The county has a large number of cattle, which, with its horses, sheep, swine, etc., are estimated to be worth $1.218,620. Total value of poultry and eggs produced was $132,890. All of which shows that Yolo is one of the prosperous counties of the State.

Sylviculture.

FROST-RESISTING EUCALYPTS.

To the Editor: The recent very severe weather has served valuably as an educator in the matter of the comparative frost resistance of several species of eucalyptus. The thermometer registered 20 degrees, and one morning 18 degrees, young eucalyptus seedlings in plots, in the open, with no protection, of Gunnii, rudis, crebra, polyanthema, stuartiana, showing not the slightest injury; the young growth of tereticornis, rostrata, robusta, viminalis, was nipped, and a few of the leaves touched; cornuta was nipped rather more severely; globulus was badly nipped, and will lose many of the leaves; some of the youngest and smallest plants were killed; corynocalx was hurt more than any. Some, like ficifolia, citriodora, etc., were, of course, kept under lath screens. Trees one-year planted on the hillside, of corynocalyx, were not hurt at all; in the level, bottom land the same trees were cut back considerably, while the same species two years planted, and 12 to 15 feet high, were merely nipped a little in the young growth in the same way and to the same extent as was globulus. If the same degree of frost had occurred in November and suddenly, following warm weather, the damage would have been much greater. This sometimes happens, and wise planters will consider this element of risk in planting low lands or in the main valleys where severe frosts are probable.

I would suggest that irrigation should be discontinued after mid-summer in the eucalyptus grove of globulus or similarly tender species, that the growth may be checked before heavy frosts are due. Even about Los Angeles young trees of globulus 10 or 15 feet high are sometimes cut to the ground by frost; what would such weather conditions mean to a 100-acre grove of a too tender variety of growing seedlings?

Prof. W. W. Mackie of the U. S. Soil Survey has been making some most valuable experiments in the adobe lands of the upper Sacramento valley, with a view to determining the hardiness and adaptiveness of certain eucalypts in that region, and, at his suggestion, plantings have been made both in the fall and spring, because of the impossibility of getting such lands into good planting condition if plowed late. So far, great success is reported with rostrata and tereticornis, but, as shown above, there are several valuable species that are still hardier.

Unfortunately—very unfortunately—the prime and essential factor with most prospective planters is rapidity of growth. "Which is the quicker grower?" is the invariable question; and, strange to say, it is the Easterner, who in his native haunts, could not induce a hard-wood tree to grow to profitable size in much less than a lifetime, seems to expect to cut timber from a eucalyptus plantation in three or four years in California. Why this unseemly and unnecessary haste? Such a policy can never bring the best results. Leonard Coates.

Morganhill, Jan. 12.

Citrus Fruits.

ORCHARD PLOWING.

Written for the Pacific Rural Press
By Thomas C. Wallace.

"We are getting ready to plow and would like your advice as to what fertilizer to use," is the tenor of several inquiries lately received from growers. This suggests some ideas on orchard plowing which may be of value to our readers.

First. Is plowing a necessary or an advisable procedure in citrus groves, and, if so, when should it be done?

Second. What is the object of plowing an orchard and what benefit arises from such practice?

Third. Is plowing harmful to orchard trees, and, if so, under what conditions?

Most growers of citrus orchards have abandoned plowing and depend upon the disc cultivator for spring soil stirring. They can cultivate an orchard soil four or five times with the disc cultivator in the same time and at the same expense as one plowing requires, with the advantage that such disc working will include both ways of the land, while plowing only cuts one way. The disc buries the weeds or cover crop as effectively as the plow, while it chops it up and works it through the soil to the full depth of the disc working. The disc is not as severe on the tree roots and does not cut them out as fully as the plow does, which is an advantage on a shallow soil. The conditions point to plowing as an unnecessary procedure and at the same time argue against its advisability. It is true that the disc does all that is claimed for it as a spring working tool for working up a cover crop or putting soil in condition, but it does not take the place of the plow on very heavy soil when it is desired to open it up to allow winter rains to be caught and absorbed or to assure airing of the soil. But plowing for this purpose should be done in the late fall or early winter, and it is now past the time for such work. It is not practical to plow citrus orchards in southern California during the fall and early winter and follow the general practice of cover crops, which must be growing during the fall and winter. After the new rootlets have started, which has been observed as early as January 15, and is quite common in February, plowing to a depth sufficient to cut them out is harmful to the trees, and a shallow plowing is of no particular value and not as efficient as a soil preparing operation as discing, while it is more expensive. It is sometimes argued that some soils are so hard or stiff that a disc will not work them and that nothing but a plow that turns them up effects a good working of them. This is true, and temporarily at least such soils need the plow. But such soils are not fit for orchard trees until they are softened by loaming with both green crops or manure and some suitable form of lime, or other substance to free them. The physical condition of a soil is of such importance that it governs the use of fertilizers and it should receive most careful attention, the object being to maintain during the active growing and fruiting season a free, open soil, moist without being wet in the sense of being saturated or soggy. Spring plowing of orchards is not a necessity and is not often advisable, but it is a convenience under adverse soil conditions.

COVER CROP NITROGEN.

At the January meeting of the Y. M. C. A. Winter Course was brought out the finding, recently published, that while over one hundred pounds of nitrogen was added to the soil by a cover crop of one ton of pea hay and roots worked in, this was only equal to a fraction over fourteen pounds of nitrogen from high-grade commercial materials for the following nitrogen consuming crops. This result is in keeping with some known facts which have governed the dictum that nitrogen of vegetable materials is not available to crops until it has been freed from the carbonaceous compounds that make up the bulk of the structure of plants. The experiment quoted was not made under such climatic conditions as obtained in California, nor in such intensely cultivated soils as our citrus groves present. It is quite possible that much more of the nitrogen of cover crops could be recovered by following crops of fruit than the experiment suggests, as our systems of cultivation undoubtedly hasten the decomposition of the vegetable matter and so reduce the period in which its elements pass into forms of possible plant food. It, however, modifies some of the more extravagant claims made for the cover crop as a full source of nitrogen food for trees, and in that sense may help to steady the popular literature and addresses on the subject of nitrogen supply. While there are good grounds for the belief that under our intensive cultivation for the conservation of moisture much nitrogen is wasted by escaping as gas into the air from whence it came, it is wise to supply the trees with additional nitrogen in commercial form to ensure the full feeding of the crops, because it is a business proceedure. The best we can hope to do with cover crops is to simulate virgin conditions of nitrogen, and this would take years if ever accomplished. But even the attainment of such ideal conditions does not make commercial nitrogen feeding inadvisable, but, on the contrary, puts the soil in a condition to give the best results from applied pertilizers. As I have said before, we are not dealing with wild plants, but with

highly cultivated trees which we desire to work for the most profitable production.—T. C. W.

GATHERING LEMONS.

A reader, Stockton, Cal., writes: "When should lemons be gathered—when quite green, partially green, or quite yellow?"

In growing lemons for market we do not consider the coloring for the purpose of governing the picking stage, as they can be prepared for market and use in any stage. The object is to have lemons of uniform size which will pack 300 and 360 to the box, the size of which is 27x14½x11 inches, making a package practically 2½ cubic feet in size to properly load into a box car. When the lemons on the tree have attained a size that will just prevent them from passing through a ring 2¼ inches in diameter they are picked, those undersized being left on the tree to develop. If some of the lemons are under size, and are ripening or becoming quite highly colored from cold or too dry soil conditions, they are picked, as their size development after that is very uncertain. If the lemons are to be stored for weeks or months before shipment they are picked with a 2 5-16 ring to allow for shrinkage in storage. A dark green lemon can be cured in a week or less under proper conditions of moisture and a temperature of about 90 to 95 degrees Far., but at ordinary temperature in dry conditions it takes much longer time to cure them. A colored lemon can be cured in about four days or gradually over an extended time, as desired. Lemons for domestic use and not to be marketed can be left on the tree until quite ripe, but even then they should be cured before use to be of most service. As the lemon cures the inside tissues of the skin shrink and the juice develops until solid flesh is almost lost.—T. C. W.

The Vineyard.

VINEYARD WORK AND SPRING FROSTS.

Written for the PACIFIC RURAL PRESS
By F. T. BIOLETTI.

Spring frosts frequently injure vines and diminish the crop in some of the grape-growing regions of California.

This injury can be avoided to some extent by cultural methods. Anything which tends to delay the starting of the buds or to warm the air after they have started will be of help.

Modifications of the pruning may be of use in some cases. The higher a vine is from the ground the less liable it is to injury. In frosty regions, therefore, the head should be as high as is practicable.

It seems to make little, if any, difference in the starting of the buds, when a vine is pruned, providing it is perfectly dormant, though there is some difference of opinion on this point. It is generally believed that there is no difference in the starting of vines pruned at any time between the fall of the leaves and two weeks before the starting of the buds. By very late pruning, however, the fruit buds may often be saved. This depends on the fact that the buds on the ends of the canes start first. If the vines are not pruned until danger of spring frost is over the lower buds remain dormant and start only after the pruning.

As cultivation is impossible before pruning, a system of "double" pruning is sometimes adopted. This consists in removing, in the winter, all the canes which are not needed and cutting the rest back to spurs of 18 or 20 inches. After the danger of frost is over these spurs are shortened to the usual length. This method is practiced regularly in many districts in Europe and seems to have no ill effects.

The time and methods of tillage and irrigation have some effect on the starting of the buds and the temperature of the air.

Vines in unplowed ground start earlier than in plowed. This is because the rough surface of the soil promotes radiation of heat and evaporation of water, both tending to keep the temperature of the air lower. The starting of the buds is due principally to the warmth of the air. Weeds have the same effect as rough ground in dissipating heat.

Plowing early in the winter, leaving the ground rough, and allowing the weeds to grow until a little before the starting of the buds is therefore good practice from this point of view. It keeps the air around the vine cool and thus delays the starting of the buds.

When the buds have started, however, warm air is desirable. A little before this time, therefore, the ground should be got into a thorough state of clean, flat cultivation. The radiation of heat will thus be diminished and the air made correspondingly warmer.

Plowing and cultivation should be avoided during the week or two when frost is most likely to do damage, as newly turned soil evaporates more water and reduces the temperature of the air.

Where irrigation is practiced the application of water should be timed to have similar effects. The wetting of the soil by irrigation has two opposite effects. There is more evaporation from wet soil than from dry. This evaporation cools the soil and therefore cools the air near its surface. The water used for irrigation in winter and spring, however, is usually warmer than the air at night when frosts occur. It therefore has a warming effect on the air which at first more than counteracts the cooling due to evaporation.

The warming effect of the water is soon exhausted and then only the cooling effect of evaporation acts. The effect of irrigation in the winter is therefore, on the whole a cooling of the air and tends to delay the starting of the buds. The warming effect may sometimes be made use of to prevent frost, but only when the irrigation is given just before or during the freezing.

To sum up: The cultural practices of use in diminishing the effect of spring frosts are:

1. Rough plowing in December, or early January.
2. Irrigation during the same period.
3. Plowing and cultivating to destroy weeds and to smooth and pulverize the ground just before buds commence to swell.
4. Raising the bearing wood of the vine as high as practicable.
5. Double pruning.
6. Irrigation during a frost after vines have started.

It is doubtful whether it is desirable to use the last means as, though a properly timed irrigation may prevent any bad effects from one frost, it makes the vines more liable to injury from a later one.

WHAT IS A VINE?

This would he a hard question to answer if we were to draw our definition from the use of the word in current horticultural literature.

This source would lead us to suppose that beans, peas, roses, melons and even potatoes grow upon vines. The Bible warns us against expecting to gather grapes and figs from thorns and thistles. The inference is that grapes can be obtained only from plants whose nature it is to produce that fruit, viz.: vines; and conversely, only plants which produce grapes are entitled to be called vines.

If a cucumber plant is a vine then a cucumber patch is a vineyard.

The word vine is related to the Latin word vitis, and both are derived from the Latin word vinea, which means a vineyard. Only those plants which belong to the botanical genus vitis and whose fruit is grapes have any right, therefore, to be called vines. Any other use of the word is unnecessary and confusing. A plant may be a climber or a creeper or it may be planted in rows and cultivated, but if it doesn't bear grapes it is not a vine.—F. T. B.

Agricultural Science.

ANNOUNCEMENT TO SMYRNA FIG GROWERS.

To the Editor: In order to grow Smyrna figs economically it is necessary to plant in one corner of the orchard a proper assortment of caprifigs to furnish a breeding place for the blastophaga, or fig insect, at all seasons of the year. Many who are attempting the culture of Smyrna figs in California have not planted enough caprifigs, and especially not enough different kinds. Besides the standard varieties which yield the profichi used to caprify the Smyrna fig buds in June or July, from six to a dozen or more other sorts should be planted.

During the past ten years the Department of Agriculture has been introducing the best obtainable varieties of caprifigs from the old world and recently has leased the seedling fig orchard planted at Loomis, Cal., by Mr. E. W. Maslin, which contains a score or more of valuable new varieties of caprifigs originated in this State.

Caprifig Cuttings Offered as a Bonus for Planting Seedling Figs.—Rooted cuttings of the imported caprifigs and ordinary cuttings of the Maslin seedlings will be sent free by the Department of Agriculture to anyone who will agree to plant out three seedling figs for each cutting received. The seedlings are also furnished free in the form of one-year-old pot-grown plants ready to set out in condition to start into healthy growth at once. It is suggested that these seedlings be set about 25x8 1-3 feet apart, or something over 200 to the acre. Two-thirds of them can be cut out as soon as the trees fruit and the poorer ones remaining can gradually be weeded out or grafted over.

Mr. Maslin's seedlings, although not irrigated, made a remarkable growth, reaching a height of 10 to 15 feet and a diameter of 6 to 10 inches within three years from the time they were set out. Some of them bore fruit two years from setting and many of them in three years. About half of the Maslin seedlings turned out to be caprifigs adapted to his particular soil and climatic conditions. All who plant seedlings on these terms will be considered as co-operating with the Department of Agriculture in the fig breeding work and will receive free of cost all publications on fig culture issued in future by the department and will be given preference in the distribution of any new varieties of figs or caprifigs introduced from abroad or originated by breeding.

New Types of Smyrna Figs Offered for Trial.—Besides the large number of new caprifigs the Maslin orchard contains half a dozen or more new varieties of Smyrna figs which deserve careful trial in order to determine their value for commercial culture. Among them are at least two sorts that show a valuable characteristic not found in any of the imported varieties of Smyrna figs; the mouth of the fig is completely sealed by a drop of pellucid gum that hardens as the fig ripens and effectively excludes all insects and prevents the fruit from souring. One of the new varieties of this type—the Rixford—as grown in 1908 at Loomis without irrigation, showed from three-fourths to nine-tenths of the figs self-sealed in this manner.

These and other interesting new Smyrna figs that have originated right here in California in the Maslin seedling fig orchard will be distributed on the same terms as the caprifigs, namely, one cutting for every three seedling figs set out.

Mamme and Profichi Distributed to Smyrna Fig Growers.—California growers having young fig orchards have in many cases experienced difficulty in securing the mamme needed to stock up with blastophaga their- caprifig trees, which when young do not carry mamme through the winter. Beginning in April, 1909, the Department of Agriculture will send free by mail mamme from the Maslin orchard to Smyrna fig growers for their own use and not for sale. In case profichi are needed to caprify the Smyrna fig crop in June or July the crop of the Maslin orchard will be placed at the disposition of the growers. The profichi, however, must be sent by express collect and the growers must pay the caretaker the actual cost of picking and packing—probably about 30 to 60 cents per 20-pound box.

Co-operators who have shown their interest in the fig breeding work by planting seedling figs will be given preference in the distribution of mamme and profichi.

All fig growers are requested to send in their names at once to the address given below in order that a circular giving more details about the proposed free distribution of cuttings, seedlings and caprifig fruits may be sent to them together with application cards ready to sign.

W. T. SWINGLE.

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AGRICULTURAL REVIEW.

HORTICULTURE.

A local walnut growers' association was formed at Orange last week.

A large acreage of freestone peaches will be set out in the Fresno district the coming season.

A large acreage is being planted to raisin grapes and eucalyptus trees in Kings county this year.

The section around Goshen, in lower Tulare county, will have a large acreage planted to trees and vines this season.

The supervisors of Imperial county offer to furnish trees free to all farmers who will plant and care for them, along the public roads in that county.

A Kings county orchardist claims to have used a spray, composed of one pound of concentrated lye to six gallons water, with good success in eradicating the San Jose scale.

Merced county is to have the largest peach orchard in the State. J. M. Martin is preparing to plant 300 acres this season and ultimately 700 acres more, on his place near Atwater.

The 414 acre Orchardale ranch, four miles south of San Fernando was sold last week for $93,000. This ranch is nearly all set out to deciduous trees, 320 acres being in full bearing.

Owing to the refusal of the railway company to grant them special rates, the members of the Yuma Valley Cantaloupe Association have agreed not to raise cantaloupes for shipping the coming season.

Nurserymen in the Fresno district report that there is a big demand for Muscat vines, and a large acreage will be planted this season. This seems remarkable, in view of the hold-over raisin crop now on hand.

As a result of cutting the price of nuts by the Walnut Growers' Association, at its meeting held in Los Angeles recently, the part of the last crop held by the association members is now being rapidly disposed of.

The California Fruit Growers' Exchange is said to be behind the Johnson bill, now up for passage in the California legislature, which allows fruit growers' associations to organize and do business without actually issuing stock. The object is to prevent associations being controlled by non-resident stockholders.

The California Fruit Exchange, at its annual meeting held in Sacramento last week, elected the old board of directors, and from the board the following officers were chosen for the year: J. L. Nagle, president; H. V. Rudy, vice president; J. P. Dargitz, secretary. W. C. Walker was again chosen manager. Under Mr. Walker's management the Exchange has been very prosperous. Last year it made a gain in tonnage shipments of 92 per cent over 1907, and during that time a dividend of 26½% was paid on the capital stock. Only growers of fruit can hold stock in the organization.

AGRICULTURE.

A twelve-pound head of cabbage is on exhibition at Porterville.

About 300 acres of land around Lodi will be planted to beets this year, and the crop shipped to the Alameda Sugar Co.

Sixty-five hundred acres of land around Corcoran is under contract to be planted to sugar beets this season; 3000 acres are already planted.

Several carloads of hay have recently been shipped from the Imperial valley to Los Angeles. The growers received from $12 to $17 per ton.

A heavy increase in the grain acreage in the upper San Joaquin valley is re-

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ported. The condition of the soil is excellent, giving a prospect of unusually heavy yields.

H. Demonoskia has sold his 1280 grain ranch near Willows to New York parties, who expect to sell it off in small tracts.

The grain acreage around Klamath Falls will be doubled this year over 1908, which was larger than any previous year.

The Visalia Delta says that a large acreage has already been planted to sugar beets near there, and the prospects are good for a long campaign there the coming summer.

An effort is being made to reorganize the Klamath County Agricultural Association, so that a big fair may be held there this year. The association owns land but has no money to improve it with.

The third annual session of the Trans-Missouri Dry Farming Congress meets in Cheyenne, Wyo., February 23, 24, 25, 1909. This is an event of national and international importance. Dry farming is now one of the most important subjects of discussion and research in agricultural matters, as it makes possible the cultivation of over half the area of the Western States.

LIVE STOCK.

Sixteen billion eggs are laid by the hens of the United States each year.

A new company, capitalized at $10,000, has been organized to build and operate a creamery at Lemoore.

Dr. Loper, the chief of the health department of Fresno is after the unsanitary dairies located near there.

The Maple Grove Creamery Co. of Los Angeles has recently completed a fine creamery at San Luis Obispo.

The Pachuca Cattle Co., of Hollister, recently received a carload of thoroughbred Durham cattle from Missouri.

Government buyers have recently secured 400 mules in and around Stockton. Prices paid were from $200 to $250 each.

Last week S. J. Vincent, from near Porterville, shipped the first car of spring lambs to the San Francisco market. He received $3.50 each, f.o.b. Porterville.

Glanders have broken out among the horses in the southern part of Colusa county. Several horses have been killed by the county veterinarian.

It is reported that the Swift Packing Co. of Chicago has taken over the Coldbrook creamery at Lolita, Humboldt county, and will operate it.

The annual meeting of the American Polled Jersey Cattle Co. will be held at the Bookwalter, Springfield, Ohio, on Wednesday, January 27, 1909.

Levy Bros, of San Francisco, shipped from Visalia last week a bunch of cattle fattened on beet pulp. They averaged 1287 pounds per head and were in fine condition.

A bill to appropriate $25,000 per year to provide for the enforcement of the law to prevent the sale of dairy products from unhealthy animals, is now before the State legislature.

Owing to the contract made with the Sonoma County Fruit & Produce Co. to handle all its eggs and poultry, the Co-Operative Poultry Association of that county met at Santa Rosa last week and closed up its affairs.

The Santa Barbara and San Luis Obispo forest reserves are said to be able to properly graze 12,000 head of cattle. Those who desire to graze stock on these lands must have their applications in by February 1.

The thirty-fourth annual meeting of the Ayrshire Breeders' Association will be held in the parlor of the Manhattan Hotel, Madison Ave. and 42d St., New York, on February 3, 1909, at 2 o'clock p. m., for hearing reports of the secretary, treasurer, and home dairy test committee, and for the election of officers, and for any other business proper to come before the meeting.

MISCELLANEOUS.

Work is in progress to organize a new irrigation district in El Dorado county, embracing 9460 acres of land.

The old winery building on the Stanford estate, near the university, is to be remodeled and made into a men's dormitory.

R. K. Masden, the well known raisin man, is stated to be figuring on putting up a large seeder and packing plant at Parlier, near Fresno.

The Eucalyptus Timber & Land Co. has been organized at Modesto. The company will plant 600 acres of eucalypts near Livingston, Merced county.

A second freight boat is to be run between Petaluma and San Francisco during the fruit season, that fruit and vegetables may arrive at the market fresh.

It is stated that the Pacific Fruit Cooling & Vaporizing Co., of Newcastle, has decided to build a pre-cooling plant at Oroville, to have an earning capacity of $50,000 per year.

The statement is made that the Hamilton Sugar Co. will run a line of steel boats up the river this summer, to carry beets from various points between Butte City and Monroeville to the factory.

The Oregon State Land Board has contracted for the reclamation of 74,000 acres of arid land in Crook county. The estimated cost of reclamation is fixed at $60 per acre for irrigable land and $2.50 per acre for non-irrigable land.

A letter from Ira W. Adams, of Potter Valley, Mendocino county, dated January 13, states that during the nine days previous 10¾ inches of rain had fallen. The lowest temperature of the season to date was 19 above. Horse beans and Tangier peas were not affected by the cold.

The new beet sugar factory at Santa Ana will be ready to make sugar the coming season, and will require nearly 8000 acres of beets. Besides this large amount, the factory at Los Alamitos, in Orange county, has contracted for an unusually large acreage.

During last week the Feather and Sacramento rivers became floods from the heavy rains. A large acreage was flooded in Colusa, Sutter, Glenn, Butte, and Yuba counties. The high waters also did some damage at Stockton, and to some of the islands near there. The low lands in Tulare county were also partly under water.

The third trip of the demonstration train which is being sent through the State in conjunction with the work of University Extension in Agriculture, will begin on Tuesday, January 26. The start will be made from Tracy, and the San Joaquin valley as far south as Bakersfield will be covered during this trip.

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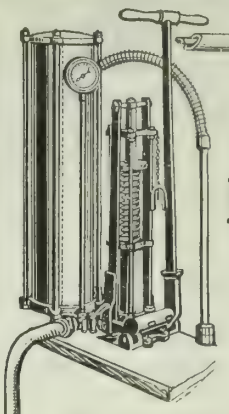
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Entomological.

WORK AGAINST PEAR THRIPS.

From a paper by Mr. A. L. Quaintance of the U. S. Department of Agriculture at the State Fruit Growers' Convention:

The adult thrips puts in its appearance on the trees late in February and early in March, at which time such fruits as almonds, apricots and peaches are coming into bloom. From the middle to the last of March and early in April the insects are out in maximum numbers, when prunes, cherries and pears are in full bloom. The thrips attack the swelling buds, working down between the bud scales and by feeding upon the essential organs of the young flower, or other parts, soon destroy it. In the case of some fruits, like the almond and peach, these may suffer comparatively little injury if they are not attacked until the period of full bloom. The thrips feed upon the nectar in the calyx-cup and the little fruit itself may thus escape. The insect is worse on pear, prune and cherry, as it is most abundant during the period of swelling buds, and of blooming, and, furthermore, the fruit buds are developed in clusters. Buds of these fruits are, in extreme cases, so injured that they wither and die before opening, and even after the blossom has expanded the little fruit and other parts may be attacked and prospects for a crop quite destroyed. Leaf buds are also attacked in the same way, and the destruction of these may be so general that little foliage is put out, and it may be some months before a natural growth is developed. The small size of the thrips, and its habit of working within the buds and flowers is calculated to prevent its detection by fruit growers, and much thrips injury has doubtless been attributed to the effect of cold. On the other hand, the insect has been charged with injury probably due to unfavorable weather conditions.

Life History.—The adult female thrips (no males are known) deposits her eggs in almost any tender part of the plant, as the fruit and leaf stems, the mid-rib and veins of the leaves, etc., by the aid of a saw-like avipositor, with which a slit is cut into the tissues and the egg inserted within. The egg hatches in the course of about four days, and the young thrips wiggles its way out and soon begins to feed on the tender tissues of the plant. These larvae were at first very small, and when full grown are scarcely one-twelfth of an inch in length. They prefer secluded places, as on the under surface of tender leaves, the growing tips and under the protection of the dried up calyx before it has been thrown off by the swelling fruit. In this latter situation they feed upon the young and tender fruit, and in the case of prunes and pears the injured places develop as the fruit grows, into scabby spots greatly disfiguring its appearance and resulting in serious deformities, especially with pears. The injury by the larvae to the fruit which may have escaped the adults is very important, and in badly infested orchards a large per cent of the remaining crop may be thus injured. The scabby spots on prunes do not shrink uniformly with the rest of the skin, and stand out very conspicuously, materially reducing the grade.

When full grown, which requires about three weeks, the thrips larvae make their way to the ground and penetrate the soil, to a depth from 3 to 10 or 12 inches, depending apparently upon whether this is soft or hard, the majority in tilled orchards going down some 6 to 10 inches. Below the soil each larvae constructs for itself a little earthen cell of sufficient size to accommodate its body, and here the insect remains until the following spring, to appear as an adult during the flowering period of the trees, as already stated. In the late fall and winter, however, the larvae transforms to the pupa stage, and in this condition is much more helpless than as larvae. It is not known how long the pupal stage continues, but it is probably several weeks. There is thus but one generation of the thrips each year, and they spend much the greater part of their time safe below the surface of the soil.

How It Works.—The mouth parts of the thrips present an interesting difference from those of insects of other orders, and a knowledge of these organs is of importance to fruit growers. There is a snout-like projection, armed with several spines. Within the snout are stiff setae, or stylets, with which the epidermis of the plant surface is first penetrated, and then by aid of the bristles on the rim of the snout the opening is enlarged, the tissues lacerated, and the juices thus liberated sucked up for food. The thrips thus feeds, practically, on the interior portion of the plants, and can not be destroyed with arsenical or similar poisons.

Practically all deciduous fruits are attacked, as almond, apple, apricot, cherry, peach, pear, plum, and prune. The insect is also recorded from fig, grape and walnut, and such indigenous plants as Madrona, wild California lilac, and poison oak.

Spraying.—Unfortunately this question cannot be satisfactorily answered at the present time. From the resume of the life history of the pest above given, the extreme difficulty of controlling the adults with sprays is evident. At first thought it might appear useless to try such methods; nevertheless, considerable time has been given to testing various sprays, as to their possible efficiency against the adults, and also against the larvae. During the past year Mr. Moulton has tested, at different strengths, the following:

Whale oil soap; black leaf tobacco extract; tobacco decoction from stems boiled in water; kerosene emulsion; distillate oil; crude carbolic acid emulsion; creosote oil; lime sulphur wash; arsenate of lead molasses spray; arsenate of lead and crude oil emulsion. Of these several substances none proved especially effective except the proprietary tobacco extract, and the distillate emulsion. Mr. Moulton concluded that by timely and thorough use of either of these sprays, directed especially against the larvae on the under surface of the leaves, these can be destroyed in such numbers as to result in protection of the crop for the succeeding year. The possibility of doing this will be fully tested during the spring of 1909, and the work will be done under the most favorable conditions for success. To be effective, however, spraying operations must be done on a large scale, to prevent possible overflow of the insects from untreated orchards. It is planned to carry out spraying operations in Santa Clara county, Contra Costa county, and, if possible, in Solano county. Spraying for the thrips, should this prove effective, will offer, however, several practical difficulties. Two or three applications of sprays will be necessary, perhaps, and in so short a space of time as to tax the resources of the orchardist to accomplish the work.

In the Soil.—The destruction of thrips during their long stay in the soil, if it may be accomplished, would be a much more practicable solution of the problem. Mr. Moulton and Mr. Paine during the past summer have been carefully investigating various points connected with subterranean life of the insect, as to their distribution in the soil; the effect of cul-

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tivations as possibly disturbing them in their cells, and also the possibility of destroying them by protracted submergence in water, as might be practiced in irrigation. This work thus far has necessarily been confined to the insect in the larval stage, but will be begun against the pupae as soon as these appear in the early winter. While the results thus far are not especially hopeful as against the larvae, it is not impossible that a method will be found effective against the more helpless pupae. In addition to cultural methods, irrigation, etc., the possible effectiveness of various fertilizers, chemicals and fumigants will be tried, and it is hoped that some practical expedient will be developed from the coming reason's work.

PROGRESSIVE WALNUT WORK IN FRANCE.

California is apparently not doing all the progressive walnut work in the world. Our enterprise and success seems to be exciting the European growers. Consul C. P. H. Nason deems it of interest to American dealers in walnuts to report that there has been formed an association of French growers of walnuts in the neighborhood of Grenoble under the title of Syndicat de Proprietaires de Saint-Quentin-sur-Isere, Noix de Grenoble, to which he adds, under date of October 28:

It has for its object to maintain the reputation and guarantee the quality of the walnuts of the lower valley of the Gresivauden-nuts, commonly known as "Grenobles," and to the trade as "Mayettes," to furnish American buyers these nuts without admixture with inferior qualities, to arrange among themselves terms of sales and deliveries, and in general to conduct the business in a thoroughly loyal manner.

According to the by-laws, the several growers are to report upon the quantity and quality of their respective harvests and to observe, under penalties of failure, indicated methods of packing, selling and shipping; the sacks or bales of nuts when prepared for market to carry a special mark, to be fastened and sealed by a lead impress, and their contents to be verified. It is their purpose also to study the best methods of walnut cultivation, to increase the number of trees by progressive planting, to intensify the fruit by judicious grafting, and to improve it in size, color and taste in every way possible.

This year's nuts, spread out for drying on latticed floors in the several granaries, personally visited, present a fine appearance in size, uniformity, brightness of color, and are of excellent taste. The percentage of unsound nuts is also less than usual. The opening prices are in accord with estimates previously reported, with tendency downward, because it would seem American buyers are not hurrying as in former years to place their orders.

FRUIT EXCHANGE STOCKHOLDERS' MEETING.

The annual meeting of the stockholders of the California Fruit Exchange was held in the Y. M. C. A. Hall on the 12th inst. Nearly 200 people were present, representing all the important deciduous fruit growing sections. The meeting was one of the best in the history of the Exchange. The result, as indicated by the reports read, was very gratifying, as is proved by the fact that a 26½% dividend on the capital stock (none but growers are permitted to hold stock) was declared. It was announced that a further dividend on the tonnage would be forthcoming. The old board of directors was re-elected. The Exchange has had a very successful season the past year. It gained 92% in tonnage.

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RESULTS OF CEREAL IMPROVEMENT WORK OF THE UNIVERSITY EXPERIMENT STATION.

By Prof. G. W. Shaw, in Charge of the Work.

At the legislative session of 1905 attention was drawn by the Merchants' Exchange of San Francisco, the State Board of Trade and the Sacramento Development Association to the fact that the milling trade of California was obliged to import about 100,000 tons of wheat per year to maintain the quality of California-made flour, which cut an alarmingly big hole in the California farmers' home market. Not only this, but the continued falling off in the yield of grain crops per acre had progressed until the average yield of wheat was only fourteen bushels per acre, and in many cases it seemed impossible to longer produce wheat on many soils that had previously given good yields.

With the view of ascertaining the cause of this low gluten content of California wheat and ascertaining some remedy if possible, a bill was passed appropriating $10,000 for conducting the investigation and ascertaining a remedy for these conditions.

This work, which was entrusted by the law to the Experiment Station of the University of California, has progressed since that date and some very important results have been secured which may be briefly summarized as follows:

The low gluten content of California wheat is not due to soil exhaustion; nor to the time of cutting after the grain reaches the hard-dough stage; nor can it be materially increased by the use of fertilizers.

It is due (1) partially to the type of wheats commonly grown in California, (2) to the length of the growing period, (3) but primarily to climatic conditions. To remedy this condition we are dependent then upon two methods of procedure:

First. The adoption of better milling types of proven field adaptability possessing a shorter growing period than the wheats now used.

Second. The constant building up of the quality of our grain by recognized methods of seed selection and breeding along the lines so successfully employed in Illinois and Iowa in the case of corn, Minnesota and South Dakota in the case of wheat and Wisconsin in the case of barley.

The low yield is due to generally poor cultural methods, and by the adoption of a more thorough and up to date practice, the yield is materially increased. The experiments so far conducted show that the following conditions make for more abundant crops.

First. The deeper preparation of soil than is commonly practiced in the cereal growing sections of the State.

Second. The adoption of a rotation system and the use of green-crop fertilizers to maintain the humus of the soil, which is the most vital factor in California agriculture today. Failure to recognize the importance of this matter has resulted in an extremely poor physical condition of the soil; a lessened ability to withstand drought and heat, and an increased cost of handling the land.

Third. The selection of the best quality of seed.

Fourth. Thorough treatment of seed grain for smut; ten per cent of the cereal crop is lost by smut, which can be absolutely prevented.

Fifth. The crop can be increased from ten to fifteen per cent by the use of a drill for seeding instead of broadcasting, as is the general practice.

Careful attention to these details may certainly be counted upon to increase the yield of grain from 15 to 25 per cent. The remedy for these conditions is a campaign of education and demonstration.

Out of the 400 varieties of wheat under trial four of exceeding great promise as milling wheats and very well adapted to our field conditions have been found. These are now to be multiplied and distributed. In the case of one, distribution has already commenced. It is desired to extend this another season.

Material progress has also been made in breeding up our own wheats to a higher milling quality and yield, especially the White Australian variety. This is a matter, however, which will require continuous work on the part of the Station, which is true of all such undertakings.

Two durum wheats have been found which will be grown on thousands of acres of land now too dry to produce the common wheat.

Besides this work with wheats, as a result of the investigations, two oats have been found which will certainly give an increased yield of 25 per cent over the common oats now grown in the State. To give an idea of the value of this work it may be said that the replacing of the common oat by the red Algerian variety on the acreage now producing oats in the State would mean a gain of $1,000,000 per year in the value of this crop. To illustrate, this oat under extended tests against common oats gave 65 bushels per acre, 40 pounds per bushel, against 33 bushels per acre at 32 pounds per bushel. If nothing else should result from these investigations, this alone would return to the State many times the cost of the work as soon as the oat can be gotten into general distribution.

Many barleys are also under test, and a number under selective improvement. With the funds at command it has been possible only to direct the attention to the matter of yield in the case of barleys.

The specific study of the brewing quality has not been undertaken. This improvement work should be extended to other field crops. There is a wonderful field for development of greater financial returns to the State in this direction. The adaptation of corn, the improvement in quality of island grown potatoes, the adaptation of green manure crops for maintaining soil productiveness, the development of an early maturing lima bean, and many cultural problems connected with these crops, all offer abundant field for continuous operation.

The subject is of vital commercial importance from the fact that it costs no more to grow the better sorts of farm crops than the unimproved, while the increased production due to the use of improved seed results in an increment of profit. It moreover awakens in the grower more interest in all phases of crop production, extending all the way from the selection of seed to the market of the crop.

Another very potent reason for this character of investigation is resident in the constantly increasing value of farm lands on which are grown general farm crops. The increase in the value of these lands has been such that it is urgently necessary to increase the production per acre and improve the quality of these field crops in order to secure a greater return for the investment.

On account of the very large number of people interested in the production of general farm crops in any system of diversified agriculture which is the only system under which soil fertility can be permanently maintained, the results of such improvement will have a very far-reaching effect.

The possible results are fraught with as much benefit to the people as the de-

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THE SIMS

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Griffin & Skelley Company,
16 California Street,
San Francisco, Cal., Oct. 6, '08.

Mr. Geo. C. Roeding, President, Fancher Creek Nurseries, Fresno, Cal.—Dear Sir: Regarding the Sims Cling Peaches, samples of which were delivered to our cannery at Fresno.

We packed these samples and are most favorably impressed with them. We find the peaches to be of fine texture, rich color and particularly fine flavor, and the best late Cling Peaches we have ever had in our cannery. They seem to ripen between the Orange Cling Peaches and the Phillips, and there has been an urgent demand for Clings that would come in just at that time, as it would enable canners to materially increase their output of Cling Peaches, and we shall welcome the day when a sufficient quantity of these peaches is available for canning purposes. If we were planting today, we should certainly put out a considerable quantity of these Clings. Yours truly,

Griffin & Skelley Co.

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velopment of irrigation resources in which we are all so interested; and is worthy of as serious consideration. The possibilities of increasing the field crop production of California by $1,000,000 per year is certainly a subject worth the while of her people. That one dollar thus expended may be expected to produce an increased revenue of $1000 within a period of ten years is not only recognized as entirely reasonable by those who have made any serious attempt in the improvement of plants, but has been repeatedly demonstrated in the States of the middle West and in Europe. Our plant and animal forces are fully as potent factors as our mechanical forces and are worthy our serious efforts to develop them. The justification of the use of increased appropriations from Federal and State Treasuries to build up the hereditary power of our animal and plant forms is rapidly developing into such concrete form that expenditure along this line is becoming a broad public question. The importance of this character of work is fundamental as regards the individual, the State and the nation, because the production of these crops is the basis of the nation's prosperity. That an expenditure of one dollar should be expected to return a profit of one thousand dollars to the State is a question which the legislature of each State can easily verify from the results which have come forward through the work of numerous public agencies in the improvement of our leading single crops.

This being the case there is no reason why such an investment either by the State or nation does not present as clear a business proposition as an engineering or mechanical project, by which a great railway system can materially increase its earning.

Forestry.

TESTING THE CALIFORNIA TAN-BARK OAK.

Prof. Loren E. Hunt, engineer in timber tests for the U. S. Forestry Service, who is stationed at the University of California, has been conducting some interesting tests and seasoning experiments with the California tan-bark oak (Quercus densiflora), a species which is largely confined to this State. His progress report will be interesting to those in the region where the tree is abundant, and to wood-workers everywhere.

THE LUMBER.—The material selected for the tests was selected in three classes or shipments, differing in the age of the trees and in the season of the year they were cut. The first two shipments were selected in the summer, during the peeling season, and represented, in the first shipment, the larger and more mature trees of the stand, and in the second shipment, the smaller and younger trees. The third shipment was felled in the month of October, and represented the same wood as obtained in the first shipment, but felled in the season when the bark was tight, or when the sap was down.

The field work on the first shipment also included a study of the relative amount of tanbark and lumber which could be obtained from the trees. The bark was weighed as soon as it was peeled from the tree, and again when it had been seasoned six weeks.

Assuming that 2400 pounds of seasoned bark is equal to one cord, the average yield per tree was .358 cord. The yield in lumber for the trees measured was, therefore, 1180 feet, board measure, per cord of bark. In sawing the logs of the three shipments the actual mill run of the lumber slightly exceeded the log scale in every instance.

THE TESTS.—The plans for the work in the timber-testing laboratory include a sufficient number of mechanical tests to enable a definite comparison of the strength of tanbark oak with that of the hardwoods now in general use. They show that the former compares very favorably with Eastern oak. The work already completed has been entirely upon green material. Some 1200 tests have been finished. A partial summary of the results is shown in the table:

STRENGTH OF GREEN TAN-BARK OAK IN COMPRESSION PARALLEL TO THE GRAIN.

Number. Tests.	Crushing Strength in Pounds per Square Inch. Average.	Maximum.	Minimum.
68	4,805	6,150	3,450
22	4,681	5,750	3,690
75	4,754	6,030	3,825
24	5,120	10,500	3,240

SEASONING.—A portion of each shipment, consisting of boards, planks, and timbers, 4 by 5 inch in section, was piled to season. This material will be tested when thoroughly air dried. After from 4 to 10 months of seasoning the boards and timbers show some warping and checking due to shrinkage, but not in amount sufficient to injure the lumber unless too rapid drying was allowed. One attempt has been made to kiln dry the lumber. Some 50 boards and 20 planks 2½ inches thick were put through a commercial kiln of the moist air type in San Francisco. The results, while encouraging as regards the behavior of the tan-bark oak in a moist air kiln, were not satisfactory, owing to the imperfect regulation of the kiln and the consequent daily variations in temperature and humidity. After 40 days in the dry kiln, a classification of the lumber gave the following percentages:

	No.	Pct.
Good boards	28	56
Boards slightly warped...	12	24
Boards checked at ends..	4	8
Boards badly checked....	6	12
Total	50	100

When tan-bark oak is air seasoning it is rapidly attacked by a black fungus which will stain the lumber throughout in a short time if permitted to grow.

As thus appears, there has been some difficulty in seasoning the boards without injury due to worping and checking, but Professor Hunt is confident that a successful method of seasoning can be devised, in which event the lumber will find a ready market and prove of greater value than the bark of the trees. The Forest Service has a supply of the wood now in the process of seasoning, but the tests of strength for seasoned wood have not yet been made.

Owing to the demand for hardwood lumber on the Pacific Coast and to the limited available supply of tan-bark oak, it is not thought that the lumber will have other than local use in the Pacific States.

HARDWOODS USED IN CALIFORNIA.—The hardwoods now in use in California come principally from the Eastern States. In addition, however, there is now being imported from foreign countries a small amount of hardwood material. Probably about 10 per cent of the hardwoods used in California is imported.

A compilation of the information obtained from 14 of the principal dealers in San Francisco and about the bay region shows that a total of 21½ million feet of hardwoods is used annually. Eastern oak comes first with about 13 million, hickory second with 3 million. Maple, ash and cottonwood are approximately equal, with 1½ million feet each. The consumption of the other hardwoods does not exceed a million feet for any species, and for most of them it is less than one-half million feet.

The average cost of all the hardwoods used on the Pacific Coast is high. Those from the Eastern States vary from $57 per thousand, for oak used for cooperage, to $180 per thousand for black walnut.

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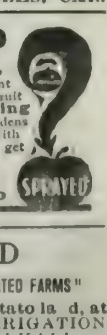


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Live Stock and Dairy.

THE OLD GRAY MARE.

Written for the Pacific Rural Press.

I love her, I love her, and who shall dare
To chide me for loving that old gray mare.
If never the foremost in the race,
I've driven her oft at a rattling pace,
When pebbles and sand were in the air,
Tossed up by the hoofs of the old gray mare.

Never! No never, the touch of a whip—
I whistled and whispered, "Let her rip!"
How she stretched her neck! Then away she'd tear;
What an awful stride had the old gray mare.

At other times, when the road was right,
She'd take a spin for her own delight.
The way she'd hustle and make things hum,
You'd think you were going to kingdom come.
'Twas look out small boys, mind your eye,
When the dust and gravel began to fly—
And all so easy, 'twould make you smile
To see the old mare cover a mile;

Old men by the wayside stopped to stare,
And waved their hats for the old gray mare,
So lively and gentle, don't you know,
Would stop in a moment, when I said "Whoa."

I sing of the days when I used to drive,
For the old gray mare is still alive,
Stiff in the joints, and sore and lame,
But her eyes are bright, and she's full of game;
Of toil and pleasure she's had her share,
And now she's resting—the old gray mare.

I love her, I love her, and who shall dare
To chide me for loving that old gray mare.

R. E. C. S.

Los Angeles, Cal.

THE RAISING AND CARE OF BREEDING JACKS.

Written for the Pacific Rural Press
By Jas. W. McCord.

This industry, although one of the most important of the live stock branch of farming, has been the most abused and neglected. It appears to be the opinion of most people that the ass was especially made to be neglected and abused. If such had not been the case, this branch of animal industry would have kept pace with the breeding and improvements in other branches of live stock.

History informs us that the King of Spain presented Gen. George Washington with two jacks to breed to his thoroughbred mares for the production of mules, and also that these two jacks were sixteen hands high. That has been nearly a century and a half ago, and yet there are very few jacks in the United States that exceed that height. If proper attention and care had been devoted to this line there it no reason that they should not be from sixteen to seventeen hands high, standard measure, now, and weight from twelve to fifteen hundred pounds, and sire mules weighing from sixteen to eighteen hundred pounds.

The first thing, of course, is to commence right, that is, with the best stock. In founding a harem of jennets, care should be taken to get the very best. It is not of so much importance as to what breed they are, or what cost, so that they are known to produce the jacks that sire the best mules. After you have jennets of this kind, then get the best jennet jack that can be found. The points he should have are size and conformation, breeding free from blemishes or faults, lively disposition and a prompt server. No jack should ever be kept as a jennet jack until he has been tested and proved to be one of the best sires of mules.

After you have the right kind of blood, the next thing is the care. Plenty of pasture should be provided for the jennets, but this need not be of the best, so there is variety and plenty. Hill land is well suited for this purpose. The foot hills of California would make an ideal breeding farm for jacks, but their feed must never get scant, and in winter a generous supply of hay should be provided. Also shelter in which the hay should be fed. One main thing should be to keep the colts growing all the time till they are mature. At about four months old the jack colts should be taken from the dam and weaned. But before he is weaned he should have been taken up and taught how to eat. He should then be fed regularly with good hay and a little rolled barley and bran. He should be allowed to run in a pasture where there is plenty of grass. It is a good plan to let him run with filleys, in order that he may learn their ways. He should be watched very closely and looked after regularly, to see that he is kept in a thriving condition. During this time he should be handled. His feet should be trimmed and kept from growing too long or turning under or to one side.

If all these directions are followed the owner will have a jack at two years old that he will be proud of, and one that will sire mules that will be like a check on the bank.

Hanford, Cal.

QUICK WORK WITH FOOT-AND-MOUTH.

The Bureau of Animal Industry is making short work of the foot-and-mouth trouble. Up to the end of December the department had 250 men at work and had killed and buried between 3000 and 4000 head of cattle. At this rate, within the next 60 days the outbreak will be only a memory. An order has been issued permitting the people of Maryland to ship fat animals to the butcher and to move hay from some parts of the State that had no disease, and considerable relief from the rigors of the quarantine has been extended to Michigan. The Breeders' Gazette says that the country is to be congratulated upon the celerity and efficiency of the Government's intervention in this matter. We have been spared the calamity of an extension of this imported plague into the great feeding and grazing grounds of the West, and the department has again proved its ability to serve promptly and well the great interests under its jurisdiction.

OXEN VERSUS HORSES.

Written for the Pacific Rural Press
By L. W. Symmes.

An interesting fact was presented recently by D. H. Winslow, an engineer of the Massachusetts Highway Commission, in engineering contracting. It may seem somewhat of a novelty to employ oxen in place of horses, in these days of rush and turmoil, but in a city of Massachusetts oxen were employed in the construction of a State road at a profit over horses, according to the contractor.

At the outset, oxen can be bought for 5½ cents a pound on the hoof, and can be turned into cash at the end of the working season at the same figure. On this work none of the oxen had shrunk in weight since the beginning of construction, and several pair had gained in weight.

Horses, on the contrary, must either be sold at a loss when construction is shut down or else be carried through the winter months while teaming is slack and grain is high. The wear and tear on wagons and the item of shoeing is about the same with either oxen or horses, while with oxen there are no harnesses to break. The cost of maintenance per pair for one week was $19.20 for oxen and $22.20 for horses. Cost per pair per working day: oxen $3.20, horses $3.70.

In comparing work done it will be well to bear in mind that horse carts are backed into the pit, the teamster shovels and the cart is at a standstill while being loaded. The ox cart is backed in, the teamster does not shovel, but yokes his oxen to a loaded wagon or the nearest loaded wagon, and there is thus practically no lost time for oxen. Notwithstanding that the teamster shovels and the horses walk faster than the oxen, the oxen actually delivered more loads per day wherever the haul was 600 feet or less from the pit. By actual test two sets of teams the same day, same haul, same foreman, and just enough extra shovelers so that no team was kept waiting when loaded, the following was obtained: The oxen made 80 loads, against 64 loads delivered by horses, but required the services of two extra shovelers. Eighty loads at 50 cents, contract price, equal $40, leaving profit of $13.10 in favor of oxen, or $6.55 per pair for the day.

Sixty-four loads at 50 cents, contract price, equals $32, leaving profit of $7.94 in favor of horses, or $3.97 per pair per day.

Under these conditions the oxen proved to be more profitable by $2.58 a day over horses. The data was obtained unknown to either teamsters or laborers. There is little doubt that the horses might have been speeded up a little more, while the oxen could not have been, and an increase in the length of haul would place oxen at a disadvantage, and they would then be more valuable as beef. But the figures have certainly proved the contractor's assertion and the oxen have afforded an interesting item on the work of contractors.



IL HARREGUY—Weight 1160 lbs; Owned by Mr. Jas. W. McCord, Hanford.

MORE GOOD STOCK COMING.

According to the Drover's Telegram of Kansas City, Mr. R. M. Dunlap, "one of the most active of the Pacific Coast stockmen who believe in improving the breeds of cattle," has bought at Kansas City representatives of three breeds, with which the cattle of California will be improved. Mr. Dunlap's home is at Woodland, Cal., and the string of extra choice registered young bulls he has collected will be distributed in the ranch country of Visalia.

"Mr. Dunlap got two bulls from H. C. Duncan, the well known Short-horn breeder of Osborn, Mo., which are about the best that he ever raised. One of these is Golden Chief, sired by Golden Goods, a celebrated bull which was sold last year to W. O. Minor of Heppner, Ore., for $3500. This calf which Mr. Dunlap takes to California is but eight months old and weighs 800 pounds. He was at the American Royal show here this fall and took prizes. The other bull bought by Mr. Dunlap was Robin O'Day, nine months old. He weighs

900 pounds. Recently two of the brothers of this young animal sold for $600 each.

"Five young bulls from the herd of Allen Thompson, of Nashua, Mo., constitute the Galloway contingent. They are sired by Dragon of Wavertree, sired by Mario of Catstlewood, the champion of England several years before he was brought to this country, where he was champion at the Chicago world's fair. Mr. Thompson's bull was out of Divina 2d, also champion at Chicago.

"The rest of the shipment that will go to California consists of Herefords, from the herd of J. M. Curtis, Independence, Mo., and were the best this breeder had."

AQUATIC LIVE STOCK.

The aquatic pastures are not to be allowed to enroll their product with the grazing industry of the State, but it is interesting, nevertheless. For a single county, viz., Sacramento, the local game warden, Mr. Neale, writes:

"The resources of Sacramento county, or even of the State of California, would not be complete without a description of its large and varied fish and game interests. With over sixty miles of river in Sacramento county, many miles of sloughs and lakes where fish and game of many varieties abound, there can be truthfully said, that in no other locality can the heart of the sportsman be made glad with a greater abundance of game and fish.

The Sacramento river contains many varieties of fish natural to its water, such as Sacramento perch, chub, pike, dace sturgeon, hard head salmon, all of which are of great commercial value. Besides these, there has been introduced by the California Fish Commission two kinds of catfish, shad, black and striped bass, all of which grow to an enormous size in our waters. The two latter furnish much sport to the rod fishermen, besides being of marked commercial value. They may be taken with the rod and line baited with minnow or spinner.

First of importance of all our fish is the celebrated quinat or king salmon.

From the last statistics, taken in 1904, by Mr. Wilcox of the United States Bureau of Statistics, the following figures regarding the amount of fish caught by market fishermen in Sacramento county will be interesting, especially in view of the fact that it is safe to assume that these fish are increasing in number as the outputs of the State hatcheries are larger each year:

Fish.	Pounds.
Salmon	735,116
Striped bass	31,000
Shad	111,322
Perch	4,800
Pike	2,600
Black bass	8,100
Catfish	497,614

The wholesale fish dealers of Sacramento City are shipping catfish to Missouri and Mississippi river points—the home of the catfish. Many tons of fish of many varieties are sent weekly to Chicago, New York, Denver, Salt Lake, and Northern points.

There are 97 licensed fishing boats operating in Sacramento county. Each boat is equipped with a complete outfit, and represents a value of from $200 to $500. During recent years many motor boats have been utilized for this purpose.

LET THOSE KEEP A FEW SHEEP WHO CAN.

The matter of fresh meat on the farm in summer is one that has confronted housewives for generations past. Salted and pickled meats, chicken and eggs do well for a time, but when served continuously, day in and day out, get to be pretty tiresome eating. Some farmers are called upon by the butcher's wagon regularly three or four times a week, but these are in the minority. The average farmer should grow his own meat; then he can have it when he wants it, and he knows that it is fresh and wholesome, a thing he is not always sure of when he patronizes the local market.

Mutton, when prepared in the variety of good ways the thrifty housewife knows, makes most delicious eating. Epicures think there is nothing better than good crown of lamb roast served with mint sauce. The farmer can have this as well as not, if he but will. A taste for mutton if not present can readily be acquired. A lamb or sheep is not so large but that it can be used by a single family, even in summer, if ice is at hand. If it cannot all be used, an exchange with neighbors can often be arranged. This exchange should be businesslike—equal amounts, and of the choice and poorer cuts together as they grow being given, then no trouble can result.

Mutton can be grown more cheaply than it or other fresh meat can be bought. It costs, where pastures and cheap feeds are employed, only about a dollar and a quarter a year to maintain a sheep. Considering the value of her lamb and wool, it will be seen that her meat is not very costly. One cannot get a very big piece of meat on the market for a couple of dollars, and a whole mutton will not cost more than that.

If one wanted sheep for meat alone, he could make no better investment. A flock of 10 or 15 will furnish all the meat a farmer will want, and will produce enough lambs to keep the flock going. But don't forget to kill the worthless dogs.

NEVER DRENCH CATTLE.

By Dr. David Roberts, Wisconsin State Veterinarian.

Perhaps the best way of demonstrating the danger of drenching cattle is to advise the reader to throw back his head as far as possible and attempt to swallow. This you will find to be a difficult task, and you will find it much more difficult, and almost impossible, to swallow with mouth open. It is for this reason that drenching cattle is a dangerous practice. However, if a cow's head be raised as high as possible and her mouth kept open by the drenching bottle or horn, a portion of the liquid is very apt to pass down the wind-pipe into the lungs, sometimes causing instant death by smothering; at other times causing death to follow in a few days from congestion or inflammation of the lungs.

We are constantly receiving letters at this office describing the sudden death of animals that were ailing with such minor ailments as constipation or loss of appetite, and upon investigation find that they have been drenched, the cause of their death being due to same. This is oftentimes proved by sending out one of our assistant veterinarians to hold post-mortem upon such animals, only to find that a portion of the drench was still in the lungs; other cases where death had been prolonged and later the animal had died of mechanical pneumonia.

I do not feel that the stock raisers of this country realize the danger in drenching cattle and the enormous financial loss brought about by same.

HOW TO STRIKE THE COYOTE.

It will interest California stock men to know what is to be done to the coyotes in the State of Oregon, according to the plans which have been announced by Secretary Dan P. Smythe of the State Sheep Commission and the State Woolgrowers' Association. During the month of January the flockmasters of the State are to wage a concerted and systematic warfare upon the greatest enemy the wool-grower has to contend with. Dogs, guns, traps and poison are to be brought into requisition, and it is expected that the number of coyotes can be greatly reduced during the 31 days in the month which has been designated for their slaughter.

HOME MADE HOG PRODUCTS.

Some of our readers who have a knack of butchering and desire to put some time into products for which they may find local sale at prices which will pay for the time, will be interested in what the Farmer's Voice says about such an undertaking.

With hogs selling at from 4½ to 5 cents at country stations it is difficult for the farmer to understand why he pays 18 cents for hams, ten cents for shoulders, 15 to 20 cents for bacon, 12½ cents for side meat, 15 cents for pickled pork, and 15 cents for lard. The farmer who sells hogs and buys pork cannot understand why he should sell the hog for $10 and buy it back for about $18.

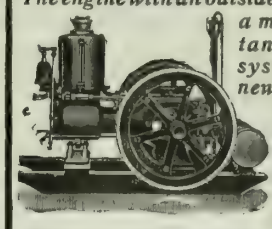
Therefore the question naturally arises: Why should the farmer not pack pork for his own use, as in fact many farmers do? Then the question would arise: Why would it not pay him to pack twice as much or three times as much as he needs for his own use? Why would it not pay him to pack 30 or 40 hogs and sell the surplus in the nearest town?

Many farmers could do this at a profit. Some who began in this way have developed small packing houses on their own farms, and, on account of the superiority of their product are selling it at fancy prices not only in the nearest towns but in various cities in the United States.

Charles A. Umoselle has furnished some results of his own experience, both on the method of breeding hogs and the profits resulting, which may be interesting to our readers, from which we quote as follows:

"From the time the carcass is hung on the hooks, the farmer must remember that to make the most profit he must not follow the usual farm methods employed, but, like the large packers, cater to the public taste. First, I cut the backbone out of the carcass just where it joins the ribs; then from each half trim off the hams and shoulders. From the sides remove the spare ribs and lay them aside to sell immediately. The parts are now divided as follows: The hams, bacons, and shoulders, to be put down in salt. There are two strips of flitch, the backbone, the pig's feet, the spare ribs, and the head. From these will come the meat for sausage, the fat for lard, and the trimmings for special sale. People are glad to give 20 cents for a set of pig's feet, while spare ribs are a scarce article and are easily worth 35 cents a side. After trimming the sweetmeat off the backbone, the latter, when cut into sections, sells at 7 cents per pound. The cheeks and meat from the head make sausage, while the skull boiled is excellent for winter-laying hens. In making sausage, I cut the fat well out, so it will not be too greasy. Fat enough to fry is plenty. If possible get three pounds beef loin or flank to mix with every 25 pounds of pork to modify the taste. After running the meat through a sausage grinder, season with salt and pepper and moderate with sage or some other spices. Sausage equals about a pound to the pint and if there is too much sausage for immediate sale, put it in a three or five-gallon stone jar and run about two inches of melted lard over it. This will keep it sweet all winter if maintained at an even temperature. It need be opened only as enough is sold to empty a jar. After rendering the lard put into the stone jars and sell as the demand re-

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quires. Good country-made sausage readily brings 15 to 18 cents per pound; lard about 14 to 16 cents per pound.

"After the hams and bacons have been smoked they will be ready for marketing about February. Last year country-cured hams were worth from 14 to 16 cents, bacon 18 to 20 cents, and shoulders 10 to 12 cents. There is no comparison of the commercially-cured products of the big packers in the same class with the home-cured meats, and when people once get the opportunity to buy country products they will always be patrons.

"Now as to financial results. Take a hog weighing at home 200 pounds, on a basis of a 5-cent market live weight, its value is $10. If fat the hog loses about 20% or 40 pounds, leaving 160 pounds edible portion. Approximately, the dressing will be: Two hams, 30 pounds; two shoulders, 24 pounds; 4 strips of bacon, 28 pounds; spare ribs, head, feet, and backbone, 35 pounds; leaving about 45 pounds for sausage and lard. The meats to be smoked will increase about 10% in weight in the pickle, but lose about the same in smoking, so the selling weight is the same as the dressing weight. The following are very conservative prices for a country-dressed hog: Thirty pounds ham, at 14 cents, $4.20; 28 pounds bacon, at 15 cents, $4.20; 24 pounds shoulders, at 9 cents, $2.16; 45 pounds lard or sausage, 12½ cents, $5.60; 35 pounds backbone, spare ribs, etc , at 6 cents, $2.10; soap fat, about 25 cents; total, $18.51; cost of hog, $10; profit, $8.51.

NEVADA SHEEP INTERESTS.

So many Californians have had, or will have perhaps, interests in Nevada sheep ranging that they will be pleased to read a spirited account of a run through them described for the Breeders' Gazette by Mr. W. C. Barnes.

The Ralston and Monitor deserts are the winter ranges of the stockmen and grand p'aces they are for wintering with only one drawback—lack of water. Dependence is placed wholly upon the snows for water either in the melting and consequent filling of the tanks and streams or else the snow itself. The feed they all depend upon is white sage and there were miles and miles of it well grown and promising to the sheepmen especially, a most satisfactory winter range for the coming winter.

Many of the large sheepmen come here from the extreme northern portion of the State to winter, the Kayser Live Stock Co. driving down some 25,000 head of sheep every winter. The distance from their summer ranges in the mountains lying close to the boundary line between Nevada and Idaho to these winter ranges is about 250 or 300 miles, and is, I believe, about as great a distance covered in moving sheep from summer to winter ranges as I have ever heard of, and I feel sure is far and above any like movement anywhere else in the West.

The sheepmen of Nevada are well fixed for making these migrations. They use mules mostly for their pack trains and have experienced packers who do nothing but handle the pack outfits. They use the "basque" sheep herders almost entirely—"bascos," they are commonly called. They are of two types, one the French basques and the other Spanish or Portuguese. They are stout, or swarthy men, very unlike in build and manner our southwestern Mexicans; many of them wear huge earrings and have a very brigandish appearance. Every sheepman I met spoke highly of their fidelity and perseverance in caring for their woolly charges. "They are born sheepherders," was the general remark, and unlike the Mexican are not liable to want to stop as soon as they have a few dollars coming to them, but instead have a most commendable desire to get along in the world and are regular misers in hanging onto their wages. Their one ambition is to own a herd for themselves and many of them are well-to-do sheepowners in a few years after they begin life in this country.

The Nevada ranches were a great delight to me, for they were so well kept up and have such an air of progress and prosperity about them. The lands are held in large bodies, some of them running into the thousands of acres of hay and farm lands. Pat Walsh, for instance, owns 10,000 acres of hay lands along the Reese River, George Abell 12,000, the Lander County Live Stock Co. 6000 or 8000, and lots of others from 600 to 1000 acres. These holdings are not all in solid bodies but scattered along the rivers and streams where the land was available. These large buildings were accumulated when Nevada was given several million acres of lands many years ago and which it very improvidently set to work to squander by selling it out at $1.25 an acre. Most of it today is worth $75 and $100 an acre. The condition holds good all over the State, the Golconda Cattle Co., the Kayser Live Stock Co., the Sparks Estate near Reno and a dozen more big outfits in the north end having immense bodies of splendid lands under their exclusive control.

As these lands cover practically every available acre of land that there is water to irrigate, or rather every drop of water available has been appropriated to irrigate these lands, I do not see any very great opportunity for new men obtaining a foothold in Nevada unless some of these great holdings should be broken up and put on the market in small parcels—a thing not likely under present conditions.

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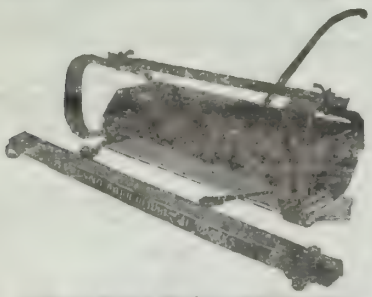
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CERTIFIED MILK.

(Continued From Page 61)

receive no compensation for their services and can have no pecuniary or commercial interests, either in the dairy itself or its products. It was rightly regarded that such an attitude would at once defeat the objects of the commission and destroy confidence in its work. The officers of the commission are a chairman and secretary. The secretary is permanent, while the chairman is elected at each meeting. Regular meetings are held every two months, with the dairymen and visiting veterinarian in attendance. At these meetings the reports of the visiting section, and from the experts of the commission, are read and discussed. The visiting section for the following two months is appointed, and the certificate for the current two months is issued. The chemist reports on the chemical findings of the milk, its temperature at time of receipt, its reaction and specific gravity, the percentage of water and total solids, and the percentages of fat, lactose, albumenoids and ash. The bacteriologist reports on the temperature of the milk at time of its receipt, the number of micro-organisms to the cubic centimeter, and comments on the findings. The visiting physician reports on the number and dates of his visits and the general health and hygienic conditions of the employees, the water supply, etc.

The visiting veterinarian reports on the number and dates of his visits, the physical condition of the animals, treatment, and feed, sanitary conditions in and around the stable, the number of animals tested with tuberculin and animals reacting to the test.

The visiting section reports on the general conditions, relating to dairy stock, water supply, and the handling and shipment of the milk. This is the executive body of the commission.

The experts are employed by the commission, but paid by the dairymen. It is interesting to note that the real beginning was made by a dairyman, who was willing to undertake these extra expenses and seemingly impossible conditions.

The scope of the commission is professional, and has reference solely to the production of milk for clinical purposes, and does not certify to anything but milk.

The real task of this movement was to devise a practical working scheme for medical control of milk production, and to Dr. Coit is due the credit for this scheme, which has been followed generally by other similar commissions. Few commissions, however, are as stringent as Dr. Coit's commission, although they follow very closely the excellent plans he devised.

There are three possible methods of control over the milk supply, namely: the license without inspection of producers or distribution of milk; the official application of the municipal ordinance by boards of health; and the exercise of professional supervision by medical commissioners.

The functions of the medical milk commission are to analyze the relation of the milk question to public health, and to influence its production in a state of absolute purity.

The first commission organized ofter Dr. Coit's was that controlling the Walker-Gordon Co.'s supply, of New York, which occurred some time later. In some cities, as New York and Cincinnati, a "certified" milk and also an "inspected" milk is placed on the market. In Cincinnati the working standard placed the bacterial counts at 10,000 maximum for "certified," and 100,000 in summer, 60,000 in winter, for "inspected" milk. The other requirements adopted for "certified" milk were applicable to "inspected" milk.

The idea of the medical milk commission is not to undertake to certify the entire milk supply of a city, except in some exceptional instances, but to leave it to the board of health to provide a safe general supply of so-called "inspected" milk.

The term "certified" was suggested by Dr. Coit to the first commission, and was employed to designate the kind of milk that they endorsed or certified to. As the organization of medical milk commissions throughout the country became more general, the American Association of Medical Milk Commissions was organized, and held its first annual session in Atlantic City in 1907, and in Chicago in 1908.

There are several conditions which determine the value of milk for human food. First, the physical condition and health of the cow; second, its cleanliness and the cleanliness of the surroundings where it is produced; third, its composition; and fourth, its taste, odor, color and general appearance. It is of little consequence to practice extreme cleanliness in all of the steps of milk production but one, and be filthy about that one, as this spoils the whole. Extreme care must be used from beginning to end in milk production to produce a pure article. No matter how careful all the other requirements be met, if the cow producing the milk is not in good condition, you fail. She should be examined regularly as to her health, digestion and general condition. Tuberculosis, skin disease, tumors and enlarged joints should send the cow to the hospital, not only from the standpoint of milk production, but because of the general danger to the rest of the herd.

On many farms it is probably difficult to secure anything approaching absolute cleanliness of the stable, but most dairymen can do better than they are doing. The only practical stable for the production of pure milk is one with the ceiling, walls and gutters tight and smooth, and the floors of cement. The feed should be handled in such a way as to make as little dust as possible, and only enough for one feeding brought in at one time. In fact, the best results are obtained where the feeding is done in a separate building, or after milking.

Milk should not be allowed to stand in the barn at all after milking, as warm milk absorbs odors more readily than cold milk. No man can produce the finest quality of milk if he allows his pails of milk to stand in the barn some time after it has been drawn. The common practice is to deliver the milk from the milking pails to a larger one, or a number of pails standing conveniently to the milkers in the passage ways. If simple exposure to the stable ordors contaminates the milk, what then must be the effect of the dirt that clings to the cow's body and udder, and which may drop into the pail? Where best results have been obtained in making clean milk it has been found best to clip the long hairs from the udder and flanks of the cows, to groom them thoroughly, and to wipe off these parts with a damp sterile cloth, often moistened with a disinfectant.

The bacterial count, which is the bacteriological determination of the number of bacteria in a cubic centimeter of milk, is the method by which the certification of the milk is mainly determined. While this method of estimating the best quality of milk does not appear to be ideal to all interested parties, it is without doubt the best system we have at present. It has been proved conclusively that even very small particles of dirt falling into milk from the cow's body increase the count very decidedly. At Cornell University 500 c.c. of sterile milk was kept at room temperature, and a live fly placed in it. At the end of twenty-four hours the milk contained 765,000 bacteria per c.c., and in twenty-six hours the number had increased to over five million per c.c. Experiments conducted show conclusively the value of sponging the udder as a means of reducing bacterial contamination. Paying special attention to cleanliness in every step of the production and care of milk will result not only in clean milk, but a marked reduction in the number of bacteria it contains, which will greatly increase its keeping qualities. Certified milk of the Fairfield Dairy of New Jersey has been kept forty-five days without souring. To most people, who have trouble with their milk souring in twenty-four hours, this statement may seem incredulous, but it only shows the value of extreme cleanliness in producing and handling milk.

The seed of this movement for a pure milk supply was sown and fostered on this Coast by Dr. A. R. Ward, bacteriologist and veterinarian of the University of California. Dr. Ward is an authority of note on sanitary milk production, and it was not long after his arrival on the Coast to assume his duties at the University that he began sowing the seed that has brought about the production of certified milk in California. The writer has the pleasure of a personal acquaintance with Dr. Ward, and has watched with pleasure these results from his good work.

The movement for certified milk in California began to take form in 1904, through the efforts of the Oakland Home Club Milk Commission, which finally succeeded in supplying certified milk to Oakland from the Walnut Grove Dairy, then in the outskirts of the city, but now near Knightsen, some 60 miles from its point of delivery. This milk commission, like other commissions, is composed of physicians, and has the endorsement of two local medical societies. Its work and requirements are similar to those of other milk commissions.

Since this beginning in Oakland, a number of other dairies are shipping certified milk to several of the large cities in the State. San Francisco is supplied by the Ideal Farms, in Marin county, the Standard Milk Co., and the Guadaloupe Dairy Co. of this city being the distributors. This milk is certified by the milk commission of the San Francisco Medical Society.

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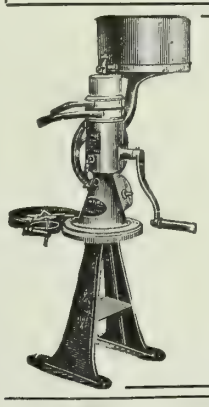
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The Poultry Yard.

HATCHING THE CHICKS.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

Again the peep of the chick is heard in the land. From Maine to Puget Sound and the Islands of the Sea millions of these little creatures will be breaking the shell during the next few weeks, and practically all of these early comers will be brought out by the great foster chick-mother—the Incubator.

Artificial incubation has made possible the winter egg and commercial poultry raising on a large scale, and, though not equal to natural incubators in individual cases, yet in a 1000-egg hatch, say, the results will compare favorably with those from that number of eggs incubated in the same length of time by hens as they come and go. Many of the shortcomings credited to the incubator rightly belong to faulty handling and faulty material. True, a good sitter might hatch out eggs which an incubator could not, but the latter is often given eggs which would prove too much for the hen. The term "incubator eggs" has come to mean a rather inferior grade of hatching eggs, while rarely are the majority of eggs in an incubator as fresh as those average under the hen. Clearly, any difference should be in favor of the incubator, since the latter does not claim to beat the hen at her own job. In successful artificial hatching the following points are essential:

1. A first-class machine in first-class condition.
2. A suitable location, protected from varying extremes of temperature.
3. Fresh, strong-germed eggs.
4. Regular and intelligent care.

THE INCUBATOR.—There are a number of first-class machines on the market, and, while not unreasonable in price, none of these will come under the head of "cheap" incubators. A first-class machine cannot be cheap in that sense, for it requires the best of material and workmanship in its construction—"more skill and better workmanship than does the construction of the fanning mill and threshing machine." In the end such a machine will be cheap, while the co-called cheap machine will prove exceedingly dear. Therefore be willing to pay a good price for a good standard incubator. One of the smaller sizes, somewhere about the 100-egg capacity, is best to start with. Set it up carefully according to accompanying directions. If these are not fully understood, get the assistance of an experienced person or carpenter. Be sure the machine is perfectly level and that it stands solidly upon its legs; while the egg germ will sometimes survive quite a shake, a continual vibration and jarring is certain to prove disastrous. See that the lamp is in good order and free from smoke and dirt; if it has been used before, boil the burner in water with a spoonful of washing soda or compound added. Always put in a fresh wick with each hatch, and have the wick perfectly even before putting the lamp in the machine. An uneven flame is sure to smoke and prove a dangerous and unsatisfactory heater. When the wick has been made perfectly even, do not use the scissors in the daily trimming, but turn the wick so that just the charred portion comes above the edges of the burner, then with a sharp blade scrape it evenly across from both ways; wipe off the cinders with a soft cloth, also the lamp chimney. Use none but the best grade of oil.

THE LOCATION.—This has an important bearing upon results. A basement that is dry, airy and clean is the best place, but lacking this, choose an unused room, preferably in the north side of the house, where the sun strikes only early in the morning and the temperature remains as even as possible. The room should be kept free from dust, fumes and smoke, and should be large enough so that the machine will be out of direct currents of air, drafts or the rays of the sun when the doors and windows are open.

THE EGGS.—These should never be over two weeks old, and one week or less would be far better. It goes without repeating that they should be from vigorous stock that are kept in prime breeding condition. The care of the eggs before incubation is also important. They should be gathered noon and night; hens are constantly occupying the nests in laying, and thus start incubation in the fertile eggs. Always handle hatching eggs with clean hands; endeavor to keep the eggs clean without washing, as the natural coating preserves their moisture. Set them away with the large end up in a cool, shaded place and cover with a clean thick cloth to prevent evaporation, and leave them undisturbed till wanted; the hasty daily turning will be more harm than benefit. It is a good plan to get from the grocer one or more of the cheap egg cases in which Eastern eggs are shipped, taking care that the fillers are clean. Bore holes in the sides for ventilation, and for the same purpose use, instead of the ordinary pasteboard between the fillers, squares of clean burlap, and a double thickness over the top; set the case in a cool place and the eggs will keep at their best. No rough shelled, ill-shaped egg should be saved for hatching, nor any that are abnormally large or small, or long or round. The natural shape is a beautiful pointed oval. According to the breed, hatching eggs should be as nearly perfect as possible in size, shape and color. Put into the incubator tray as many eggs as it will hold with the eggs lying on the side, large end uppermost; but never crowd them by setting on end or piling on top of each other. It is not the number of eggs that you get into the machine, but the number of chicks you get out of it, that counts—you will be sure to get the fewer chicks by crowding the eggs.

THE CARE.—A good machine is easily cared for. It needs no sitting up nights with or fussing over—the less of this the better. Simply be regular in attention and quick and gentle in handling—don't slam the doors, jerk the trays and addle the eggs. The person who is quiet and gentle of movement succeeds best with poultry from start to finish. The incubator should have but one care-taker. That old saw about too many cooks applies more forcibly to hatching eggs than to broth. Decide upon a time to fill the lamp and turn the eggs; dont' imagine that any time in the 24 hours will do; this is the cause of the lamp's being forgotten—and often failure! Let nothing interfere with the time set for this work, and soon the subconscious mind will promptly warn you of its arrival, just as it does the person who always rises at a certain hour. For filling the lamps, the writer prefers the hour before dark; this brings the stronger heat when the lamp is freshly filled, trimmed and cleaned, at night when the temperature is lowest. When the eggs are taken out to cool, never leave them to attend to something else; stay with them—"lest we forget!" Full instructions come with each machine; hang them over the incubator, study them thoroughly, follow them carefully. Still, conditions will arise that call upon one's own intelligence for the solution, and some points can only be learned by experience.

In regulating the machine at the start, do not consider it a waste of time and oil to let it run two or more days before putting in the eggs. See to it that the thermometer is in the center of the machine, with the bulb two inches above the bottom of the egg tray. Not a few beginners have ruined their first hatch by laying it upon the bottom of the tray, and when the mercury stands at 103 degrees in that location the temperature is some two degrees too high for the eggs. Also have your thermometer tested for accuracy. It is better to start the hatch at 102½ degrees and let it run up to 103 degrees the second week; at hatching time let it run to 104 degrees, and on no account let it fall at this time, or the process will be checked and many peepers fail to arrive. When the machine is gauged to the correct temperature, do not change the regulator with the outside temperature, but raise or lower the flame of the lamp. About the thirteenth day there will be a sudden jump of the temperature, caused by the rise of the animal heat in the incubating eggs; at this time the machine will have to be again regulated to meet this condition; but it needs little tampering with at other times. Regulating the flame of the lamp is something to be learned; never turn it high; warm up gradually; keep it where the damper over the chimney will remain steady about one-eighth of an inch above it; cold windy weather requires a higher flame also the flame should be slightly higher at night. Always notice the lamp an hour or two before filling, lest the flame should run up, and the last thing before bedtime give it your attention. All these points require intelligence and practical judgment, and cannot be taught by instructions; they are the small things which make for success or failure. The same in handling the eggs; in close, hot weather the eggs may be cooled for 30 minutes to advantage; in cold, raw weather turn quickly and replace the trays at once. Never let the trays set in the draft or the sunshine. When testing the eggs, cover the trays with a piece of soft blanket, and if slow at the job, test only part at a time; never let the eggs cool below 85 degrees.

The evening of the 18th day, turn and cool the eggs for the last time; see that the thermometer is securely in place, where the chicks will not kick it over or obscure it, then close the incubator and do not open it again until the 21st day. Unless the temperature has been run too low the chicks will be coming out lively on the evening of the 20th day, and all that are worth while will be out on the 21st day. On the latter day, take out the trays and eggshells and give the birdlings more room. If you want to try out any of the pipped eggs, wrap them in a soft thick flannel and put them in a warm basket under the stove. A delayed hatch is the sign of too low temperature; a shortened hatch and cripples, of too much heat. Ordinarily, the chicks should be left undisturbed in the incubator, the slides open and temperature at 95 degrees on the bottom part of the machine, till the 23rd day; but if at all crowded or the weather close and hot, the livelier ones should be removed on the 21st day to a darkened brooder of the same temperature; it is likewise well to darken the incubator, in order that the chicks may remain quiet to finish their development. There is nothing prettier in nature than an incubator of chicks all of a kind, and the one who has brought them to a successful issue sees more in them than the resultant dollars and cents—they possess a real fascination which with each recurring springtime brings again to the heart the call of the chick.

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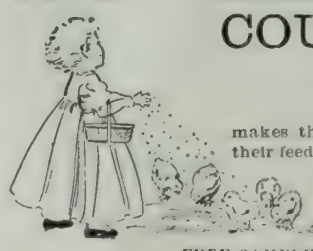
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The Home Circle.

The E'en Brings A' Hame.

Upon the hills the wind is sharp and cold,
The sweet young grasses wither on the wold,
And we, O Lord, have wandered from Thy fold;
But evening brings us home.

Among the mists we stumbled and the rocks,
Where the brown lichen whitens, and the fox
Watches the straggler from the scattered flocks:
But evening brings us home.

The sharp thorns prick us and our tender feet
Are cut and bleeding, and the lambs repeat
Their pitiful complaint: Oh, rest is sweet
When evening brings us home.

We have been wounded by the hunters' darts;
Our eyes are heavy and our hearts
Search for Thy coming. When the light departs
At evening bring us home.

The darkness gathers. Through the gloom no star
Rises to guide us. We have wandered far—
Without Thy lamp we know not where we are:
At evening bring us home.

The clouds are round us and the snow-drifts thicken.
O Thou dear Shepherd, leave us not to sicken
In the waste night; our tardy footsteps quicken:
At evening bring us home.

—Fraser's Magazine for January, 1865.

The City Beau and Mike.

Written for the PACIFIC RURAL PRESS
By MARY RUSSELL JAMES.

Joseph was making long strides over the strip of bottom land that lay between his clearing and the Mills farm. The liveliness of his demeanor had gone into total eclipse, and his downcast eyes saw life through indigo tints. With the flush of health and manly beauty on the cheek, surely nothing short of a knot in the silken thread of love could bring such gloom to the brow at twenty-two!

Anon he came out from the shadows of the forest and struck into an upland path which ended at the bars of a field not long reclaimed from the wilds. It was inclosed by a crooked rail fence and decorated with charred stumps, shocks of corn and piles of yellow pumpkins. The youth vaulted lightly over the bars and followed the wagon track which led to a log house with barn and corncribs in the rear.

"Hello, Joe!" greeted a boy who was rolling a back-log into the woodshed.

"Is he here?" asked the young man abruptly.

"Dad?—no; he's gone to mill."

"You know who I mean!" impatiently.

"Oh, the counter-jumper. He hasn't shown up since Sunday night. I don't see why you mind him," continued the boy, as his companion moodily set to work helping with the firewood.

"You would if the girl you cared for had gone daft over his city airs and the cut of his clothes."

"I wouldn't care for no girl."

"Oh, you'll whistle another tune in a few years."

"Nary other. I hate the whole crowd of 'em; they're allurs making a feller trouble."

Just then the kitchen door opened and a face looked forth that was fair enough to drive away the blues from any red-blooded youth.

"Oh, it's you, Joey," said a merry voice which suited the sparkling face. "I'm just looking for someone to stir the mush. Come right in."

The young man intinctively brightened under the smiles of the lady of his heart. He followed her into the house, where he was warmly welcomed by Mrs. Mills, who sat by a far window of the large living room, spinning wool for the winter's footgear.

"I'm awful glad you come, Joey; for I hate to stir the mush; the fire burns my face," said the girl, as she seated him by the big kettle and handed him the mush stick.

It was the days when corn was the bread staple, and mush and milk was *de rigueur* for the home supper in the rural districts of Illinois. Joseph was a frequent visitor at the evening board and had always felt pleased to be treated as one of the family—for did he not hope to be a bona fide member of it in the blissful future? But tonight he stirred the bubbling mush gloomily and made no answer in kind to pretty Rhoda's gay sallies. He was thinking what a difference it made when it was Mr. Weeks, with an emphasis on the Mr. Did he but drop in to tea, presto! the mush bowls disappeared and company viands took their place.

"What makes you so glum?" the girl broke in upon his meditations as she playfully tapped him on the head with one of the spoons she was placing by the mush bowls.

"Hi, sis," called Jim, popping his head in at the door, "your city beau is climbing over the bars."

"Heavens, Mr. Weeks!" exclaimed Rhoda, after a quick glance out the window. "Mother, do put away that yarn and make some biscuit while I get the chicken ready. Joe, please set the mush kettle in the shed—and do talk to Mr. Weeks while mother and I get supper ready—that's a dear."

In spite of his sweetheart's coaxing tone, the young man was strongly disposed to decline the honor and to take his leave; but a sturdy persistence in his character which has left its impress on that section of the State to this day made him hold his ground, though he knew that an evening spent in company with his favored rival would be little short of torture.

In the meantime Rhoda ushered in the new arrival, a clerkish appearing individual, much older than Joseph, and faultlessly dressed in clothes which were the wonder of the rural district. The young hostess quickly excused herself, and the rival suitors were left to themselves. Joeph picked up one of Jim's school books and seemed intent upon knowledge, but he watched his rival out of the corner of his eye; he noted the smallish hands with a flashing ring on the little finger, and glanced down at his own brown, sinewy fists which could send a wedge to the heart of an oak log at one blow; he compared his homespun apparel with the store clothes of his companion—the crease down the center of the broadcloth pants, the snowy ruffled shirtfront—and the poor boy dimly felt what is a fact, though novelists love to dwell on the affinity that draws a youth and maiden together, that the fit of a collar, the cut of a pants leg often have more to do in deciding a girl's preference. It made his blood hot to see the man's eyes following the young girl's movements and dwelling with open admiration on the lovely color in her flushing cheeks. Naturally he was in no humor to return a civil reply to the occasional remarks addressed to him.

"I judge you purpose being an agriculturist, Joseph," said Mr. Weeks in the patronizing manner accorded a small boy.

"I'm a farmer, sir—and what are you?" The youth flung out the question like a challenge.

"I—I'm—" stammered the man, for an instant staggered by the question; then he regained his dignity and answered pompously: "I am engaged in the mercantile business."

"Ah, I see—a clerk," scornfully.

Mr. Weeks flushed and started to his feet. The announcement of supper prevented impending hostilities.

"Joseph, my boy," said Mrs. Mills in her motherly way, "you will have to occupy Mr. Mills' place tonight and say grace for us."

As the young man took the seat at the foot of the table he glanced over the "spread"—wheaten biscuit, fried chicken, peach preserves, fragrant tea, all served in the best china on snowy linen—and he thought bitterly of the bowls of simple mush and milk which had been superceded. As he put his hand over his eyes some mischievous imp in his brain twisted the words of the conventional lines into this parody, which he expressed with all due gravity and reverence:

"Good Lord, accept our grateful
Thanks to Thee ascended,
For now we see biscuit and tea
Where mush-and-milk's intended."

There was a deep pause. Then Jim choked on a biscuit; Rhoda flashed a glance that scorched, and Mrs. Mills looked shocked. Only Mr. Mills arose to the occasion and led the conversation into distracting channels. Poor Joe realized that he had furnished the proverbial straw to his own undoing. He sat miserably through the meal, ignored by Rhoda and sensible of a coolness in even Mrs. Mills' manner—she who had always been his staunch ally. As soon as possible he took his hat and departed, leaving his rival scintillating with satisfaction and master of the situation.

Jim followed his crestfallen friend out the door.

"Say, Joe, that was a good one," and he gave him a resounding whack of approval.

"I made a fool of myself."

"Shucks; it is the smartest thing you ever got off. You caught up with Rhoda all right. Don't let spindle-shanks worry you; we'll get away with him or my name isn't Jim."

He threw his arm with boyish affection across his friend's shoulders and walked with him to the bars, his tow head close to Joe's crisp curls.

Mr. Weeks improved his opportunity and made it convenient to run down from the city quite often, being, as he expressed it, "completely gone on the pretty lass and determined to cut out the country bumpkin." Poor Joe, after his *faux pas* at the supper table was no longer welcomed at the Mills home, and outside of Paradise he beheld in impotent rage the serpent working his charms.

On a lovely Sabbath morning in October, Joe had started to church, having come far out of his direct way in order to pass the abode of his erstwhile sweetheart on the chance of catching a glimpse of her face or form. He paused behind a big oak where he could overlook the Mills premises, and was rewarded by seeing Rhoda coming toward the bars on her way to church. She was as sweet as a pink in a new fall bonnet and dress; but, alack, his rival was by her side—Mr. Weeks, immaculate in snowy ruffled shirtfront and shiny broadcloth, and capped by a tall beaver. He appeared in fine humor and jauntily flirted a red silk handkerchief as he walked. With solicitous gallantry he helped Rhoda over every little inequality in their path—Rhoda could skim over a twelve-rail stake and rider fence almost with the ease of a bird. The young girl, too, tripped along gaily. She knew that she would make something of a sensation on entering the district



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The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

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DEWEY, STRONG & CO.,
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schoolhouse where services were held, for want of a church edifice. The country boys hadn't the nerve to escort the girls to church, but hung around sheepishly at the close of the services and fell in behind the old folks for the privilege of walking home with their daughters. Her city beau would give them a lesson in courage and gallantry.

Mr. Weeks had assisted Rhoda across a rut and forgotten to release her hand. His waxed mustache was much too near the girl's pink cheek, and the youth behind the tree had to bury his nails into the rugged bark to keep from rushing upon his presumptuous rival and smashing his plug hat over his eyes.

Said rival was talking earnestly into the pink ear: "You ask me if I love the country. To be frank, I had not formerly done so. I was born a child of the city, and my heart was not attuned to love; but you have opened it to that gentle influence. Yes, I love the country—its rugged wilds and cultivated fields, the song of its native birds and the music of its domestic fowl and lowing kine; but most of all I love——"

As he paused to add impressiveness to his climax an ominous sound made him glance over his shoulder— when, shades of Sheol! what vampire was this on his trail! A terrible creature, bird or beast, with red eyes and wide hissing mouth, was swooping down upon him. Never in his worst nightmare had he been so beset; he had only a silken handkerchief with which to defend himself; his clothes would not admit of a hand-to-hand struggle with the brute; his only hope was in flight.

"Gracious on us, it's Mike!" exclaimed the girl. "Cut for the fence, Mr. Weeks."

Mike was an old gander of enormous size, who had been teased by the boys till he was a terror. It was not safe for a strange person or dog to enter the premises when the creature was loose, and even Rhoda was afraid of him. She flew across the clods and was on the fence in a trice. But her companion stood with bulging eyes and open mouth as if rooted to the spot, while Mike, with widespread wings and fearful hissings and gabblings bore down upon him.

"Run, Mr. Weeks, run!" cried Rhoda. "Mike will pound and bite you black and blue."

Thus stimulated, the clerk started to run—but too late. The gander caught him by the seat of his pants and gave him a blow with its wings that almost stunned him.

"Kick him—throw your hat at him!" houted Rhoda.

It was no time to consider the cost of his new beaver; he grabbed it from his head and jammed it down over the hissing, biting fiend in his rear.

Ha, a diversion! Mike seized it; he flew upon it; he demolished it; then he looked for the man. Had he escaped? No; in his haste and his unfamiliarity with rail fences he had been caught by a tough splinter of the hickory rails and held fast. Mike eyed him and measured the distance. Yes, he could reach up and tickle his toes and make a fringe of his shining pants legs. His victim kicked at him frantically and shouted for help. Rhoda, too, called loudly for Jim, and endeavored to assist her unfortunate escort.

Behind the tree, Joe was enjoying the situation too well to hasten to the rescue. But he finally got his face straight, and a few bounds brought him to the seat of trouble. He jumped across Mike's back and choked him—but almost tenderly—till he let go of his victim. Just then Jim, too, appeared with a rope to lead the bird back to his pen.

"This is some of your work, Jim, letting Mike out!" cried Rhoda, with flaming cheeks. "I'll make pa kill your pet this very week."

"Of course, everything is allurs laid to me," grumbled the boy, trying to hide a broad grin; but when he was well out of sight he rolled on the grass and laughed till his face was like a beet.

In the sorry plight of his rival, Joe could afford to be magnanimous. He helped him out of his predicament, picked up his dilapidated beaver and wiped the dust from it, and even offered to assist him to the house. But the offer was declined with hauteur.

Battered, dusty and hatless, with torn and fringed trousers, Mr. Weeks limped back to the farmhouse, where he had an opportunity to meditate upon the transitory nature of human joys while the ladies endeavored to restore somewhat of his pristine elegance of fashion and form. Meantime he was compelled to occupy a pair of Mr. Mills' pants—or a portion of them, to be more exact, for he was able to fill only half of their generous proportions. Though Rhoda tried hard to keep a serious and sympathetic countenance, the laughter would flash into her eyes and play about her mouth every time she looked at him. A more generous nature might have excused her mirth, but the man felt deeply injured and resentful and not open to generous impulses; and he mentally vowed to shake the country dust from his feet as soon as he could get it off his clothes. Perhaps he divined the fact that in the eyes of the young girl it is fatal to a suitor's chances to be placed in a ridiculous position. In any case, the glories of the city beau faded from Rhoda's horizon and the rose color returned to Joseph's sky.

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SEE AGENTS

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We will send you the following: one Fancy Worsted Blue or Black Thibet suit of Clothes, state color wanted, one Mackinaw Suit of Underwear, one pair of Best Socks, one Fancy Stanbly Shirt one Collar one beautiful tie, one strong pair of Suspenders one pair of Denim $5.00 Shoes. **Send no money.** We will ship you all of these goods to your city with the privilege of seeing them before paying one cent, and if not found in every way as represented and what your home dealer would charge $20.00 for, return to us and we will pay all charges.

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One Fancy Worsted or Thibet Suit of Clothes, state color wanted	$12.00	$5.98
One Merino Suit of Underwear	1.50	.98
Good Pair of Socks	.25	.07
Good Sunday Shirt	1.00	.35
Bow Collar	.15	.01
Beautiful Tie	.25	.12
Strong Pair of Suspenders	.25	.14
Pair of Denim $5.00 Shoes	$5.00	.98
	$20.00	$7.98

Freight paid if full amount of cash is sent with the order to any city in the United States. We have 1 hundred of the above bargain lots which we are absolutely positive will not last more than 30 days. **Order today.**

Free Clothing and Dry Goods Catalogue, Grocery List, Etc.

DEERING MERCANTILE CO., 60 Wabash Ave., Chicago

Department 380.

THE MARKETS.

San Francisco, Jan. 20, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Wheat is considerably higher in the Eastern markets, and Northern markets are very firm. No further change has taken place locally, as the buying interests show no inclination to make purchases beyond their immediate needs at the present range of values. There is little business to report, either on the cash grain or in futures. All prices are held with great firmness, on the probability of a scarcity in the domestic markets.

California White Australian	$1.75	@1.85
California Club	1.67½	@1.70
California Milling	1.70	@1.72½
California lower grades	1.45	@1.60
Northern Club	1.67½	@1.70
Northern Bluestem	1.75	@1.80
Northern Red	1.62¼	@1.65
Turkey Red	1.75	@1.80

BARLEY.

The feed market shows some fluctuation, standing at present slightly lower than last week. Receipts have been light, and it is understood that stocks will be no more than sufficient to last until the next crop, but with limited trading the market shows little strength. The shipping movement from this port is about over for the season. Prices for brewing and shipping grades are steady as last quoted.

Brewing	$1.45	@1.52½
Shipping	1.45	@1.52½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.40	@1.43¾
Common Feed	1.35	@1.38¾

OATS.

No demand of any consequence has yet appeared, and the movement is practically nothing. The Northern market is in the same condition, the high prices tending to limit the demand in all quarters. With very light supplies, however, everything is in a strong position, and holders are firmly maintaining prices at the advance quoted last week. Red seed is a little higher.

Choice White, per ctl.	$1.77½	@1.85
Gray	1.77½	@1.85
Red, seed	1.80	@1.90
Feed	1.67½	@1.75
Black, seed	2.30	@2.50
Feed	1.50	@1.55

CORN.

This grain shows absolutely no feature, California grades remaining entirely nominal, and Eastern lines being a little better. There have been no recent arrivals of any consequence, and local buyers are taking little interest in the market. Prices are as last quoted.

Western State Yellow	$1.60	@1.85
Mixed, in bulk		1.47
White, in bulk		1.51

RYE.

Scarcely any of this grain is now offered in this market, and some inquiry on the part of buyers during the past week has brought an advance. Nothing is now to be had below $1.65, and some sales have been made as high as $1.70. As supplies are still needed, there is some expectation of a further advance.

Rye	$1.65	@1.70

BEANS.

During the last week no further activity has developed in the bean market, and inquiries are of small volume. Prices show comparatively little change, the only feature worthy of special notice being the decline in limas. The weakness which has been developing in this variety for several weeks past has become very decided, and the market in the south has dropped about 7½ cents. Some inquiry for mixed carloads is reported, and altogether the local market is in a satisfactory condition, the stocks being limited and prices strongly held on most descriptions. Many buyers are apparently holding back their orders pending the outcome of the freight rate discussions. Local dealers believe that a heavy demand will open up in the spring.

Bayos, per ctl.	$3.10	@3.20
Blackeyes	3.00	@3.20
Cranberry Beans	2.85	@2.95
Garvanzos	2.00	@4.00
Horse Beans	1.50	@2.00
Small Whites	4.50	@4.75
Large White	3.65	@3.85
Limas		4.00
Pea	4.50	@4.75
Pink	2.45	@2.60
Red	3.85	@4.25
Red Kidneys	3.40	@3.50

SEEDS.

The heavy rains have given little opportunity for seeding, and the market so far has not developed much activity. A heavy demand is expected, however, within the next few weeks, and more business is passing at present than at the first of the month. Dealers are well supplied with all varieties, and hold prices firmly as formerly quoted.

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@ 3 c
Hemp		4¾c
Millet	2¾	@ 3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

No further change in values is reported. The business here is about up to the average, with some slight shipping movement, though the local demand has ben small since the first of the year. Somewhat more activity is expected during the next month.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

The arrivals of hay have been about the same as last week, and market conditions in general show little change. The heavy rains which have fallen throughout the State have practically assured plenty of green feed at an early date, and growers are confident of a heavy crop next season. Comparatively little hay acreage is believed to have been flooded. While rail traffic is tied up, the receipts in this market are not apparently affected. Alfalfa is still very firm, and supplies are likely to be short for some time, as most of the supplies of late have ben brought in from northern California and Nevada.

Choice Wheat, per ton	$21.00	@23.50
Other Grades Wheat	17.00	@21.00
Wheat and Oat	16.00	@21.50
Tame Oat	16.00	@21.00
Wild Oat	15.00	@17.00
Alfalfa	14.50	@18.50
Stock	12.00	@14.00
Straw, per bale	50@	85c

MILLSTUFFS.

Another lot of bran has come in from the Orient, and supplies on hand here, while not excessive, are quite sufficient for all present demands. As the green feed is now coming on, some decrease in the demand may be expected, but with production limited both here and in the North, no immediate change in prices is expected. Aside from a slight decline in broomcorn feed, there is no change in miscellaneous feedstuffs.

Alfalfa meal, per ton	$23.00	@24.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	25.50	@26.50
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Mealfalfa	23.00	@24.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake Meal, per ton	38.00	@39.50
Rolled Barley	27.50	@30.00
Shorts	33.00	@33.50

VEGETABLES.

Onions again show a decided advance, everything being quoted at least 50 cents higher than last week. The demand is about average, and stock is decidedly scarce, a little arriving from the north this week. Mushrooms contnue a feature of the market, the supply being excessive, and while 25 to 40 cents a box is quoted sales are made practically at buyers' prices. Arrivals of green peas are large and prices show no improvement, though string beans and green peppers are a little higher. Tomatoes are firm at a slight advance, though the market is well supplied with Mexican stock. Egg plant is lower.

Onions	$ 1.75	@ 2.00
Garlic, per lb.	8@	10c
String Beans, per lb.	15@	17½c
Green Peas, per lb.	6@	8c
Cabbage, per ctl.		$1.00
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, crate	1.25@	1.50
Bell Peppers, lb.	15@	20c
Chili Peppers, lb.	8@	10c
Egg Plant, lb.	15@	20c
Cauliflower, doz.		65c
Celery, dozen	40@	60c
Rhubarb, box	1.25@	2.00

POULTRY.

During the early part of the week the market has been practically bare of Eastern stock, shipments being delayed by washouts on the railroad. Supplies of California poultry have likewise been small. While the demand has only been of usual proportions, it is in excess of the present supply, and prices show an advance all along the line, with all offerings readily taken. Considerable reduction may be expected when the belated arrivals come in. Few turkeys are appearing and offerings command somewhat higher prices than last week.

Broilers	$ 5.00@	5.50
Small Broilers	4.50@	5.00
Fryers	6.00@	7.00
Hens, extra	7.00@	9.00
Hens, per doz.	5.50@	6.50
Small Hens	5.00@	5.50
Old Roosters	4.00@	5.00
Young Roosters	7.00@	8.00
Young Roosters, full grown	8.00@	10.00
Pigeons	1.00@	1.25
Squabs	2.00@	3.00
Ducks	5.00@	9.00
Geese	2.00@	3.00
Turkeys, live, per lb.	19@	21c
Turkeys, dressed, per lb.	22@	25c

BUTTER.

With unfavorable weather, buying has been restricted to immediate needs, but shipments have been held back and the market is very scantily supplied. The price of extras has been steadily advancing, standing at 39 cents. All grades are decidedly firm, firsts being 1 cent higher, and local storage ½ cent.

California (extras), per lb.	39	c
Firsts	33	c

Seconds	27 c
Storage Ladles, extra	23 c
Cal. Storage, extras	31 c

EGGS.

Eggs have been scarce most of the week and prices have stood above the last quotation, but liberal arrivals in the last few days have brought about an abrupt decline in extras, for which the demand is limited. The price has dropped 5 cents in two days. The range of prices on fresh stock is very narrow, an advance of the lower grades bringing thirds within 2½ cents of extras. There is plenty of demand for Eastern storage, but scarcely any on the market.

California (extras), per doz.	42½c
Firsts	42 c
Seconds	41 c
Thirds	40 c
Fresh Cal. Pullets	40 c

CHEESE.

Business on cheese has been rather limited this week, and while receipts are not excessive there is plenty of stock on hand in most lines. California flats, both fresh and storage, are weak, though Oregon stock is steady to firm. New California Y. A.'s are higher.

Fancy California Flats, per lb.	14 c
Firsts	13½c
New Young Americas, fancy	16½c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

Heavy buying on speculation and a good demand for seed stock are the features this week. The likelihood of damange to the crop along the river has caused a strong demand, which, combined with an immediate scarcity of Oregon goods, causes all offerings to be taken promptly at a sharp advance. Speculators are cautious about buying Oregon goods for future delivery, as it is feared that the stock has suffered from the cold weather, and arrivals from the north are very light. The outlook is for continued high prices for both California and Oregon stock.

River Whites, fancy, ctl.	$ 1.10@ 1.25
Lompoc Burbanks, ctl.	1.60@ 1.70
Oregon Burbanks, ctl.	1.25@ 1.50
Early Rose	1.65
Sweet Potatoes, ctl.	1.25@ 1.75

FRESH FRUITS.

There is nothing now offering in this market except apples and pears. Choice Oregon apples are now firmer and in fair demand. Pears are also higher, as nothing is now offered but cold-storage stock. Trading as a rule is confined to narrow limits.

Apples, fancy	$ 1.00@ 1.75
Apples, common	50@ 75c
Pears, box, Winter Nelis	1.25@ 1.75
Other varieties	50 @ 75c

CITRUS FRUITS.

The weather for the last week has been highly unfavorable for trading in the fruit line, and while there was a fair demand to replenish depleted stocks at the beginning of the week, business most of the time has been of very small proportions. Arrivals of oranges have been very small all week and supplies are by no means burdensome, but with the small movement supplies are quite sufficient. Fancy lemons are considerably lower, and a reduction has also been made in the lower grades of oranges and grape fruit. Tangerines are higher.

Choice Lemons	$2.00@ 2.50
Fancy Lemons	2.75@ 3.00
Standard	1.25@ 1.50
Limes	4.00@ 5.00
Oranges—	
Fancy Navels	2.00@ 2.50
Choice	1.50@ 2.00
Standard	1.25@ 1.50
Tangerines	1.25@ 1.75
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The dried fruit market continues in the same uninteresting condition that has prevailed for some time. Buyers are showing little interest in general offerings, either here or in the East. Good offerings of apricots can be moved, but very few are being marketed. Some inquiry for prunes has been received, and there is a moderate movement for the Eastern markets, but buyers as a rule are slow to take hold. The local packers are asking somewhat lower prices for nearly all varieties of fruits. The prices asked for raisins show some changes, the tendency being downward, as the market is in a very unsettled condition. The announcement in the East of the latest developments in regard to the pool have caused buyers to hold off even more than before, and hardly anything is moving. The packers here, however, look for larger demands for both fruits and raisins next month, as stocks in the East are limited in nearly all lines. Small lots are moving out of the hands of growers in various parts of the country, the prices paid being about the same as before.

Evaporated Apples	4@ 5c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

While no great demand has arisen in the East, stocks of almonds are very closely cleaned up, offerings from growers in this market being rare. Stocks of nonpareils are practically exhausted on the coast and very little is held in the East. Prices for shipment accordingly show a little more firmness, though prices to growers are about as before. Walnuts show no new feature. The quotations on almonds are practically nominal, as very few are offered.

Almonds, Nonpareils	10 c
I X L	9½c
Ne Plus Ultra	9 c
Drakes	8 c
Languedoc	7 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Several carloads of honey have been moved from the San Joaquin valley apiaries this month, but offerings have been comparatively few and small. The local market is dull and somewhat lower prices are being asked for comb, with little interest on the part of buyers. For good offerings the packers are paying about the following prices, but hardly any of the upper grades is to be had.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼ @ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Several small sales of Mendocino hops were made during the week, the price on most lots ranging about 5 cents. Good lots, however, are still firmly held and some contracts are being made at 10 cents. Stocks in general are light.

Hops, per lb	5@ 10c

WOOL.

Wool is decidedly firm at the prices that have prevailed for some time, but the movement is of small proportions, as most of the California wool has been sold. The Eastern market is inactive at present, but it is reported that contracts are being made in Idaho and Nevada at rather high prices.

Red Bluff (f. o. b. Red Bluff) free	6 @ 7½c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 5 c
Mendocino, free	7 @ 9 c
Defective	5 @ 7 c

MEAT.

The advance continues, both on dressed meats and livestock, prices on beef, veal and lamb being considerably higher than last week. This is attributed partly to the interruption of railroad traffic, which has shut off supplies from the northern part of the State and Nevada.

Beef: Steers, per lb.	7½ @ 8½c
Cows	6½ @ 7½c
Heifers	6½ @ 7½c
Veal: Large	9 @ 9½c
Small	9½ @10½c
Mutton: Wethers	10 @11 c
Ewes	9 @10 c
Lambs	12 @12½c
Spring Lamb	13 @15 c
Hogs, dressed	8½ @10 c

LIVESTOCK.

Steers, No. 1	4½ @ 4¾c
No. 2	4 @ 4¼c
Cows and Heifers, No. 1	3½ @ 3¾c
No. 2	3¼c
Bulls and Stags	2 @ 2¼c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep, Wethers	4½c
Ewes	4 c
Lambs, lb.	5¼ @ 5½c
Hogs, 100 to 150 lbs.	5¾ @ 6 c
150 to 250 lbs.	6 @ 6½c
250 to 325 lbs.	5¼ @ 5½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Jan. 19.—Oranges are getting to be very valuable property again, not so much that conditions east are extra favorable at this writing, but because so many speculative buyers are in the field paying good prices by the pound or by the lump in the orchard. It is predicted that this will be one of the biggest speculative years in the history of the fruit business. Buyers are in at almost every point, and they are paying from $1.50 to $2 a hundred, a price not warranted by the market conditions in the East at the present time, though present conditions at this end would seem to guarantee very good prices for oranges. The shipments have eased down from 90 cars a day for the week ending January 9 to an average of 50 cars a day for the week just passed. The rains were the main cause of this slacking up in shipments, and they came just in the right time. Beginning with Tuesday (today), the output will no doubt increase, as picking has begun in every district.

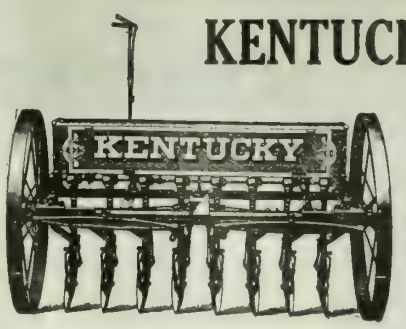
The lemon crop is going to be large. The lemon crop is going to be small. Take your choice. There are many prominent growers and shippers lined up on both sides of the question. One man who has always been recognized as very good authority says there will be a big shortage in the crop, and handlers like Teague of Santa Paula, Little of Arlington, Call and Triolo of Corona, say, just as much as last year. There are many more on the side of the big crop than on the other side.

The catastrophe in Sicily did not boom the lemon market to the extent expected, and this is mainly because the main shipping point, Palermo, was not touched, and though the transportation facilities were hurt to some extent for the time being, it is now said that from this time on the shipments will be regular. Lemons are some higher than they were before the catastrophe, and the best stock is being quoted out at $2.25 to $2.50 f.o.b. There are 34,000 boxes of Sicily lemons now on the way to different ports of the country. Lemon shipments from California have been around 12 cars a day for some time, and there is little likelihood of any large increase, unless it should develop that Sicily was more crippled than is now thought for.

Shipments to date have been 2698 cars of oranges and 843 cars of lemons. To the same time last year, 3584 cars of oranges and 777 cars of lemons.

The weather over east has been very bad for business. Cold weather and blizzards at nearly all points. There cannot be much speculative demand at such times, but fortunately such conditions do not long continue, and even now the indications are for lively trading, both in oranges and lemons.

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135 KANSAS ST., SAN FRANCISCO.

PUBLISHER'S DEPARTMENT.

SUITS THEM.

We are getting somewhat puffed up over the many compliments that we are receiving for the PACIFIC RURAL PRESS these days. But the compliment that pleases us most is the letter that contains a renewal remittance and the name of a new subscriber which is sent with it. Quite a number of old subscribers have attested their appreciation of our efforts to give a better and larger paper in this way. If all would take a few moments of time to speak to their neighbors and recommend the PACIFIC RURAL PRESS we would very soon be able to add more pages to the paper.

Here are a few extracts from letters received: "I would not be without your valuable paper, for it has more than paid for itself since I have been a subscriber. Wishing you a million subscribers for 1909."—Fred Copeland, Princeton, Cal.

"Have been a regular subscriber over thirty years and get full value received."—C. P. Bailey, San Jose.

"May the PACIFIC RURAL PRESS never grow less in its work and influence for the good of the farmer."—Jas. W. McCord, Hanford.

A Los Angeles reader says in his letter, "If there ever was a paper that would appeal to the rural population it certainly is the PRESS."

As we said before, such kind words make us "swell up" some, and we will try to continue to merit them. But if you, who are now reading this article, will send us your renewal (if you haven't already done so) and will send at the same time a new subscriber, the work will be easier at this end of the line. In any event send in your renewal promptly.

The fourth edition of "California Fruits," by Professor E. J. Wickson, is meeting with wonderful favor at the hand of the fruit growers, not only in California, but all over the country. Until this week we have been unable to fill orders as fast as received, since the book was first out two months ago. Now that we have caught up, we can supply orders as fast as received. The new edition is away ahead of former ones issued, both in quality and quantity of contents and style of production. Here is what Charles H. Jacobs of Nordhoff says of the book: "I congratulate you upon the excellence of the fourth edition of your work "California Fruits." I have taken time to read and study the book somewhat carefully and am finding it simply invaluable." PACIFIC RURAL PRESS, publisher; price: Cloth, postpaid, $3 per copy. Leather binding, $4 per copy.

J. S. Armstrong of Ontario is advertising roses in another column. Mr. Armstrong has a good nursery and is a fine man to deal with.

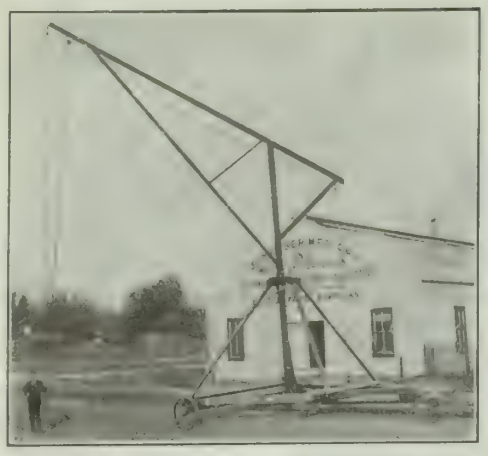
The Ocean Trading Co. advertise seed in another part of the PACIFIC RURAL PRESS.

The Schmeiser Mfg. Co. of Davis have an attractive ad on our last page of their hay derrick. This is a good firm, and while new to our subscribers, yet we believe they are worthy of patronage by readers of the PACIFIC RURAL PRESS.

Owing to the floods in the Sacramento valley the past week, the auction sale of horses advertised in our columns last week to be held on January 26 by E. Stewart & Co., has been postponed to February 2 and 16. Read their announcement in our stock department.

Two handsome calendars have been received during the past week. One from the De Laval Cream Separator Co. and the other from the Simmons "Keen Kutter" people of St. Louis.

Geo. A. Smith of Corcoran is advertising to buy Jersey cows in this issue.



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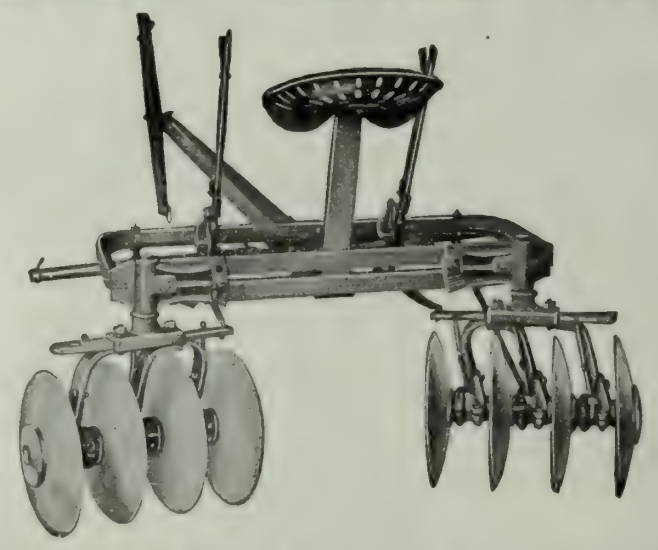
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 5. SAN FRANCISCO, SATURDAY, JANUARY 30, 1909. Thirty-ninth Year.

Quantity and Quality of Citrus Fruits and Marketing Conditions.

Written for the PACIFIC RURAL PRESS
By Mr. T. C. WALLACE.

The great interest which centers in the citrus crop represented by the orange and lemon makes it of such deep and widespread importance as to warrant and even call for extended reference to the phases which cover or affect the marketing of the fruit. These are quantity and quality of fruit; handling and shipping; marketing methods; advertising, and extension or curtailment of acreage for production to meet demand. A study of fruit and grocery stores, booths and vendors' wagons in American cities shows the orange the leader in fresh fruits throughout the year, while the dining room, the soda fount and the picnic spread bespeak the popularity of both the orange and the lemon. The orange is the acknowledged leading fruit, so that it is not strange that it should as well be the most profitable orchard crop in a collective sense. Every orchard is not a financial success, for two leading reasons, which are, location or soil, and good farming or marketing judgment.

The great importance of the orange and lemon crop to California is set before us in the aggregate sum of $21,000,000 above transportation expenses received by the citrus growers the past fruit year for their crop, of which six-sevenths was for oranges, and for which over 28,000 cars are required to move from orchard to market. As the railroads received approximately $10,000,000 for freight, and about three-quarters of a million was expended for ice, the importance of this crop to transcontinental traffic is a striking item. As orange and lemon culture is intensive farming, and this great sum is produced from about 100,000 acres, it shows a production of over $300 per acre.

What is the secret of this great income? Why do the California navel oranges stand out preeminent in the fruit markets of the American consumer? We can all appreciate the simple law of supply and demand that brings the price for the Valencia orange when the market is practically bare of high-class fruit, but we must look farther and deeper for the reasons why the California navel is the queen of the auction market, where fruits are bought in competition and where the will of the buyer sets the price and there is no hold-up. That the navel is a seedless orange is undoubtedly in its favor, as we all know who have been orange consumers in the Eastern cities. That the flavor of the perfectly ripe navel is delicious and satisfying cannot be contradicted, but as well, nearly all ripe oranges are delicious, and we know that navels top the market when they are not at their best, even while other varieties are in their prime. No, with all the advantages of being seedless and delicious, there are still deeper reasons for the popularity of the California oranges with the fruit dealers, who are, after all, the true market makers for the fruit.



Six-Year-Old Orange Trees in Rhodesia, South Africa.

We are indebted to Mr. R. McIlwaine of Salisbury, Rhodesia, South Africa, for the accompanying view of a small orchard of oranges and plums amid the peculiar indigenous trees of that distant country.

A study of the marketing conditions of the market reveals the true inwardness of the popularity of California fruit, and why some producers get more than others for their fruit. There is, of course, a grade in price following quality, and smooth, clean, finegrained navels bring the fancy price. The choice, or second grade, depend more on uniformity than on grain, but as well appearance and fineness affect the value. A pack of standards must be of very good eating quality or find a bare market to make good returns. Some producers do not thus grade their fruit, but pack orchard run and standard, depending upon the proportion of fine fruit to get a better price for the choice, and thus obtain an average figure for their crop, with less expense of grading, while they consider they meet the demands of the orange buyer.

Occasionally we find some grower or packer claiming superiority for the fruit of a certain orchard or district, and while such claims are not always groundless, an investigation usually points more strongly to the superior methods of handling and packing than to the actual quality of the fruit on the trees. The fruit buyer with whom the producer does business is a wholesale dealer. The dealer has retail trade to satisfy, and the retailer in turn has his family trade to suit. The housewife wants clean, even-sized oranges of as good quality as the price she is paying at the time will purchase. She wants the fruit to look nice in the dish, as it is part of the decoration of her dining room. She wants it edible, to be a delicacy, so that tasteless or sour fruit is undesirable, and if she is using it in the culinary department she appreciates the seedless varieties. If the fruit in the box at the grocery, or at the fruit stand, is not of even size, the consumer insists on picking it over to obtain the best sizes, and as a result the vendor soon has a balance of small fruit left, for which his price seems exorbitant, and his trade is thereby injured. The retailer wants fruit that will keep, as he cannot sell rotting oranges to his customers. The successful wholesaler has studied all these and many other peculiarities of his trade, and in seeking supplies chooses the packs that meet such demands. The orange packer in California in turn aims to give the Eastern dealer just what he demands, and so equips his packing house with the best machinery for gentle handling of fruit, neat packing, and employs efficient graders and packers to ensure the turning out of a first-class pack, such as the trade demands.

To illustrate that this is not always the aim of fruit packers the world over, I will instance a happening which I once saw. A friend from London who had traveled in America became enthusiastic over the apples produced in the Anapolis valley, Nova Scotia, and at his request I ordered several barrels of Gravensteins and other fruit for him from a highly reputable exporter. I happened in London when the fruit arrived, and saw it opened, showing fine fruit at each end of the barrels, with small, inferior and even wormy fruit in the middle, and even trash packed to make bulk.

The grower of oranges in California is of course a variable quantity, but in the aggregate he has handed the packer good fruit, carefully picked, clean, and with uninjured skin, and as a result

(Continued On Page 85.)

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., January 26, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	——	——	23.47
Red Bluff	4.36	17.27	13.44
Sacramento	2.66	12.79	10.15
Mt. Tamalpais	4.32	22.84	12.03
San Francisco	3.70	14.05	11.89
San Jose	4.24	10.17	7.40
Fresno	1.53	5.19	4.92
Independence	1.48	6.30	4.87
San Luis Obispo	8.90	19.97	9.73
Los Angeles	4.66	10.09	7.41
San Diego	2.00	5.10	4.84

The Week.

The storm has continued. January has exceeded its record since American occupation for number of rainy days. The water thrown down for the season exceeds the normal, as the figures above demonstrate. The injuries by floods reach very high figures upon lands from which it was hoped the rivers had been excluded by levees better than had been broken before, and upon lands covered with water held back and incapable of clearing in time for winter sowing. Mueh more land is also belated: some of it likely to be idle the rest of the year, while other areas will clear in time for barley or for some hay grain. Just at present, when the soil it saturated, the air chilly and likely to drop to freezing when the skies clear, the outlook for the season's production is unduly darkened. The higher temperature and bright sunshine of February will lighten the heart and warm and dry the soil, so that much more can be profitably done with it than one can now think. California passes from the fear of drouth to the fear of drowning very quickly, and as, fortunately, the memory of the water is never so wet as the water itself, the burden of idle days and hungry teams will be largely forgotten as we pass on into the realization of the delightful growing and working weather which is just before us. Our readers in some parts of the State may wonder why we write in this comforting strain, because the amount of water they have received is just enough for jubilation, and is itself a comfort and a warrant for maximum production. It is that way in California; so various are the works of God and man that generalizations do not really generalize. It may, however, be said of rainfall, as a bad man once said of a liquid which he liked better than water—a little too much is just enough.

It is, of course, still true, as we stated last week, that a vast area of land usually dry will produce largely this year, and that our fruit lands will yield largely in return for the water which has gone to their foundations. It is also true that this winter's river losses will give increased force to the demand for the systematic restraint and arrangement of increased services from our high-waterways for navigation and irrigation. It looks indeed as though we would have, on the whole, a great California year, and a year which will make all succeeding years better and more fruitful.

It is evident, in spite of all that has been said, that the California public is sleeping upon the question of water transportation, and if this year's legislature should enter upon the work proposed for the rivers we shall consider it a sign of awakening. Just see what desperate efforts are being made to use the river in the shallow run which now marks its summer courses. It is announced that several flat-bottomed steel boats will be put on the Sacramento river this season by the Sacramento Valley Sugar Co. to haul sugar beets from points along the river to its million-dollar refinery at Hamilton City. These boats will draw but 16 inches of water, and will be able to land at even the shallowest points along the river to take on loads of beets. The plant has been handicapped each season by inability to obtain sufficient beets to run to full capacity, and by operating boats it can reach many available lands on which owners are willing to grow beets. This is a good move, and we hope it may help all to realize how much the future of the great valley depends upon water transportation and river-bank activities.

What a delusion this denatured alcohol proposition is in the form in which certain free writers are placing it before the public. One account declares that a group of farmers can put up a plant to cost $2500 and then "bring their cornstalks and other such refuse to the 'mill' and receive in return the alcohol. The farmers are eager to find a cheap source of energy. Nowadays multitudes of them use gasoline for such purposes as grinding feed, cuting fodder, and running the corn sheller, circular saw, horse clipper, and grindstone. But gasoline is expensive. Alcohol is comparatively cheap, and when manufactured from the farmer's own vegetable refuse it would cost next to nothing." Such writers ignore entirely the cost of operating the plant, the cost of gathering and hauling, and the further fact that such materials as are specified in the foregoing account do not contain alcohol enough to warrant operating, if operators would work for nothing and board themselves. Why do not these zealous advocates propose to handle city garbage and light the streets, and not give so much of their valuable time to fake agriculture?

Concerning the benzoate of soda, it is now clear that Dr. Wiley has received it in the cervix—to speak away from slang. If the benzoate will take the stiffness out of that peninsula of his, we shall certainly rejoice. Not that benzoate is particularly agricultural: we are hoping that Dr. Wiley will get sulphur in the same place—not yet, but soon. For it is now telegraphed that the use of benzoate of soda, which Dr. Wiley hoped to wholly prohibit as a food preservative, on the ground that he had demonstrated its injury to health, has now been pronounced innocent by the "referee board" which President Roosevelt appointed last summer to review Dr. Wiley's physiological chemistry. This report announcing the suitability of benzoate will be published, and may be received, we presume, as canceling Dr. Wiley's proscription of that substance. The referee board conducted three separate investigations by feeding benzoate to people in their food, and they found: First, that it is not injurious to health in the quantity that it is used as a preservative; second, that large doses of it are not poisonous; third, that neither large nor small amounts of it interfere with the nutritive value of food. This seems to be a pretty straight knock-out for Dr. Wiley's regulation, and an impeachment of the data upon which he based such a regulation. The newspapers seem to think that he will resign his position. Perhaps so, but we really do not see why he should, if he can look at the experience as the human kind usually does. No one doubts his sincerity, and we do not see why he should not be willing to carry his share of human errors. If he has the true scientific spirit, he will be as glad as anyone that truth is demonstrated, with reference to his previous declarations of what he conceived to be true. He is a man of great force and ability, and his place is at the head of the pure food movement which he has done so much to get under way, if he can overcome his tendency to preconception and prejudgment. There is some comfort in the benzoate outcome for the California fruit driers, because it has apparently established the fact that demonstration is to precede regulation, and this is the real thing for which they have been contending. What the demonstration is to be in the case of sulphuring must be patiently awaited.

If the membership in the Ananias Club is full, through the President's recent nomination, we respectfully suggest that Mr. A. Bidault of Texas be placed on the waiting list. He writes to an exchange that he is successfully growing European grapes in that State, at which we are glad, and, to a certain extent, credulous. But when he proceeds to say: "After trying some two dozen varieties, I found one-half dozen that are good for the South, and the flavor is greatly improved on the Californias on account of the mild nights we have here (the nights in California being cold and foggy, it prevents the fruit from getting their full flavor, so it is with their peaches)." There is nothing which can meet such a statement except to say that the writer of it is a liar—in a horticultural sense, of course. California has, of course, all sorts of nights in the different parts of it, but in the parts where most grapes are grown for shipment, there are not only no fogs, but even dews are largely absent, because of the dryness of the air or because the heat is too high for condensation. The general fact, of course, is that ripening conditions for fruits in California, in places where such fruits are largely grown for commercial purposes, are exceptionally favorable, and it is so plain and common a fact that it makes one weary to find a person calmly throwing a contrary statement into parenthesis. Mr. Bidault should parenthesize himself.

Referring to Mr. Michael Horan of Wenatchee, Washington, whom we credited in our issue of January 16 with taking a thousand dollar apple prize at the Spokane apple show, and selling the exhibit afterward for $7000 more, we are not surprised to find that he is a graduated Californian. It is true that the record says he came to California in 1876, "to engage in breaking horses," and was afterward punching cows in Washington until 1900, when he planted the orchard which won the prize money on land which he bought at 50 cents an acre, and has since refused $2000 per acre for it: in fact, he now values it at $250,000—for the 50 acres. That settles it in our mind: Mr. Horan learned something besides breaking horses in California. It sounds so natural!

In connection with the recent reference by Professor Smith to the use of the Le Conte root to get a blight-free bottom, and thus confine blight-cut-

ting to the top of the tree, it is interesting to read in the proceedings of the New Jersey Horticultural Society that the pear blight is again spreading in that State, and that the Bartlett, both in sod and cultivated, is almost wiped out in localities. The Le Conte is much injured, and the Duchess is reported quite resistant. This standing of the Dutchess in New Jersey is interesting, because it is a widely distributed variety in the old orchards of California, and its behavior should be observed. It does not appear, however, that it can be grown as readily from cuttings as the Le Conte, and therefore might not serve the purpose now proposed for that variety; but that is a subsequent consideration. We would like to know first how the Duchess stands for blight in California.

It is fortunate that legislation at Sacramento is being shaped so that fruit growers can organize for fruit selling without endangering a conflict with the anti-trust law of the State. A bill now pending allows three or more persons engaged in the "production, preserving, packing, shipping or marketing of agricultural or horticultural products" to form a so-called "non-profit" association without issuing capital stock. One of the reasons for framing the bill was to allow fruit men to keep control of their organizations and not suffer interference from outsiders who chanced to get stock. Under the bill, members would be allowed only non-transferable right in return for their investment, all transactions between producer and buyer passing through the organization as through a mere agent. It is believed that the bill, if made a law, will solve the problem of restraining harmful combinations and at the same time allow of the co-operative marketing of vegetables and similar products.

Queries and Replies.

Buying Stable Manure.

To the Editor: I noticed your reply in last week's RURAL PRESS to the inquiry about fresh manure shipped from the city, and would value an explanation of your answer very much, as I am shipping fresh manure from the city to my ranch in Santa Clara valley, and figure I am getting a very cheap fertilizer. My shipments so far of about 80 tons cost me delivered at my station about $80. Now if I invested this $80 in commercial fertilizer, I would have delivered at the same place about two tons. Of course the distributing of the manure would cost more, but is there much more plant food in two tons of commercial fertilizer than in 80 tons of fresh stable manure? I have put it on my orchard just as thick as I can plow it under, but none at all near the trees. Why do you suggest putting on mighty little?—A Subscriber, Santa Clara county.

We advised very little because we supposed it would cost more than it is worth to place it on the ground. It was simply the commercial value involved in the transaction. We have prescribed stable manure for fruit trees too often to leave any reader in doubt of its desirability if he can afford it. We are surprised to learn that stable manure can be landed at any station remote from the city at $1 per ton and would like to know how you get such cheap handling in the city and from the railway—even supposing that you got the stuff for nothing.

Our advice to our correspondent, whom we knew had to deliver the manure in the upper part of Sonoma county by rail, was to use mightly little because we guessed that it would cost him more to lay it down on his land than it was worth. Possibly, judging by your experience, we made a poor guess. However that may be, the value of stable manure, from a multitude of analyses, is given by Dr. Harry Snyder, in his "Soils and Fertilizers" (the latest work on the subject) as follows: "When the value is calculated on the same basis as commercial fertilizers it will be found that stable manure is worth from $2 to $3.50 per ton." This means, of course, when it is valued according to the plant food it contains. This varies according to the poor or rich feeding of the animals, the relative amount of bedding, etc. We guessed that it would not be possible to land it in the country for the average value which might be $2.75 per ton. As you are doing better than that, our advice to you would be different, viz.: to use all you can without over-feeding your trees and getting too much brashy wood growth and too little fruit. Because in using stable manure you are giving the soil the humus which you do not get from commercial fertilizers and you are rendering the soil more lively with desirable nitrifying bacteria, more amenable in cultivation, more retentive of moisture. All these things are desirable when they do not cost too much and when you cannot get the same soil effects for less cost by growing green manure crops on the land.

Distinctive Names for Farms and Products.

To the Editor: I intend to introduce a bill providing for registering names of farms as trademarks so that exclusive use may be had of such names for marketing the fruit or other products of the farms so named and registering their trade names. I would be glad to have you publish the fact that I propose such a measure in order that through your columns I may best reach those most interested and get their views on the subject.—Lawrence Wilson, Assembly Chamber, Sacramento.

We are very glad to do this, for the proposition is a very good one. Not a few who have named their farms have been chagrined to see the same name taken by others not far away and we have known instances in which a name long used was changed because its distinctive character was destroyed by such thoughtless infringement. The original choice and use of a name ought to be protected as Mr. Wilson proposes because it is really proprietary. When it becomes recognized in the markets it is a commercial quantity of considerable importance to the owner in the successful conduct of his enterprise. Mr. Wilson represents the Sixteenth district in the Assembly now in session in Sacramento and we hope many of our readers will give him desirable data for the support of his measure.

Watermelon Seed.

To the Editor: Will you give me some information on watermelon seeds? Would you advise planting seeds that were saved from melons that were grown here last year. There were pumpkins and piemelons grown less than a half mile away.—A Subscriber, Dinuba.

If the seed was taken from selected melons true to the type which you think desirable it ought to give good results if it, the parent melons, were isolated to the extent you mention. But if you are in doubt whether the parent melons were selected or not, you would do well to get such seed from a reputable seedsman and look out for your own selection hereafter.

Killing Peach Blight in the Ground.

To the Editor: Can you tell me the best way to treat the ground after a tree has been pulled that has been badly affected with peach blight. I have usually burned brush in the hole and left the ashes for a while and sometimes I have sprinkled the ground with Bordeaux mixture.—Grower, Solano county.

It seems that you have done everything that you possibly can to render the holes hospitable to the new peach trees, inasmuch as there is exceedingly little danger of the disease being communicated from the soil, and we should not give ourselves any forther concern in that matter. We hope you have not pulled out good peach trees simply because they had the blight. If the trees were otherwise desirable they could have been reinvigorated by a good cutting back and spraying with Bordeaux or lime-sulphur wash.

Peas in Orchard.

To the Editor: I am a subscriber to your paper and wish to know in regard to field peas. I am advised they may be sown in young orchars, leaving six feet on each side for cultivation of trees. When should they be planted and about what time should they be ready to cut for hay? Can planting be done by sowing broadcast or must they be drilled? What variety do you prefer for making hay?—Farmer, Fresno county.

You are probably one of the throng of new subscribers we are securing in the San Joaquin valley or you would have seen our earlier comments on this question. Peas, like other legumes, are the best kind of plants to grow between young trees, from the point of view of the trees, because they can gather nitrogen from the air and leave it in the ground with their decaying roots. It is best when possible to get a fall and early winter growth when there is plenty of moisture and the crop can be cleared away early enough in the spring to get the land in good summer condition. If you have irrigation you can see that the trees do not suffer, even if you do grow the crop later. Under such conditions you can sow as late as February and cut for hay after some small pods are formed but before the vines begin to dry much. It is better to put in with a drill, but the seed can be broadcast and covered with a shallow plowing or disked in. Any variety which makes plenty of vine is good for hay; the Canadian or the common field pea will do.

A Busy Summer Fallow.

To the Editor: Is there some way by which I can get returns from my summer fallow, instead of letting it lie idle for the entire year? I thought by sowing the cow pea and pasturing the crop I could increase the fertility for the following crop, and at the same time cut a crop of pea hay or use it as a pasture.—Farmer, San Benito County.

Cow peas make a fair growth in California on bottom lands where there is ample moisture in the soil and where the air does not become so dry as on the uplands. The only way to tell whether they will make satisfactory growth with you would be to try a small piece and watch the results. Cow peas can only be grown in the summer, because they are really beans, and are very sensitive to frost.

You might get a growth of field peas during the rainy season, because they are not injured by frost, and you might get enough pea vine hay to make it worth while; but summer fallowing in California is undertaken in large measure for the purpose of retaining moisture in the soil, and this cannot be done if you undertake to ripen a crop of pea vines for hay. If you should get a winter growth of them and feed them off green, and then plow and harrow well, or if you should plow in the green peas deeply in the spring, and then harrow, so as to prevent baking of the soil and evaporation of moisture during the summer, you might be able to combine a certain amount of forage plant growth with the summer fallow. But as summer fallow is largely for the purpose of gaining two years' rainfall for one crop, anything that you do to use up that moisture by growing a crop, or to lose it by not plowing and harrowing your summer fallow well, works directly against the purposes which you have in summer fallowing.

Horticulture.

METHODS WITH APPLES IN EASTERN WASHINGTON.

Conditions in eastern Washington and Oregon are in some respects like interior elevated situations in California, and culture methods found successful are mutually suggestive. We find some paragraphs in the paper of Mr. C. L. Smith at the meeting of the Washington Horticultural Society at Spokane which are entitled to such rating:

To grow apples successfully without irrigation it is necessary to exercise judgment in the selection of soil, location, varieties, quality of stock, preparation of land, planting, cultivation, pruning, thinning, and spraying. All of these pertain to the growing of apples. This, however, is only half of the problem. The gathering, packing, and marketing is the bigger half. If the first half is well done, it makes the second half much easier. Neglect of any one of the factors will modify or entirely wipe out any possible profit.

Planting.—The best orchard site is a moderately sloping hillside, a northern slope having some slight advantage, with higher ground near on one side and lower ground on the other. A basin or flat should be avoided. The soil should be deep; the deeper the better. It is seldom profitable to plant an apple orchard where there is less than three feet of good soil over the rock or where there is a hardpan within three feet of the surface. A clay loam is preferable. The average Palouse hills have just about the ideal soil conditions for the best growth of both tree and fruit.

As a rule it would be found unprofitable to try to grow apples on sandy or gravelly soils without irrigation. The ground should be worked deep and fine before planting. If trees can be secured that have ripened their wood early, then late fall planting is better than spring. Spring planting is all right, but the earlier it is done the better. Get clean, thrifty, but not over-grown one-year-old trees; three to four-foot size is better than the larger sizes. If trees are ordered from a nursery insist on careful handling and packing, and when the trees are received, immediately heel them in, being careful to work fine soil close to and around the roots. Do this even if you expect to plant next day. Never expose the roots to sun or wind, or allow them to get dry. Trim off all bruised or broken roots. Make the holes large enough to spread the roots naturally; set one or two inches deeper than they grew in the nursery; work the fine soil firmly around the roots—not against them; when the roots are well covered, firm down with the feet, pressing the earth down and toward the tree. Cut back to eighteen inches.

Keep the ground well cultivated. There is no serious objection to growing any hoed crop in the young orchard, like potatoes, squashes, beans or peas, but these should not be planted too close to the trees, or allowed to interfere with continuous cultivation.

Pruning and Training.—It will be found much easier and more profitable to train the young tree and shape it as it is growing than to let it grow wild and then try to cut or saw it into proper shape. If more than five branches start on the young tree, pinch them off. If the branches grow unevenly, pinch the ends of the stronger shoots to check their growth. For the first four years prune in March to stimulate the wood growth and get the tree in proper shape. Usually cut away about one-third to one-half of each season's growth, so as to get a low-headed and stock tree. Go over the young trees three or four times during June and July and pinch the ends of all young shoots that you do not want to grow to permanent branches. Leave these stubs or spurs on the main branches—the more you have of them the better; they will develop fruit spurs just where they are the most valuable, close to the body and main branches of the tree. If the young tree is trained in this way until it comes into bearing, very little pruning will be necessary thereafter, and this should be done in June. When trees are headed low, the main branches covered with fruit spurs their entire length, the fruit thinned so as to stimulate annual bearing, the strength of the tree will be expended in the production of fruit rather than surplus wood that must be cut off and burned.

Cultivation.—When the season is a favorable one a large percentage of large apples may be grown with very little cultivation; but the grower who neglects to cultivate well every year will often fail to secure marketable fruit the very season that prices are the best. The most successful orchardist is the one who gives thorough cultivation each and every year. The past season, 1908, was the driest for many years, and yet wherever the cultivation was thorough and intelligent the results were satisfactory; in fact, the size and the quality were without exception a fair index of the method and thoroughness of cultivation. In one orchard 16 years old we secured over 60% of four-tier apples, of such varieties as Baldwin, Greening, Spitzenberg, and Ben Davis. This orchard was plowed early in April, the plowing being done deep in the center of the rows, eight to ten inches, and four to five inches close to the trees. The ground immediately around the trees was then dug over with a mattock, then disked crosswise of the plowing twice, then run over it with a clod crusher, then harrowed; thereafter it was harrowed every week from May 1 to August 15. Altogether 19 cultivations, at an expense of $6.50 for man and team per acre and $2 for hand work, a total of $8.50 per acre. While this might seem at first glance a little too expensive and intensive, the results more than justified the economy of the continued cultivation, as in another orchard where all the conditions were the same and the cultivation was the same, except one disking and three harrowings were omitted, saving $1.25 in expense and making a difference of over $50 per acre in the value of the fruit. Another orchard of the same age, the same varieties, the same soil, was disked twice and harrowed twice, and produced only 10% or marketable fruit. Owing to the fact that less than 10% of the orchards are as well cultivated as they ought to be, you will pardon me for repeating what I have so often said before: "The soil from October to April should be rough and loose, to catch and hold the moisture; from April to October maintain continuously a fine dust mulch over the entire surface. If this is done there there will be no weeds.

Cover Crops.—When the soil inclines to run together when wet and bake hard when dry, it lacks humus. If barnyard manure is available, it is the best and cheapest means of supplying the humus or organic matter to the soil. The best method of applying this is by top dressing during the winter season. If the manure is not available use a cover crop, preferably vetch and winter wheat. When this is done the spring plowing can safely be delayed until the first week in May, but not later, unless it should be a very cold, wet season. Turn under the cover crop good and deep and immediately follow with a disc twice or three times, then harrow continuously every week until August 15. If because of rainy weather, which does sometimes happen, or if from any other cause whatever, the ground gets hard or weedy, then disc and clod crush until the surface is a fine dust, free from weeds, and then maintain the dust mulch by continuous harrowing.

When a cover crop is to be used, seed it at the last cultivation as near to the middle of August as practicable.

Thinning.—To secure fruit uniform in size, to prevent overbearing, and to secure annual crops it is necessary to thin the fruit radically. It is better to hire someone to do this by the day or hour. Very few men have the nerve to thin their fruit as it ought to be thinned. If the pruning has been properly done and the fruit spurs are properly distributed over the entire tree, then thinned so the apples will not touch each other, there will be as many left as the tree ought to carry. The fruit will be larger, better matured, and much more uniform than when allowed to grow in clusters.

Following the address some discussion was participated in, a part of which is as follows: Question.—"When do you begin thinning? Mr. Smith. —"When the apples have attained the size of your thumb." This answer brought a number of dissenting opinions. Some thought it advisable to thin as soon as petals have fallen, others begin when apples are the size of peas. One man advocated the forming of thinners' associations, each member thinning another member's apples because, as Mr. Smith said, few men have the nerve to thin their own fruit.

MR. JUDD AND THE DUST SPRAY.

To the Editor: Through an article by Mr. Dargitz in your valuable paper of a recent date my correspondence has been so increased that I am compelled to ask you to publish the following as my experience with dust spray.

The machine is the Cyclone No. 1. Two men with it, drawn by one horse, sprayed 52 acres of apples orchard in 22 hours, in April, 1908. I use as a formula 40 pounds hydrated lime, 2 pounds paris green, 2 pounds sal bordeaux, 2 pounds double sublimed sulphur—used when the trees are about one-half full bloom. This spraying will catch all the leaf or fruit eating insects that are hatched or will hatch during the spring, and, what is also a desirable thing in fruit raising, a crop is secured by the above formula. Being a fungicide also, it kills the spores of fungi that are so abundant at blooming time, and kills the anthers, thereby destroying the pollen. Again, the dust settles in the forks of the blossom stems, preventing the fungi from causing the fruit to drop when formed. Again, the terminal buds are just unfolding their very tender leaves, which are an easy prey to that distressing disease called powdery mildew. The above formula is the only sure cure so far tried here, the dust being dry, and put on dry; when the weather is dry, no chemical action sets up that destroys the value of either ingredient or makes them injurious to foliage or bloom. Again, it is always ready, not like wet spraying, that has to be done over again when it gets dry because it forms a cement coating, thereby locking up both insecticide and fungicide from further use. Again, the dust gets to the bottom of the fine fuzz on the very young fruit and leaves (the fuzz being put there to protect them from the wet, which causes them to rot), and awaits the coming of the foe. The surplus dust the wind distributes again and again, so nothing is lost.

Six weeks before harvest use the same amount of lime and one-half of each of the others, one one-half your orchard, and let the rest go: this will prove the necessity or not of more than one spraying. To prove that neither wind nor rain will remove the dust, take a clean, new and dry plate or saucer, dip it one-half its depth in the mixture, moving it through it once or twice; then blow off all you can, or let a good force from the faucet play on it for a while. Then check it off in squares with a cloth over your finger; then put it under the faucet again, and note that even the sharp points of the squares are not even blurred in the least.

Again, dust does not drive away your friends the parasites, as nasty wet spray will. In conclusion I will say that I have used the above formula four years, only once each year and when in bloom; had a good crop every year and no pests of any kind; no scab, no shothole fungi, and at a nominal cost of 10% of wet spray.

A. N. Judd.

Watsonville.

THE HIMALAYA BLACKBERRY.

To the Editor: Having seen several articles in your paper concerning the Himalaya blackberry, and being a grower of berries, I give my experience for the benefit of the public.

I have about six acres of them, which bore for the first time last season, and now I am able to recommend them. They were recommended to me as being the most productive, most profitable and most delicious of all the blackberries, and I could not express my opinion of them until I had seen them fruiting. They are very hardy, and seem to to be adapted to both dry and moist land, as I have two patches of them, one on moist and the other on dry land, and they were all the same and made a wonderful growth the first year, often reaching 25 feet in length. They should be trained on wires by driving stakes 30 feet apart and 7 feet high in the rows, and stretching two wires on these stakes, one 3½ feet from the ground, the other on top of the stakes, and confining them in place with staples.

The long runners should be trained and woven in these wires, so as to be able to hold up the load of fruit. The second year these runners will send out arms or laterals thickly all over, about 2 to 2½ feet in length, projecting outside of the mass of vines, causing the berries to be exposed for easy

picking, unlike the other varieties of blackberries, which grow so much of the fruit inside, as we all know. These laterals are loaded with berries, and at ripening time the trellises are about 4½ feet wide and 8 feet high, and, the berries being on the outside, present a fine show of blackberries from one end of the other. Consequently, they should be planted in rows 10 feet apart, and 10 feet apart in the row.

I see some of the growers of this berry estimate the yield at 12 to 15 tons per acre, which I do not doubt now, since I picked such an enormous yield from my vines last year.

They were tested by the canneries last season and accepted as good, but as they were also found to be good shippers, and so desirable for the table and general family use, canning, etc., I sold to a shipper, who sent them in all directions through the Sacramento and San Joaquin valleys and to San Francisco. It is a very bright, clean, shiny black in color, about the size of the ordinary blackberry, and begins to ripen about July 10, and continues until frost. The long season, together with the amount of vines, which send out numerous runners loaded with berries, account for its enormous yield. During the blossoming season I noticed the vines alive with the honey bee every day; there was a continual hum from morning until late in the evening; the bees seem to neglect all other blooms and swarn to these vines, which I though indicated a great amount of honey and sweetness in the bloom, and when the fruit was cooked, canned and used on our table, we found it formed a superior rich syrup of a delicious flavor.

B. S. Kennedy.

Sebastopol, Cal.

PRUNING PRUNE TREES.

To the Editor: In reply to your kind letter of the 13th inst., asking me to describe my pruning, I must say that I was very much surprised. I have been greatly ridiculed by many orchardists as to my method of pruning, but, however, I will try to demonstrate to you my method.

Pruning trees is like everything else: start them wrong and they will always be wrong. First, see that your tree is healthy; trim the roots well, so as to insure a good start. Plant it in a good sized hole. See that you have good healthy buds to the south. Plant the tree while in the dormant state. Have the union two or three inches below the surface of the ground. Reduce the top according to size: a large tree can be topped higher than a small one. Cultivate and pulverize the ground in the spring and into the summer months.

When the bottom growth (below the main branches) is about three inches long, nip it, and continue this operation until late in the summer—always nipping on the new growth. The following winter you have three or four good strong limbs on top to cut on, and a lot of fine healthy spurs and laterals on the body. Cut the crown off (which means one top cut) down to two good limbs, and top them to good size wood. With such care and pruning you will get good results.

The second year's pruning you have two standards as a crotch, each one of these standards having three or four good limbs. Crown them again, so as to get your tree up in shape. Top the two or three limbs you have left on each standard. This means top cuts only. Continue this system until your tree is out of the way and well balanced to the north. Then cease topping, only taking out leaders which are top cuts: these leaders will get choked out in time. You can take side limbs off when the tree comes to a normal size. Make all cuts close.

If the tree you set out has side branches, cut the top off to one of these branches and head these branches to the buds. Never strip the body of a tree, with the idea of forcing that much energy into the tops.

I could tell you a few things more as to why I prune this way, but, as a matter of fact, I have been ridiculed so much by men who have made money in the prune buiness (but not at pruning), that I consider such an explanation immaterial.

Gilroy, California. E. P. Rose.

[This is very interesting: no one can afford to laugh at pruning methods unless he can show valid objections. We shall be glad to hear more of Mr. Rose's methods and why he follows them.—Ed.]

Citrus Fruits.

QUANTITY AND QUALITY OF CITRUS FRUITS AND MARKETING CONDITIONS.

(Continued From Page 81.)

the fruit as it has gone into the Eastern market has been uniformly packed and is in a condition to keep because it has been carefully handled.

The scratching, rubbing and bruising of California oranges has been avoided to such an extent that they can usually be relied upon, so that the fruit dealer can afford to pay all the market affords. In this fact lies the main point of the popularity of California navels, and it is further proved by the growing confidence of dealers in our fruit, as the result of improved methods of picking and handling, and in which the grower is showing himself progressive. This has been strongly emphasized during the past year, when, notwithstanding the financial stringency which has forced economizing upon consumers, the most carefully handled fruit brought lucrative prices. It is not the intention of this article to go into the details of fruit packing and handling, but merely to assert its importance as a leading factor in keeping the queen or the orange market on her throne.

But to go a little behind the scene and point out a still deeper and more intricate factor in the production of the fruit seems opportune while we have the attention of the grower. This refers to the production of the fruit in the orchard, which would seem after all the most vital subject for the grower. A study of navel groves shows that in the older ones are many that have deteriorated or are deteriorating, owing to imperfect methods of soil and tree handling and fertilizing. This refers to irrigation, cultivation, pruning, loaming and tree feeding. Not only do the trees show it in the reduction of crop, but as well in the quality of fruit, and it is strongly brought out by comparison with orchards in which the more intelligent methods have prevailed. Again, in the young groves are found many trees showing inferior fruit, as well as poor yields, due presumably to the use of inferior buds or stock. Some growers know this, and it is pleasant to observe that efforts are being made to correct these troubles. This phase of the situation is forced upon the grower by the improved methods commonly adopted by the packing houses, as it is clearly up to the grower to second the packer by the production of the best, as well as by careful picking. Indeed, the grower soon finds that he can gain the greatest advantage of the improved marketing methods by producing superior fruit. The outlook today is that the California citrus grower is so far in advance of all other fruit producers that he can hardly be overtaken, being quick to grasp opportunity, as is shown by the development of cooperative marketing through the Exchange, which stands pre-eminently before the world as the greatest fruit marketing institution in existence.

The crop now on the trees, part of which has been marketed during the fall and early winter, is generally judged to be slightly under the figures of the year just past, and while many and diverse reasons are given for this, it is hard to fix the true cause without reflecting on men and methods in such a way as to touch feelings which are as well not aroused. Suffice it to say that last sping and summer gave us climatic conditions for which all were not fully prepared, and which resulted in a heavy fall of young fruit. The sizes of this season are not large, though much more desirable than at first predicted, and as the fruit will not be picked early, it is quite possible any small sizing may disappear as the season advances. The proportion of high-grade fruit will be greater than for some years, the reasons making for this being better pruning, soil handling and fertilizing, as well as more attention to budding having been observed of late years, both in young orchards and in rebudding. No inclination to puff is at present shown, and altogether the condition of the crop is extra good. The cold weather has done no material damage in well regulated groves on proper elevations, and perhaps it may be considered a general blessing, though it scared the owners of weak orchards into early disposal of their crops. The outlook is that the Exchange will have quite as much fruit this year as last, and if the fruit sizes well (and I pedict it will), they should ship fully 13,000 cars of oranges and 3000 cars of lemons. The falling off, if any, would seem to be among the independent packers and the Citrus Union, among whom I cannot estimate quite 11,000 cars of oranges, with a possible lemon output, including growers who ship their own fruit, of 1200 to 1300 cars. This estimate may, however, be upset by the early shipments of the "scared ones," which seem to have been made mostly through the independent packers, the Exchange managers having discouraged such shipping and put backbone into their growers wherever possible. As a whole, there seems no reason to fear that the citrus crop of this fruit year will bring less money to our growers than during the past period, but on the contrary the outlook seems better, partly for the reason that financial conditions among our customers are better, and as well due to the steadily improved methods of handling which puts upon the market a fruit practically immune from decay and high in general quality.

Of late considerable discussion has developed among growers and packers as to the advisabilty of a concerted effort at advertising our citrus fruits, and the consensus of opinion seems to favor such a camapign. It is probable that a plan of advertising will be formulated, as there is a general sentiment in favor of it, but its success depends much on the genius selected to carry it out, as men capable of influencing the public at long range are born rather than made by education. It would make this too long an article to enumerate the details of the advertising schemes suggested, for never has the orange business presented such an array of valuable facts which would work to its advantage if well presented to the public, but it would appear a subject for separate handling, which I hope to have the privilege of taking up later. There does not appear to be much increase in the acreage in citrus fruit in what we usually understand as southern California (below Tehachipi), though there has been considerable planting in Tulare county, so that, except for fall and holiday fruit, there is no serious addition in view for an increased output on that score, most of our present acreage being in bearing. In fact, the additional planting scarcely more than make up for the destruction of orchards by new additions formed for townsites and the taking out of groves here and there which have been found to be on poorly selected lands. That there cannot be much new orchard exploited this year is evidenced by the scarcity of stock for setting, as reported from the nurseries.

CLOVERDALE CITRUS FAIR.

The premium list of the seventeenth annual Cloverdale (Sonoma county) Citrus Fair Association has been issued, and shows a large number of splendid awards for designs submitted at the pavilion. The fair will open on February 18, and will conclude on Washington's birthday, February 22. The people of Cloverdale are enthusiastic over their coming exhibit, and there is great unanimity among them in regard to making splendid exhibits of their golden fruits. The fruit is ripening nicely at the present time, and rounding out into fine form and delicious flavor.

For the best display made of oranges, lemons or of all citrus fruits combined, $75 will be given as the prize; $50 will go to the second prize, $40 to the third, $30 for the fourth, $20 for the fifth, and $10 each for the sixth, seventh, eighth, ninth, tenth, eleventh, and twelfth. There are the usual awards of prizes for the best oranges, best lemons, the best individual varieties of the different citrus fruits, the best exhibit of canned goods, the best exhibit of jellies and marmalades, the best exhibit of nuts and dried fruits, best exhibit of olives and olive oils, and the best exhibit of apples.

For the best exhibit of wines, not to consist of less than 150 bottles artistically arranged, the prize will be $20. Cut flowers and plants in pots will also be awarded prizes. The space is assigned free to all exhibitors, and all designs must be completed by noon on the opening day of the fair. The seventeenth annual exhibit promises to be by far the best that has ever been held.

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Is more or less prevalent in every orange and lemon grove, i. e., trees that are unprofitable. How many such have you in your orchard? Would it not pay you to put paying trees in their stead?

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AGRICULTURAL REVIEW.

HORTICULTURE.

Raisin growers of Sanger as shipping raisins to the East in car lots, looking for markets.

Rodger Bros. are preparing a large tract of land near Roseville for planting to grapes.

Large fields of strawberries will be planted this season in the Bend country, Tehama county.

S. H. Reed is planting 160 acres to grapes on his ranch south of El Centro, in the Imperial valley.

Raisin buyers are reported busy at Hanford, and quite a tonnage is being prepared for the market

Local daily papers state that there are at the present time 300,000 boxes of apples held in cold storage in San Francisco.

Kenneth McRae of Rialto has organized a company which is to collect nitrogen from the air and by infusing it into lime make a fertilizer for orange groves.

New settlers in the Jordan-Atwater tract, in Merced county, will plant a large acreage to peach trees this season, and also plant 350 acres to sweet potatoes in the spring.

Shipments of walnuts from Fullerton for the past season amount to about 100 cars, netting the growers about $250,000. Most of the walnut crop in that vicinity has been sold.

The California Grape Growers' Association will ask the legislature for a $15,000 biennial appropriation to be used in experimental work to improve grapes and grape growing.

An apple experiment station is to be established on the Englehardt-Stover ranch, near Beaumont, to investigate the best methods of raising and marketing apples in that locality.

The Sebastopol Times says that berry growers who sold their fruit to canners on a basis of $35 per ton, with a contingency of $5 extra, have received $37.50 per ton on the average.

The Merced County Sun says that in every section of that county land is being prepared for planting to grapes and peaches. Never before in the history of the county has such extensive planting been planned.

The Kearney estate, at Fresno, is credited with having just completed the largest single deal of raisins ever consummated in that county, it having sold about 1200 tons to the Canners' Association. The price is stated to be on a 2-cent basis for both the 1907 and 1908 crops.

AGRICULTURE.

During the recent high waters near Arpaugh 1000 acres planted to flax by the Iowa Land Co. was badly damaged.

Tobacco growing will be tried out by several farmers in the Imperial valley this year. The Government is furnishing the seed.

H. J. Whitley, of Los Angeles, has imported from Egypt seed of the long fibred variety of cotton, and will plant it on land at Corcoran, believing that climate and soil there will produce good crops.

Over 900 cars of celery from the peat lands of Orange county have already been shipped. The crop is now going East at the rate of 25 cars per day. The total crop for the season is estimated to be about 1800 cars.

Since the recent cold snap, potatoes are going up in price. A shortage is reported in surrounding States, which is using up the California supply. Of the 500,000 sacks on hand, it is stated that a Japanese named George Shima, of Stockton con-

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RAIN! RAIN! RAIN!
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The enormous rain storms of the past weeks have been great producers of fungi on the growing fruit trees of the Pacific Coast. More than ever will it be necessary between now and the time that the buds open, for the orchardist to spray his trees with lime and sulphur solution in order to prevent Curl Leaf and Twig Borer on his peach and almond trees, and Scale and Fungi on the other trees. The vines should also be sprayed to prevent Mildew, Rust, Thrip and the other insect pests incidental to moist weather. The California Rex Spray Company, at Benicia, Calif., are prepared to furnish the celebrated REX LIME & SULPHUR SOLUTION in any quantity on short notice.

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trols nearly half. This man controlled the potato situation two years ago, when he cleared a nice sum.

Prof. H. F. Roberts of the Kansas State Agricultural College claims to have by experimenting succeeded in perfecting a new variety of wheat that will raise the average crop of Kansas from 14 to 20 bushels to the acre.

The Gridley Vegetable and Fruit Growers' Association at their meeting last Thursday decided on the varieties of tomatoes and potatoes they will plant the coming season. President Gilstrap reports buyers as already getting in line to handle the output of the association.

LIVE STOCK.

Local butchers of Grass Valley are having fat hogs shipped to them from Sutter county.

The Imperial Valley Milk Condensing Co. is having plans and estimates made for its new factory.

A co-operative creamery company has recently been organized and will establish a creamery at Santa Clara.

A co-operative retail milk depot is to be established at Los Angeles by dairymen to afford them a market.

The State of Washington is short on eggs and is looking to California for supplies for the next three months.

P. H. Christensen has purchased the Riverside creamery in Humboldt county. This is one of the leading creameries in that section.

The city council of Redlands has adopted an ordinance requiring all cows to be tested with tuberculin before their milk can be sold in that city.

Fresno county has appointed N. P. Justy to fill the new office of sheep inspector, to see that sheep afflicted with scab are properly dipped.

The big Hardin ranch, near Lovelock, Nevada, has recently secured a carload of two-year-old Hereford bulls from Col. Jas. Marzen, to place on their range.

W. M. Forrester, of San Luis Obispo county, has driven 1500 head of Angora goats from his home ranch to the Imperial valley, where he proposes to establish a big goat farm.

It is stated that fully 3000 acres will be planted to alfalfa this season in District No. 70, near Yuba City. The increase in alfalfa acreage means more dairies for Sutter county.

The Hanford Journal says that G. L. Young, living near there, is feeding nearly 100 head of hogs on raisins. He claims that the hogs are gaining nicely on a three-pound ration daily.

An addition to the building of the Lucerne creamery is to be made, which, with new machinery to be installed, promises convert this creamery into one of the largest and finest in the State.

At a recent meeting of Kings County Beekeepers' Association the proposition of State supervision and inspection of bees was endorsed, and an appropriation of $2500 for the purpose was asked from the legislature.

A break in the levee on the Colusa side of the Sacramento river, above Meridan, last week, caused great damage, particularly to live stock. Several hundred head of cattle are reported to have been drowned.

At the National Wool Growers' Convention, held at Pocatello, Idaho, January 14-16, it was decided to establish a wool storage warehouse at Chicago on the co-operative plan. Over 1000 delegates attended the meeting.

Seventeen cows belonging to the St. Vincent Orphanage, in Sonoma county, were drowned last week. The flood caused a dyke to break, letting water into the field with a rush and drowning the cattle before they could be rescued.

The Oregon Poultry Association held its fourteenth annual show at Portland, closing last week. The show room space was all taken by birds entered for prizes, and the attendance was sufficient to make the exhibition self-sustaining.

With a large number of representative live stock men of practically all States west of the Missouri river present, the twelfth annual convention of the American National Livestock Association convened at 10 o'clock January 26, for a three days meeting at Los Angeles. The PACIFIC RURAL PRESS representative is attending these meetings, and we expect a full report in our next issue.

The settlement of the Sturgeon ranch, south of Newman, in Merced county, has been one of the most important events in the development of the West Side during the past year. Of the 1540 acres comprised in the ranch, about 1000 are now in alfalfa, and it will be but a short time until the West Side staple crop will cover the entire acreage. The output of cream from this ranch alone, when it is fully seeded, will be equal to that of many communities that call themselves dairy centers. At a very conservative estimate this ranch is capable of producing $5000 worth of butter-fat per month.

MISCELLANEOUS.

A new market building, to cost $21,000, is to be erected and ready for occupancy at San Jose by April 1.

A big dredge is being installed by the Crocker-Huffman Co., to be used in cleaning mud out of their big irrigation canal in Merced county.

The State board of prison directors has lowered the price of grain bags from 6½ to 5¾ cents. The supply of prison bags on hand now is about 7000.

A bill has been presented in the California legislature appropriating $150,000 for a State Normal School for Fresno, provided that city donates a site for the building.

Wholesale prices for meat were reported as being higher at Los Angeles this week than for the past five years. The high prices affect quotations on cattle, sheep and hogs.

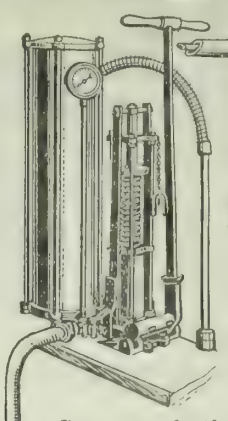
It is claimed that growers in Sonoma county have 2000 bales of the 1908 hop crop still on hand, with no market demand. The hold-over crop in the State is estimated at 32,000 bales.

The prospects are that the present session of the California legislature will appropriate $400,000 to meet a like appropriation asked for from the U. S. Government, to be used on reclamation work on the Sacramento river.

The People's Ditch Co., of Kings county, has decided to commence work at once to rebuild the headgate, washed out by the floods two weeks ago. The time required to build a new headgate will be several weeks, and the cost heavy, as 35,000 feet of lumber will be required.

The great Rancho Del Puerto, consisting of 18,000 acres, bordering the San Joaquin river in Stanislaus county, is to be cut up into small tracts and sold to settlers. This tract extends from Crows Landing to Grayson and Westley, and contains some of the finest land in California. The tract is to be irrigated from the San Joaquin river.

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The Field.

POINTS OF POTATO GROWING.

Mr. L. D. Westfall of Jefferson, Ore., gives in the Pacific Homestead a detailed account of his ways with potatoes which are suggestive for California conditions also, except that in some parts of the State his dates of planting are later than are desirable. The farther you go south the earlier should be the planting, except in low, frosty places or where the soil may be too cold and wet. We take the following paragraphs from Mr. Westfall's account.

"Anyone can raise potatoes." So can anyone raise wheat, corn, walnuts, or prunes. But haphazard work in any culture is unprofitable.

The desideratum of the potato grower should be to produce tubers of even, marketable size and in paying quantities. The head work should begin one year before the crop matures.

Seed selection should, where practicable, be made in the field. Pass by all vines having green or yellow leaves. Choose hills having vines all naturally ripe. The hills earliest ripe are preferable. Such tubers will naturally produce their kind: early and evenly maturing potatoes. Upon looking over the average Oregon potato field, many vines stand green and tall, while most of them are, and all should be, dead ripe—with vines stripped and often prostrate.

Those proud-like, green vines are abnormal. They are the upshoots of run-out seed. Their tubers are often many, but small. Many of them are pointed. Sometimes scores of narrow, worthless potatoes are found under a large, imposing green vine. By the usual method of selecting seed from the bin, many of these potatoes which were small and numerous in the hill, with green vines, are chosen. So the next season the percentage of worthless potatoes is greater. Here is one cause, and the main one, of potatoes "running out."

Select for seed those tubers of shallow eyes and having wide-like ends of about even size. It is too late this season to select seed in the patch. As you sort your harvested crop, choose for seed those that, in shape and character, are true to the type of their variety—true to the best type. Thus can the stock be kept up; yes, improved to pedigree potatoes. To this end reject all pointed, deep-eyed and slim seed. The last kind—long, thin, with many eyes, often called "ladyfingers"—are the kind that shoot up the tall, proud, never-maturing green vines.

The seed should be stored in a place of even temperature, not warm enough to sprout nor cold enough to chill.

About a month before planting, invigorate the seed potatoes by spreading them thinly on shed, or barn floors and exposing to all light avoidable. By this means will be started short, stout, green sprouts, that will, after harvesting, soon spring up as vigorous vines.

Do not allow the seed to become enervated by throwing out long, white, sickly sprouts in the bin.

Before planting treat the seed for scab, by dipping in a solution of formaldehyde and water—one-fourth pint of formaldehyde to ten gallons of water. This is one-fourth stronger than is used for grain.

PLANTING.—In this climate for early potatoes plant from the 25th of March to the 15th of April. Whole potatoes may be planted during the winter, but they will do as well if planted April 1. Always a larger crop may be secured by planting whole tubers. Moreover the crop will be of more even size. Fifteen bushels of seed planted whole on one acre will yield more potatoes than five bushels of cut seed on the same area. But fifteen bushels cut and planted on three acres of equal fertility will yield more than a like amount on one acre. So if the seed is plenty and cheap, plant whole; if high and scarce, cut. Never cut very small. There should be two or more eyes and some chunk of spud to each piece.

SOILS AND THEIR PREPARATION.—The potato grower should, where practicable, avoid heavy clay soils, also gravel and coarse sandy soils; yet, by using heavy applications of barnyard manure these may be made to produce pay crops. The volcanic soils, i. e., those formed by disintegrated basaltic rock, are especially fit for the growth of the best quality of potatoes. Such soils in the eastern part of Oregon and Washington yield potatoes in large quantities; while the red lands of the Willamette valley produce the best quality, yet usually a smaller quantity.

The overflow sandy lands of the Pacific coast are almost ideal for potato culture. The deposits of the overflows are nature's best, free fertilizers, and the loose sandy loam is the natural home of tubers.

The eating qualities of the bottom grown potatoes are inferior to the hill-grown, especially those grown in the red hills or iron-dyed basaltic lands.

Successive crops have proven the overflow, sandy bottom lands the most profitable for growing potatoes for market. These lands usually yield large crops of smooth, even-sized spuds.

The uplands of clay and gravel usually mark their potato crops with knots and rough jackets.

However, if in the form of straw manure and especially green crops, large quantities of humus are added to these uplands, they will yield large crops of good quality. A potato growers at New Era, Ore., one of the most successful in the Northwest, says that green clover, that would mature $25 worth of seed per acre, is worth more than $25 for potato fertilizer. Green vetch is a full second to green clover as fertilizer. Don't hesitate to bury with the plow the nitrogenous green herbs. You will realize their resurrection in future pay crops.

PLANTING AND CULTIVATION.—If the land is clean it is well to plant in drills. About 21 inches apart in rows 42 inches apart. If the land is foul, plant both ways—rows 42 inches apart, check-rows 30 inches apart. Use a marker with three or five runners. Make the main furrows with a two-row marker that will furrow five or six inches deep; or a single shovel plant may be used to run the main, deep furrows. The reason for using a marker with no more than two runners for making the deep furrows is because one with more runners would not furrow sufficiently deep. This marker, to run the proper depth, should have runners made differently from ordinary markers. For each runner take a piece of timber four inches on the ground, eight inches tall by two feet long. Cut the front ends of the runner vertical and wedge-shaped. This shaped runner will cling to the ground and run deep, instead of sliding over the surface like a sled.

Potatoes planted in these furrows can be quickly covered by harrowing the ground crossways. Harrow the ground again after a week or ten days, then again as the potatoes are coming up and once more in a week.

Cultivate deep twice, afterward more shallow. Check-rowed potatoes should be cultivated deep both ways. This will, in addition to subduing the weeds, aerate the soil and loosen up the bed for the coming potatoes.

Later cultivation should be shallow so as not to break roots or injure the tubers.

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The roots are spreading wide and the tubers growing fast when the bloom appears. Thereafter the soil should be undisturbed, unless it be a shallow mid-row work to throw dirt toward the row, thus guarding against sunburnt potatoes. However, if you do harvest some of the latter, store them. Sunburnt potatoes excel in vitality. They are poisoned for feed, but are strengthened for seed.

Forestry.

PROSECUTION FOR FOREST FIRING.

Four townships, making 144 square miles, or 92,160 acres of pine, fir, spruce and other valuable timber, burned wantonly for the purpose of clearing the brush so that he might be better enabled to hunt deer, is the record which the federal grand jury has inscribed in an indictment against Louis R. Webb and upon which he will be tried. Should the trial result in a conviction the court may impose a fine of $5000, together with imprisonment in the State penitentiary for two years.

The arrest of Webb was brought about by special agents of the government sent to this coast to prevent the destruction of government timber. It had come to the knowledge of the authorities in Washington that many of the devastating forest fires on this coast and elsewhere had been caused by hunters, who have a perilous habit of burning chapparal and other brush for the purpose of making clearings so that they might trail deer and other wild game more easily. These agents have been working on this coast for several months and the arrest of Webb will be followed by that of several other offenders.

Webb lives with his family and his brothers in Oregon just north of the California boundary line and 50 miles from Grants pass. Last summer Webb, with his two brothers and two of his neighbors, crossed the line into California for the purpose of hunting deer, which are very plentiful in that region. They established their rendezvous in two small log cabins in a little clearing in a dense forest of sugar pine and fir. It was at this spot that the government officers discovered that the fire started that laid waste the greater part of four townships.

Webb's defense is that the fire was started by unknown persons at considerable distance from his camp, and that he and his associates were obliged to backfire in order to save themselves and the cabins from destruction.

THE CALAVERAS BIG TREES.

It is telegraphed from Washington that largely through the efforts of Mrs. Lovell White, the prospects for getting Senator Perkins' Calaveras big tree bill through the House are improving. Mrs. White recently saw the President regarding the bill, and he advised her to consult with the California delegation, promising that, in case it should be thought necessary, he would send a special message on the subject to Congress. Senators Perkins and Flint and Congressman Smith met Mrs. White by invitation, and after discussing the matter, it was agreed that as soon as Speaker Cannon returns to town he shall be visited by the delegation and that he be asked to permit the bill to be called up. Flint, Perkins, Smith, Englebright and Needham will probably compose the delegation. There seems to be no opposition to the passage of the bill by the House. It already has passed the Senate. It calls for no appropriation, but merely for the exchange of lands or timber for the big tree grove.

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The Irrigator.

DRAINAGE AND HOW TO GET IT.

As we are having such a heavy winter and so much soil saturated, with the loss by deferred plowing and danger to tree roots, a plain discussion of drainage methods will interest many of our readers and help not a few. Mr. C. F. Brown has a detailed account in the Irrigation Engineer which has many good suggestions for California conditions.

Wet Spots on Dry Lands.—One of the most important things in farm drainage in arid countries is to know just when it becomes necessary. An excellent rule, adopted by Mathew Baer, manager of the Sommer farm in Tremonton, Utah, is never to allow a wet pot to appear a second season. The experience on this farm is that wet spots, due to seepage, appear from year to year in different parts of the farm. By draining these spots as they appear this farm continues to yield annually.

So much for wet spots which come this spring. Our immediate concern is those wet spots year before. It is not hard to tell even now where the wet spots are. They fail to dry even when the wind blows for days, and the surface generally is dry enough to plow. If you will remember, they needed very little irrigation, if any, last season. If the crop is alfalfa, the tender sprouts are yellow, or there is nothing but dry stubble. If an orchard, you might have noticed the leaves curling last year from the effects of alkali.

When such indications as these exist it is time to go exploring below the surface. It is surprising how few farmers ever think of digging a few holes in the ground even when confronted with most certain indications of seepage and waterlogging. Besides showing how thoroughly the soil is saturated, test holes will reveal just what difficulties will be encountered if draining is attempted. In many instances it must be put by water bearing strata of sand or impervious strata of clay or hardpan. If a clay loam is underlaid with a strata of sand carrying considerable water, the drains should cut into it; if, on the other hand, the soil is underlaid by a hardpan or impervious strata, there is no need to cut through it.

It may be necessary to secure the assistance of a surveyor to determine the practicability of constructing drains, or if there is no question as to fall and proper outlet, the services of a surveyor may be dispensed with.

Kinds of Ditches.—In many instances the open ditch drain is chosen by necessity. While this method has the advantage of a low first cost and often no outlay of cash, it is always more expensive in the end. I have seen it used to advantage and especially when used as a supply ditch in times of irrigation, raising the water to the surface by means of check boxes and as a deep drain between irrigations. Its use in this way, however, is limited to clay soils which stand well. The greatest objection to open ditches is that they are always partially filled by sliding, their efficiency destroyed when they should be the most effective. In addition, they require considerable land. There are instances, though, when open ditches are almost self-cleaning, but care must be taken in planning them or excessive cutting and washing will result.

Covered drains are the most satisfactory and efficient. Experience up to date is that hard burned, round clay tile is the best and most enduring material for covered drains. Lumber box drains are also used with considerable success when tile is too expensive and lumber cheaper. The boxes are made with open bottoms or a simple ditch culvert with cleats on the bottom for clay ground, and with bottoms on and small openings at the bottom corners for loam and sandy soils. An 8-inch board on top and 5 or 6-inch sides make a fair sized farm drain. It is not known just how long such boxes will endure, but it is safe to say from five to ten years at least. The price of lumber locally will determine the cost of such drains. In locating lines avoid deep-rooting trees, such as thrive in water. When draining orchards arrange the lines midway between the rows and place them deep if possible. I have observed that the roots of fruit trees are shallow in wet soils, but they are likely to go deeper after the soil is drained and actually go into drains for moisture in dry seasons. If lines are well laid and straight, they may be threaded with a joint rod and wire and a root cutter pulled through them occasionally to keep them open. Alfalfa roots will enter drains and obstruct they if allowed to grow over the lines for more than one or two years. Beet roots will also obstruct tile drains.

Laying Out Drains.—The proper way to lay out drains is with a chain and level, setting stakes every 50 or 100 feet, a grade stake flush with the surface of the ground and a guide stake for marking the staking and cut. A few preliminary levels will tell when the lines may be laid so as to obtain the required grade. After the stakes are set and the levels run, it would be well to dig a few test holes to determine the necessary depth and grade. For a minimum grade in clay soils use 1-10 per 100, in sandy soils 2-10 per 100. If it is necessary to lay a branch on the upper end of a line with a heavier or steeper grade than is used below in sandy soils, put in a curb 4x4 and two feet be low grade for a sand box. It is desirable to have the heavier grades near the outlet. Ordinarily larged-sized tile is necessary in irrigated countries, and especially in open or sandy soils. Do not use anything smaller than a four-inch tile.

Capacity of Drains.—The mains should have a capacity of the combined branches. Approximately, the carrying capacities of round tile on the same grade are proportional to the squares of the diameter. To determine the relative capacities square the diameters and divide the greater by the smaller number; the quotient will represent the number of lines of small tile which may be used as feeders to a larger tile. If the branches are unequal, as four, five or six feet, the sum of the squares of the branches should be equal to the surface of the main. If the main is laid on a heavier or steeper grade than the branches it may be some smaller than that called for by the above rule.

Get a Good Grade.—The first requisite for a well constructed drain is an accurate and convenient survey of lines. In all but clay soils it is absolutely necessary to have some other guide than the running water, because the tile must be laid and covered as fast as the trench is dug. The reason for this is that the sides of the trenches are so apt to slide in; and when once they do, the line frequently has to be abandoned. As mentioned before, do not neglect to place sand boxes at points where grades change from heavier to lighter ones. An occasional observation well at junction points is convenient in watching the subsequent operation of the different lines.

Putting in Tile.—Digging should always begin at the outlet and at no place should trenches be dug in which tile cannot be readily laid the same day. This requirement prevents several men from digging by the piece on the same ditch. Many farmers will want to try team work for the first foot or two. In most instances they will lose money. Experience in the lighter soils has taught that the best way to proceed is by a team of two or three diggers working together one after the other and a tile layer following close; often as near as three to five feet from the end of the finished trench. For digging, 18-inch ditching spades are the best. The spading should be regulated so that the last one will be full eighteen inches. The last digger should not get within that distance of the bottom of the trench. Don't think that we do not know what the "long handled shovel" is. This is experience with "long handled shovels," garden spades, rounded tile spades and ditching spades. A 6 or 8-foot non-adjustable tile scoop with a long handle is best for finishing and grading the trench. Spades cost $1.75 and scoops $2.50. The best scoop we ever used was made by a blacksmith for $1.80.



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Now is the best time to sow **Alfalfa seed.** No crop can be grown with less expense or greater profit.

With good moist soil from **four to six crops** of hay can be secured in **one season.**

C. C. MORSE & CO. are by far the **largest dealers** in **Alfalfa seed** on the Pacific Coast.

We have just received several cars from Utah with seed from the best and cleanest fields in the choicest farming section, and **it is the prettiest seed we have ever had** in our house.

The market is steadily advancing and we would prefer to quote only on request. **Write** us and we will **mail you samples** and present market price.

C. C. MORSE & CO. have just issued the handsomest and most useful **Seed and Plant Catalogue** ever sent out by any Seed House on the Pacific Coast. **It can be had free** on receipt to us of **your name and address.**

Remember; we grow and deal in **all kinds** of **Seeds, Plants** and **Trees**—the catalogue tells you all about it.

C. C. MORSE & CO.

Seed Growers and Dealers

11 Jackson St., San Francisco. **Retail Seed Store, 125 Market St.**

Onion Sets 12½c. a Pound

Special Prices on Larger Quantity.

Headquarters for all Kinds of Seeds. Catalogue upon request—FREE.

NAVLET BROS., 520 K Street, Sacramento, Cal.

The most accurate and handiest method of digging to grade is by means of a light wire set parallel to the grade a foot or two above the surface of the ground and a light measuring stick with arms on top. As the nearest edge of the trench should be one foot from the grade stakes, the wire may be set directly above the stakes. Make the measuring stick 7 feet long with a 2-foot arm on one end. To set the line put it as much above the grade stake at each station as the difference between the cut at that station and seven. When the ditch is just at grade, the top of the perpendicular arm of the measuring stick is standing straight in the ditch. To avoid knocking the wire down, throw the top earth on the side of the wire before it is put up, and the other on the opposite side. Back sights set up on the same principle are sometimes used, but the tile layer is always in the way when a sight is desired and not all diggers can sight well.

In clay ground with a firm bottom, tile laying is comparatively simple. If the trench is properly graded, the bottom will be hollowed slightly so that the tile will not be easily displaced. They should be turned until the tops come together well. Put a few shovelfuls of earth at the sides, tamping slightly, then cover to a depth of six to eight inches by hand.

In the lighter soils, and especially when there is much water flowing, tile laying is the vital part of draining. If the bottom of the trench is not firm enough to stand the weight of a man on a tile, it should be made so. Gravel and inch lumber are used for these purposes. In such soils neither digger nor the tile layer should stand in the bottom of the trench. One cannot appreciate how readily such soils are taken up by the water and deposited in the tiles below until he has had this experience. When the tiles are laid under these circumstances, they should be covered with gravel or clay.

For **DUST SPRAY** Use

VIGORITE BRAND HYDRATED LIME

MANUFACTURED BY

THE HOLMES LIME CO., Inc.

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Ferry's are best because every year the retailer gets a new supply, freshly tested and put up. You run no risk of poorly kept or remnant stocks. We take the pains; you get the results. Buy of the best equipped and most expert seed growers in America. It is to our advantage to satisfy you. We will. For sale everywhere. Our 1909 Seed Annual free. Write to

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Detroit, Mich.

SEED OATS 60 cts. a bu.

See Salzer's catalog page 129.
Largest growers of seed oats, wheat, barley, speltz, corn, potatoes, grasses and clovers and farm seeds in the world. Big catalog free: or, send **10c** in stamps and receive sample of Billion Dollar Grass, yielding **10 tons** of hay per acre, oats, speltz, barley, etc., easily worth **$10.00** of any man's money to get a start, and catalog free. Or, send **14c** and we add a sample farm seed novelty never seen before by you.
THE SALZER SEED CO., LaCrosse, Wis.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J. St., Sacramento, Cal. Send for catalogue.

FARMERS' EDUCATIONAL AND CO-OPERATIVE UNION.

To the Editor: In view of the fact that perhaps only a few of the readers of the PACIFIC RURAL PRESS may be familiar with the Farmers' Educational and Co-operative Union of America, which has only recently taken root in the State, it is believed that a little information concerning the movements may be appreciated. Unlike any former organization for farmers, the Farmers' Union, as we call it for short, has had a growth thus far that indicates its staying qualities. There are several features that seem to appeal to even the most skeptical.

It is my purpose, therefore, to call attention to a few brief facts as regards the organization and what it is doing in this State just now.

To begin with, I may say that it was during the month of October, 1902, Newt Gresham of Point, Raines county, Texas, conceived the idea of organizing the Farmers' Educational and Co-operative Union of America, not only for the betterment of the farmers in his own neighborhood, but the farmers of the Nation.

From its first local, organized by Bro. Gresham, which had but ten members, the union has grown until it now has more than 2,500,000 members; it has a State organization in 26 States, and its growth is even now more phenomenal than ever before in its history. The expense of membership is very small. The admittance fee is but $2, while the national dues are only 60 cents per year. Local dues, of course, are what the local people decide they shall be.

In the Southern and Middle West States, where the union has been longer in operation, remarkable results have been secured through it. Not only does the union prove an advantage to its members in selling their products, but in buying supplies and staples as well. In a word, the union has the feature of bringing the producer and consumer together. Its national strength aids the membership everywhere.

It would require a great amount of space to recite the many instances where the union did valiant service in rescuing the cotton growers of the South from the hands of the speculators. The "stunt" of playing havoc with the growers' product in the matter of manipulating the market may be great fun for the speculator, but it is not very satisfactory to the producer. Hence, when the cotton growers of the Southern States decided to do business through union channels, the outcome was watched with more than ordinary interest. Instead of selling the cotton to the speculators, who wouldn't give more because they could get it for less, the cotton growers managed to make a shipment to Manchester, England, to the spinners' direct, which netted them more than twice what they had been able to secure through the usual channels for a number of years before. That the union was a success in that matter was thus demonstrated. And if it could thus handle cotton, why not other products?

In California the movement began first at Kingsburg. That was less than three years ago. Three locals were organized, one near Kingsburg and two near Reedley. These locals struggled along, gaining a few members. Those who had interested themselves to join became staunch workers and they sowed seed, in season and out of season. They needed some one who understood the movement and knew how to organize. It was some time before such a person was sent to us by the national union. Last fall, however, the national union decided to send W. W. Welch to this State as the State Organizer, in whose hands the work of organizing the State was put. Bro. Welch has been much handicapped by reason of the serious illness of his good wife, but he has been able to arouse interest to such a degree that since his coming the membership of the counties of Fresno, Kings and Tulare has grown to more than 1500. Within the past couple of weeks Mr. Welch has secured the services of some good organizers whom he keeps in the field, directing the work from his office in the city, for Kingsburg is the State headquarters. Interest is aroused in this part of the State to a point where people are clamoring to have locals organized in nearly every school district. From reports sent in by the organizers, we learn that the membership is growing at the rate of perhaps 250 per week, and there would be more if the organizers could cover the field more rapidly.

It is the purpose of the union in this State to pay attention especially to fruit and raisins, but all lines of products are to be benefited through the operations of the union. The raisin and dried fruit situation is a serious one, and with the people in central California this is the all-absorbing subject. The union expects to so organize the growers that they will be able to market their product direct to the consumer in the East and South. The union owns and controls now more than 5000 warehouses. The managers are employed at a salary, are under heavy bonds and handle the growers' produce at cost. The idea is to furnish to the consumer such things as may be wanted at the actual cost.

The scheme is a very simple one. It has been worked with other lines of products, and those most acquainted with the plan insist that the matter of raisins and dried fruit will work as well as anything else.

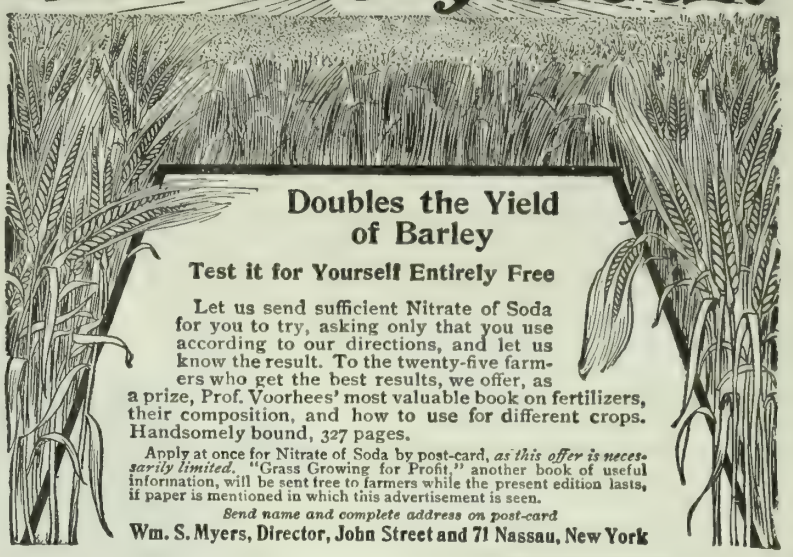
At Fresno, February 3 next, is to be held a general mass-meeting in the Barton opera house. Rates of a fare and a third have been made from all points in the State. The purpose of this meeting will be to discuss the plans of the union as to how it is proposed to handle the raisin and fruit crop of this State. The warehouse system of the organization is to be explained. An invitation is extended all who may be interested, and inquiring ones will be given special attention. It is hoped to have the national president, Charles J. Barrett, of Union City, Ga., present to address the meeting, but this cannot be definitely announced at this time. In any event there will be those present who will be able to give the details of the workings of the union system in marketing products.

One thing, however, is to be noted: The State organizer makes frequent remark that the union can do nothing unless the membership does some hard work. The organization without hard work on the part of the members will avail nothing. But when the membership does work, the result desired seems to come easier through the Farmers' Union than by any plan tried heretofore.

P. F. ADELSBACH.

Kingsburg, Cal., January 20, 1909.

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Doubles the Yield of Barley

Test it for Yourself Entirely Free

Let us send sufficient Nitrate of Soda for you to try, asking only that you use according to our directions, and let us know the result. To the twenty-five farmers who get the best results, we offer, as a prize, Prof. Voorhees' most valuable book on fertilizers, their composition, and how to use for different crops. Handsomely bound, 327 pages.

Apply at once for Nitrate of Soda by post-card, *as this offer is necessarily limited.* "Grass Growing for Profit," another book of useful information, will be sent free to farmers while the present edition lasts, if paper is mentioned in which this advertisement is seen.

Send name and complete address on post-card

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Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples

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12 in. long,	$ 9.00	per 1000
14 in long,	10.00	per 1000
16 in. long,	11.25	per 1000
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Agents Wanted Everywhere.

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1380 WILLOW ST., LOS ANGELES, CAL.

Live Stock and Dairy.

CERTIFIED MILK.

What It Means and How It is Produced.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES, Agricultural Engineer.

(*Continued From Page 75 of Last Week's Issue.*)

The requirements as recommended by the United States Bureau of Animal Industry for a sanitary dairy, which have been adopted by both the Oakland and San Francisco milk commissions, must be complied with, in order that the milk receive their certification. As these requirements are similar in most respects to those imposed by other milk commissions in the United States, we give them in detail. A careful reading of these requirements will give our dairymen contemplating the production of certified milk a very good idea of the conditions which must be met in order to receive certification from a medical milk commission:

The milk commission proposes to certify to the purity of milk which comes up to a certain standard and to provide for the protection of both dairymen and users of milk by prescribing rules by which that standard of purity is to be attained, including the sealing of each bottle of "certified milk" with a special cap. It proposes further to arrange for systematic inspection of the dairies furnishing "certified milk" by competent veterinarians, bacteriologists and chemists.

The most practical standard for the estimation of cleanliness in the handling and care of milk is its relative freedom from bacteria. The commission has fixed upon a maximum of 10,000 germs of all kinds per ccm. of milk, which must not be exceeded to obtain the endorsement of the commission. This standard must be attained solely by measures directed toward perfect cleanliness, proper cooling and prompt delivery.

The milk certified by the commission must contain not less than 3.50% of butter-fat and have all the other characteristics of pure, wholesome milk. Milk must not be sold as certified more than 24 hours after the time of milking.

Dealers.—In order that dealers who incur the expense and take the precautions necessary to furnish a truly clean and wholesome milk may have some means of bringing these facts before the public, the commission offers them the right to use caps on their milk jars stamped with the words, "Certified by the Milk Commission of the San Francisco County Medical Society." The dealers are given the right to use these certificates when their milk is obtained under the conditions required by the commission and conforms to its standards. The sealed cap to be authorized by the commission must be used on all "certified milk." These caps will be sent only to the farm where the milk is bottled. The name of the farm from which the milk comes must appear on the bottle cap. Each bottle of milk must bear the date and time of bottling. The conditions required in order to obtain a certificate of the commission shall be as follows:

Examination of Milk and Dairy Inspection.—In order that the dealer and the commission may be kept informed of the character of the milk, specimens taken at random will be taken at intervals by experts appointed by the commission. 1. The commission reserves to itself the right to make inspections of certified farms at any time and to take specimens of the milk for examination, and to withdraw its certificate for repeated or deliberate violations of the requirements of the commission. 2. The commission also reserves the right to change its standards in any reasonable manner upon due notice being given to the dealers. 3. The expenses of making the regular milk reports and the inspections are to be borne by the dairymen. 4. The names of the dairymen who comply with the requirements of the commission will be printed on cards and sent each month to all members of the San Francisco County Medical Society.

Location of Buildings, Pastures, Etc.—The location of the buildings and pastures shall be subject to the approval of the commission.

All buildings shall be so located that they will have good drainage. The stable shall be on relatively elevated ground.

No building used for dairy purposes shall be within 200 yards of any marshy ground or stagnant water, and no chicken coop, hog pen, or harse stable, privy, water closet, or urinal shall be within 100 feet of the building for keeping or handling milk.

The surroundings of all buildings shall be kept clean and in good order.

The accumulation of dirt, rubbish, manure, or decayed matter shall not be permitted.

Water Supply.—The dairy shall be supplied with an abundance of pure water, the source of which shall not be within 250 feet of the stable or of any barnyard, privy, or other possible source of contamination.

Water from wells or springs which are not protected against the entrance of flood and surface water shall not be used for cooling milk or cleaning utensils.

A sample of the water shall be furnished to the commission at any time requested, and the water shall be examined at least once a year.

Stables.—The stable shall be arranged with a view to the comfort of the animals, and so as to facilitate the work of cleaning, milk, etc.

The floor shall be kept dry by the use of sawdust or gypsum.

The gutters behind the cows shall be kept open and with sufficient incline to cause good drainage.

The side walls and ceiling shall be so tight as to prevent dust sifting through, and they shall be so constructed as to be easily cleaned and kept free from cobwebs and dust.

There shall be no lofts in the stables.

The ventilation shall be so efficient that one will not notice a stale, disagreeable or strong animal odor on entering the building.

The stalls shall be comfortable, at least 3 feet wide, or 3½ feet for a large cow, and so long that the animal need not habitually stand with feet in the gutter.

The stable yard shall be well drained, so as to be usually dry, and no pools allowed to form.

A suitable place about 200 feet from the stable building shall be provided for cows not approved by the veterinarian, and those separated from the herd by any cause except calving.

A special room, conveniently located, shall be provided for the milkers to wash in before and during milking.

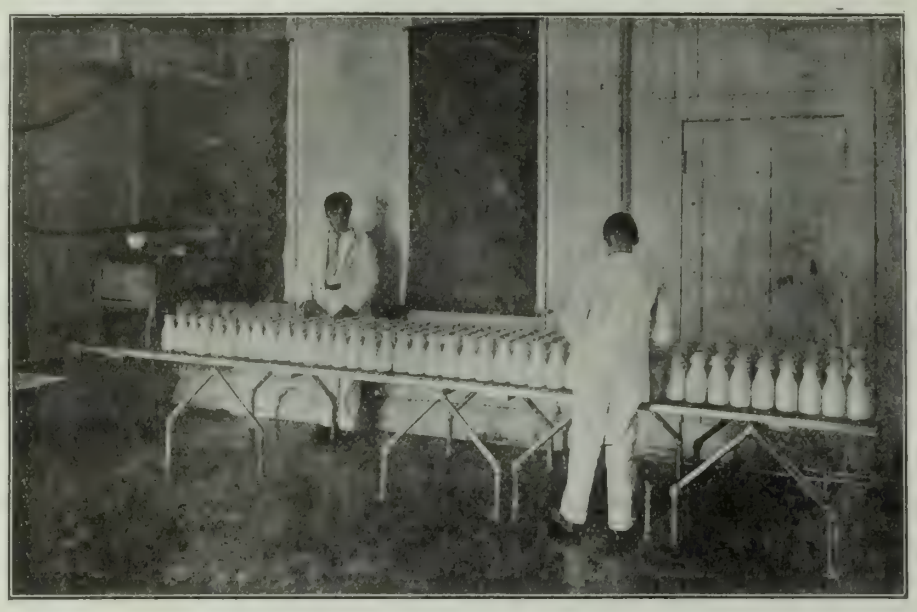
Stable shall be kept scrupulously clean.

The interior walls shall be kept clean and light colored. If whitewashed, a fresh coat shall be applied at least three times a year, and oftener if necessary, to keep the walls clean and white. Mould spots shall not be permitted.

At least half an hour before milking time stables shall be thoroughly cleaned, ventilated, and all manure removed from the building.

The stable floors shall be sprinkled, when necessary, to keep down the dust.

When cows are kept in the stable continuously, as in stormy weather, it shall be cleaned often enough to be kept as free as possible from the odor of manure. If necessary, gypsum shall be used for absorbing liquids and odors.



In the Bottling Department at Ideal Farms, Marin Co.



Bottled Milk Packed in Ice for Shipment.

At least once in every two months the mangers shall be scrubbed with a brush and water and soap, lye or a washing powder like borax.

Animals of other species shall not be kept in the same room with milk cows. No strong smelling material shall be allowed in or near the stable. If manure is on the premises it must be at least 100 feet from the stable.

[Next week the regulations will be continued, with specific instructions as to the handling of the herd and the milk.—EDITOR.]

CALIFORNIA CHEESE MAKING.

That California does not produce any more cheese than a decade ago is a fact quite in contrast with the increase in butter, city milk supply, etc., which was noted in our issue of January 2.

The report of the State Dairy Bureau recently submitted to Governor Gillette furnishes data upon which the standing of our cheese interest may be defined. It shows the production in each county for the year ending September 30, 1908, the total for the State being 6,164,514 pounds, or just about the same amount that was made ten years ago. During the same period, butter production increased from 23,000,000 pounds to 48,000,000 in 1908. The following table shows the production in the counties that produced cheese during the year ending September 30, 1908:

County.	Pounds.
Contra Costa	11,450
Kern	44,602
Kings	70,304
Lake	46,784
Lassen	63,011
Los Angeles	360,962
Marin	425,383
Mendocino	19,281
Monterey	1,505,465
Napa	20,600
Riverside	17,325
Sacramento	567,686
San Benito	178,882
San Joaquin	127,761
San Mateo	632,534
San Luis Obispo	153,775
Santa Clara	432,424
Santa Cruz	429,384
Siskiyou	48,112
Solano	1,400
Sonoma	355,168
Sutter	338,711
Tulare	130,000
Yolo	181,510
Total	6,162,514

According to the above showing, 24 counties out of 58 in the State have produced cheese during the past two statistical years. A comparison with former years is presented in the following table:

Year.	Pounds.
1897	6,399,625
1898	5,148,372
1899	5,294,938
1900	4,989,960
1901	5,681,366
1902	6,503,441
1903	7,218,639
1904	6,133,898
1905	6,020,672
1906	6,418,480
1907	5,928,942
1908	6,262,194

Commenting on these figures the report attributes the lack of interest in cheese production in California to the fact that the general conditions of the State are better adapted to butter production than to cheese making and to the further fact that butter has been found to be more profitable. Dairymen are beginning to realize more and more the value of the skim milk that is produced through the production of butter. In cheese production this valuable by-product is not left in the hands of the dairymen, and unless the relation between the prices of butter and cheese changes materially, in order that prices obtained for cheese will overcome the advantage that butter production presents, the State Dairy Bureau does not look for much progress in the cheese industry.

A factor that largely puts cheese production at a disadvantage is the fact that returns to the dairymen are more quick in case of butter. Cheese production requires a long period in curing and in addition is carried longer in the stock of wholesale dealers than in case of butter, so that either final returns must be delayed or enough capital invested to carry stocks. Even with this, the industry is confronted with the factor of uncertainty, since the producer must look upon prices as problematical and neither can he rely upon what the quality will be until it is often too late to change the make of possibly many weeks.

The report brings out the fact that while the cheese business in general has made little progress there has been one line that has done very well. This is in the line of production of soft, or sweet curd, cheese. In the vicinity of Petaluma several factories that make a specialty of this class of cheese have been established, their combined output being 425,000 pounds. The output includes such varieties as camembert, brie, romatour, schloss, brick, neufchatel and others. The industry started with a small beginning several years ago, but has grown to an extent that it takes the place of a large lot of varieties that would otherwise be imported from Europe.

Monterey is still the banner cheese county of California. Santa Clara, San Benito, San Mateo and Santa Cruz were large producers years ago, but the demand on the cows of these counties for fresh milk, cream and butter is setting them back. Their loss is made up by counties in the Sacramento and San Joaquin valleys. Los Angeles county at one time had a factory which at one time reported an annual output of about a million pounds of cheese. This past year the total make of the county was less than half of that amount.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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from my herd of Prize Winning

Jersey Cattle, Poland-China Hogs, M. B. Turkeys

A large herd of all ages to select from. Prices right. Stock guaranteed. Let me know your wants.

GEO. A. SMITH, - - Corcoran, Cal.

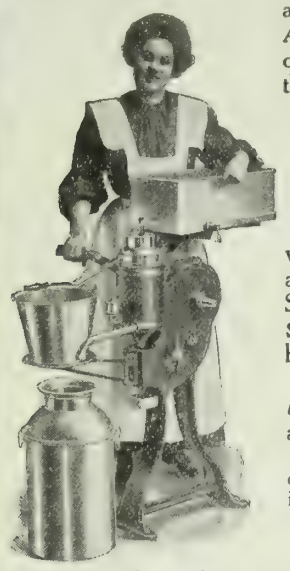
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IN THE LEAD

For **1909**

The 1909 Model U. S. Cream Separators

retain *all* features that have given them their great reputation for durability and efficiency, and have several improvements that make them even to a greater extent than ever before, the ideal machine for dairymen who are posted and who **demand the best.** And by intensifying the circuitous and tortuous currents of the milk in its passage through the separator bowl, we have been able to



Greatly Reduce the Diameter of the Bowls

which makes them operate easier than ever and still retain their great milk capacity.

Notwithstanding most manufacturers were complaining all last year of dull times and small sales the UNITED STATES SEPARATOR had one of the **largest sales** in its history and since this fall season began, sales are larger than last year.

Do not forget that the *United States* has *beaten* every separator in *endurance tests* and holds the WORLD'S RECORD.

No dairyman can afford to purchase a cream separator until he has first examined the construction and operation of the

1909 Model

Sales agents in nearly every dairy section. If no agent in your town, **write direct to us for Catalog No. 148** and we will also quote prices.

We have distributing warehouses in every dairy section in the United States and Canada.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

U.S. U.S.

Sale of January 26 Postponed to February 2 and 16

E. Stewart & Co.

LIVE STOCK DEALERS AND AUCTIONEERS

DOUBLE SQUARE BRAND

WESTERN HORSE MARKET

SAN FRANCISCO, CAL.

On account of rain and floods horses cannot be brought to San Francisco in time. Remember the new dates.

E. Stewart & Co.

S. E. Corner Tenth & Bryant Streets.

BULLS BULLS BULLS

SHORT-HORN BULLS

75 head of high grade yearlings on hand.
Prices Attractive.

HOWARD CATTLE CO.

641 Mission St., San Francisco, Cal.

Mention this paper.

Pure Bred Holsteins

At present we are offering a fine lot of **Young Bulls and Heifers** at very attractive prices. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co. now owned by the

OAKWOOD STOCK FARM

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FOR SALE The Imported Belgian Stallion

Desire de Saint Gerard

Pedigree:

Desire de St. Gerard (32008) — Bourgogne 7902 — Brin d'Or 7902; Fauvette de St. Gerard, 11089 — Marie de Goych 5831

This fine Belgian Stallion was bred by Mr Martin Tirtiaux of Graux St. Gerard, France foaled February 12, 1902, and was imported by Dunham & Fletcher of Wayne, Illinois, July 10, 1905. He is a magnificent animal, deep bay in color, with star in forehead. His weight is 2200 pounds.

For authenticated records, price, terms, etc., write to or call on

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Dealers in **PAPER**

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Blake, Moffitt & Towne, Los Angeles

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EDUCATIONAL BUTTER SCORING CONTEST.

To the Editor: The attention of California butter makers is hereby called to the University of California educational butter scoring contest, for which the first entries will be called during February. If you did not reply to our former announcement, you should send in your application immediately, if you care to enter. The contest is designed for the busy butter maker who cannot leave the churn long enough to take a short course, but who desires to improve his product. He can, however, ship an entry at specified times, have it scored and criticised, and will profit greatly by so doing. All butter makers in the State are invited to participate. Mr. Mitchel, the Federal butter expert at San Francisco, will assist at each scoring. This is an opportunity which any worthy butter maker cannot afford to miss.

The following plan will be followed:

Each contestant to submit an entry at six specified periods during the year—bimonthly.

Each contestant limited to one 20-pound cubical package at each scoring.

The butter submitted to represent the regular run.

The score card recommended by the U. S. Dairy Division to be used.

The contestant to pay all transportation charges and donate one entry for the premium fund. The receipts for the remaining butter to be remitted to contestants.

Only one class will be made, namely, creamery butter.

A first and second prize cup will be awarded in the class indicated, to the holders of the highest and second highest average, respectively, of the six separate scorings during the year.

A certificate of merit will be awarded to each contestant whose six scorings average 92.

A new contest begins each January, and the prizes become the property of the winner. Each entry will be scored, criticised and tested for moisture.

As there have been so few applications from makers of dairy butter or cheese, classes for these have not been provided. Directions for packing and shipping will be sent each applicant. Those who have already responded need not do so again. Address all applications or letters of inquiry to Herbert A. Hopper, University Farm, Davis, California.

FEEDING WHOLE COTTON SEED

To the Editor: Please tell me, as soon as you can conveniently do so, what you can about the feeding of whole cotton seed to stock and hogs, the results of so doing, comparison with other stock foods, etc.—E. W. H., Sacaton, Arizona.

No cotton seed is grown in California, consequently we have no experience in feeding the seed, except as meal after oil is extracted. Professor Henry, in his "Feeds and Feeding" says:

"Seed as left by the cotton-gin is now a common feed at the South for steers and dairy cows. It is usually supplied to cattle without treatment of any kind, though in some cases it is roasted, boiled or steamed before feeding."

"Trials at the Texas Station by Gulley and Curtis show that seed at $7 per ton made cheaper, though somewhat smaller gains than cotton-seed meal costing $20 per ton. Connell and Carson, of the same station, conclude that boiled or roasted cotton seed is more palatable, less laxative and produces more rapid gains than raw cotton seed, but that the latter makes the cheaper gain. They state that the advantages obtained from roasting the seed do not pay for the expense involved.

"At the Mississippi Station, Lloyd, summarizing three years' work, concluded that steamed cotton seed is better and cheaper for producing milk and butter than either raw seed or cotton-seed meal. Butter produced from cotton-seed meal cost twice as much as that produced from steamed or raw seed. The wise planter, knowing the value of whole cotton seed as a stock food, will not dispose of good seed to the oil mills at prices below its worth to him."

BEETS AND CARROTS FOR HOGS

To the Editor: Kindly inform me as to the value of beets and carrots as hog feed. Also if there is a variety of Egyptian corn that blackbirds will not eat, and if so, its value as hog feed.—A Reader, Oakley.

Both beets and carrots are excellent for hogs, and they are worth about the same, weight for weight. Large mangel beets can, however, be much more easily grown and more cheaply handled. It is usually easier to get a good stand, and as they are large and much above ground, the harvesting is much easier. Who can answer the blackbird question?

A COMPLIMENT TO THE HORSE.

A French newspaper, the Parisien, recently organized a competition, by voting, to discover the animal most useful to mankind. The horse won by a small margin, obtaining 1,269,872 votes, against the 1,243,117 of the cow, placed second. Then followed the dog, 1,203,473, the chicken and the bullock being separated by 300 votes for the next place. The pig, the sheep—whose comparative unpopularity is no doubt due to the poor quality of French mutton—the camel, the lamb, and the bee were placed next in order, all with less than a million votes.

This ought to make a horse laugh, after all the knocks he has had from bicycles, trolley cars and automobiles.

IRISH MULES.

For the first time in the history of the port of New York a bunch of Irish mules were landed recently. They are big, sleek, thrifty, useful-looking mules, and were consigned to James Butler, a grocer of New York, and Mr. Butler was asked about the matter.

"The explanation is very simple," said Mr. Butler, "how I happened to import these mules. Last summer while on a trip abroad I spent two weeks automobiling all over Ireland with my family. I had not been there for a number of years, and I saw many changes, all of them, I may say, for the better. Among the new sights were the number of fine-looking mules we met and passed on the road. They were at work in harness, singly, in pairs, and occasionally a mule four in hand. They showed breeding and high spirit; looked hardy and plucky to me, a superior type that I had never seen in Ireland before. On inquiry I found that a new industry had started up in the horse breeding section of Ireland.

"About ten years ago the British government imported a number of the finest Spanish jacks for the purpose of crossing on the native mares with the view of raising an improved type of mule. The great need for such an animal from a British source was shown during the Boer war. The Irish hunter is famous as the best of his kind, and is a cross between the English thoroughbred and the native Irish part bred mare. I use hundreds of horses in my grocery business, and I became interested in the Irish mule. I had difficulty in finding any for sale, so great is the home demand, but secured a number of the finest specimens for work purposes. They will be put to work shortly on the grocery delivery wagons."

BLACK SPOTS ON PORK.

Prof. E. F. Pernot writes that during the butchering season of the year the Oregon Experiment Station frequently receives specimens of pork that present an unmarketable appearance. The rind, or skin, taken from the abdominal region and inside the legs is found to be dotted with black wart-like growths of various sizes, ranging from that of a pin-head to a hazlenut. Many of these spots in the early stages contain a small amount of pus, and by careful examination a small mite will be found buried deeply in the skin.

The mite causing these pustules and subsequent black spots is known as Demodex fulliculorum var suis, a very large name for such a small mite, that may be seen only by the aid of a magnifying glass.

Just when the mite attacks the hog is not well known, and as it burrows deeply into the skin, treatment or the use of insecticides is of little value; besides, there is no indication of its presence until the time of butchering, when the damage is already done.

These blackened spots, although unsightly, do not injure the meat for food, and they may be completely removed with the skin

COST OF CAMEL CARRIAGE.

Some of our readers who are running freight wagons may like to compare their rates with the cost of camel carriage. Consul-General William H. Michael, of Calcutta, reports that under a new contract for transporting goods by camel pack between Nushki (the end of the new railroad line in Afghanistan) and Dewan Chah, on the Nushki-Seistan route into Persia, during the year from May 1, 1908, the following rates prevail: Nushki to Dalbandin, 7 marches, 24 cents per camel

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50c. on the $

The following articles have been used about 90 days, and are as good as new. They were bought from Baker & Hamilton, and can be had for just one-half what they cost.

In addition to the main articles here enumerated, there are a lot of small things which go with a complete creamery outfit.

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1 4 hp. Economist Boiler, with fittings and 20-foot stack.
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"The so-called gravity separator is not to be recommended. Any deep setting can will give just as good results. The cold water spoils the skim milk for calf and pig feed. The system is no new one, just an old one explained in a different way, but really as old as the dairy business. Get a Tubular Separator."

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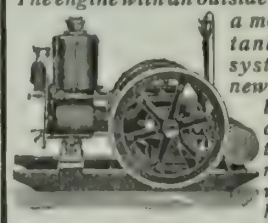
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EASTERN HORSES WILL HAVE A CHANCE.

The War Department has decided to send a representative who is an expert on horses through some of the Eastern States to ascertain if there is any market from which may be obtained animals suitable for military use. Hitherto the purchase of horses has been made by contracts awarded mostly to Middle Western horse raisers. The old system involved considerable trouble in the way of inspection and details in the acquirement of horses on account of the rejection of animals which were not considered up to the official requirements. This, in turn, led to much controversy between the Government officers and the dealers, and it was alleged by the latter that inspections were too often conducted by army officers who did not fully understand what was wanted. This has now been changed by the quartermaster general in the system of acquiring young horses in the open market and having them specially trained for the military service at the army remount depot in Oklahoma.

These horses have in the last year come mostly from the West and Northwest. It is believed that equally good animals can be obtained in the Eastern States, provided a reasonable price is asked. An investigation of the source in those Eastern sections where blooded stock is raised shows that such animals are held at a price which is prohibitive from the standpoint of the Government. The purchases of horses are now made by three or four cavalry officers who are regarded as experts in this matter, and who travel in the West for suitable animals which may be obtained at reasonable cost. Eastern horse dealers will be gratified over the prospect that the War Department is to take special pains in extending its investigations.

FINISHING HOGS.

To the Editor: I have seen a good many articles in the PACIFIC RURAL PRESS on feeding hogs on alfalfa hay and green alfalfa and finishing with corn. What I want to ask, can we make good pork on alfalfa without corn to finish with? Can we finish with wheat or middlings or without any grain?—Subscriber, Eldorado County.

ANSWER BY MR. SYMMES.

Yes, you can get just as good pork from feeding wheat or middlings as from corn. Kaffir corn has not the value of corn for feeding. The majority of the hogs fed in California are not corn finished. Some of the finest pork I have ever eaten was alfalfa and grass fed, finished with soaked barley. Soaking the grain or meal gives better results than feeding dry, and takes less of it. Many hogs are marketed in this State without any feed other than alfalfa, while others are fattened on skim milk following alfalfa pasture.

DEVONS FOR JAPAN.

A consignment of 40 choice Devon cattle, purchased in England for the Japanese Government for breeding purposes, has arrived in Kobe. The average price was $300. All the animals were subjected to a very rigorous turbercle test before shipment.

ALFALFA FOR HORSES.

In the alfalfa regions of California the use of alfalfa hay for horses does not have to be defended as formerly because it is now so well known to be desirable, but readers may like to read an argument in favor of it which is still necessary where alfalfa is a new crop. The Kansas Experiment station puts it up in this way:

There seems to be an almost universal opinion among horsemen, and especially among those that are raising heavy horses, that no other grass or combination of grasses equals or even approaches the value of alfalfa as a pasture for horses; and from an economical point of view it certainly has no equal, as it will furnish so much more feed an acre than any other grass It will not only pasture more horses an acre, but it will produce horses of greater weight, larger bones and stronger muscles.

A horse that has been reared in an alfalfa pasture and fed a light ration of alfalfa all winter makes one of the finest horses to be found in any market today. To produce a horse of the highest type, with the cleanest bone, the best-developed muscle, the best temperament and the greatest action and finish, nitrogenous feed must be used, and in no other feed can this most essential element of nutrition be so cheaply and so abundantly supplied as it can by feeding alfalfa.

The most successful producers of both heavy and light horses are today using alfalfa extensively in the development of their young horses. Its value for this purpose is not recognized by the Kansas feeder alone, for after seeing Kansas alfalfa-grown horses, Eastern breeders, where alfalfa cannot be grown, are sending their colts to Kansas alfalfa fields to be developed as they could not be at home.

A majority of horse owners are inclined to waste hay in feeding horses — that is, they feed more than is necessary for the maintenance of the horse and more than he can economically take care of. This is true of other kinds of hay as well as of alfalfa.

Either heavy or light horses that are doing regular, steady work should not, if one wishes to feed economically, have more than one pound of hay per hundred pounds of live weight. That is, a thousand-pound horse should receive ten pounds per day and a fifteen-hundred-pound horse fifteen pounds a day.

A fifteen hundred pound horse that is doing steady work should have about four pounds of hay with his morning feed, the same amount at night. Many horses will eat thirty or forty pounds of hay a day if they have free access to it. If a horse is allowed to eat such quantities, half of it is wasted, and if he is eating that amount of alfalfa hay, it is worse than wasted, for it does the horse an injury. From two to two and one-half pounds of digestible protein is all that an ordinary horse can utilize in a day, and in one hundred pounds of alfalfa there are eleven pounds of digestible protein. This fare of alfalfa if too heavy fed is likely to cause kidney disorder, and may even be responsible for abortion in pregnant mares that are fed too liberal a ration of it. If it does not cause abortion, weak unhealthy foals will be the result.

Have alfalfa fed judiciously to pregnant mares, heavy or light work horses and it is beneficial and should be used wherever it is obtainable, and it should never be used as the exclusive roughage. Some objection is made to it on account of causing looseness of the bowels and making the horses soft and easy to sweat. This is due to their having it in too large quantities. Alfalfa hay should be fed as part of the grain ration rather than a roughage. If fed in this manner its use will be found very satisfactory.

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THAT CAN'T SKIM CLEAN

Dairy authorities the world over agree that the centrifugal separator is indispensable to the man who owns milk cows. And why? Simply because it saves his cream, hence his money. The more cream saved, the more money, that's sure. But unfortunately many separators do not save all the cream. And worse still, the biggest of claims are made for these machines. Such separators are like a thief at night or the pickpocket who with an innocent face rubs our elbow and then robs us of our wallet. Because of inferior and out-of-date bowl construction, these separators, unknown to the users of them, daily lose a big percentage of the cream.

It is easy to be deceived into buying a "pickpocket" separator, but it is just as easy to avoid buying one if we will but take the advice of those whom we know are experienced separator judges. 99½ per cent of all expert creamerymen, butter manufacturers, and real separator authorities living today use DE LAVAL separators exclusively, for they have learned by experience that the DE LAVAL is the only separator that will save all the cream all the time under all conditions. And the reason for this fact is plain. It is found in the improved patent protected DE LAVAL "Alpha-Disc" separating bowl. It is different from any other bowl, and its peculiar construction is the secret of DE LAVAL clean skimming. Ask for our illustrated catalog, which explains the DE LAVAL bowl in detail, as well as many other interesting features.

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Analysis (from Bulletin 164, Jan. 1905—University of California.)

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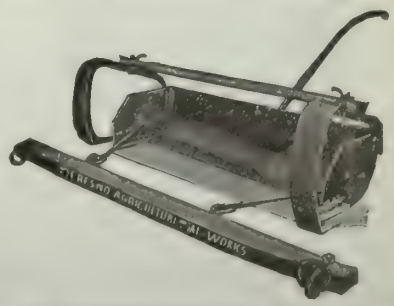
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The Poultry Yard.

HATCHING THE CHICK WITH THE HEN.

Written for the Pacific Rural Press
By M. R. James.

The hen is an old institution for hatching, but her best management is not always understood—and some hens do not seem to understand the business very well themselves. There are good and bad mothers in poultrydom as elsewhere. When only some 25 to 75 chicks are hatched in a season natural incubation is by far the better way.

Early in the season at the most desirable time for hatching, the hen must be handled carefully, for broodiness has not taken a very strong hold of her. In May she will be a set-fast, but in February and March she is apt to be a quitter at the least interference; in fact, hens often leave the nest without any cause and a sitting of eggs is left out in the cold, and little cares the hen how much they have cost when she concludes she has been too previous in the matter. Let the hen remain undisturbed on her original nest for a few days till she has fully decided to hold it down; then remove her to the new nest at night and have it in a quiet place and darkened for a day or two till she is accumstomed to her new locality. If possible set two hens at a time; then the chicks from both may be given to the better mother of the two and just one-half the work saved in rearing.

The prime cause of poor hatches with hens is their being disturbed by other hens, by lice, mites and scale, by children, dogs and rats—or by fussy people. If possible have an unused shed for the sitting quarters; but in a large vessel of pure water, a dish of mixed wheat and corn and a dust bath, then fasten the door and disturb the hens only when necessary. The best nests may be made from grocers' boxes of suitable size. Always use a new one; turn it on its side and nail a six-inch strip across the lower part of the front; put an inch of sifted earth and air-slacked lime in the bottom; over this fashion a nest with clean cut hay or straw; have the corners tightly filled and rounded and the bottom of the nest level so that the eggs will not pile on top of each other.

Treating the Hen.—Have a can of fresh buhach and thoroughly dust the powder through the sitter's feathers; then wrap a sack closely about her and hold it for a few minutes till the buhach gets in its work; with a soft cloth well dampened in coal oil wipe her comb, head, feet and legs and about her knee joints; also spray out her nostrils if at all dirty or closed up. Should her legs be badly affected with scale you will have to spend several days getting them in shape, in the meantime letting her sit on china eggs. Soak the feet and legs in warm water strong with sal soda, being careful not to wet the feathers; then gently work off all the loose scale and rub well into them a salve made of lard, carbolic acid and sulphur. Repeat till the legs are smooth. This looks like considerable work, but it is a small item to what may be expected if you allow the hen to incubate lice and scale along with chicks.

The Eggs.—From 10 to 12 eggs are enough for a sitting in cool weather; later from 14 to 15 may be put under a good sized hen. There is nothing to be gained by crowding the eggs; if the hen cannot well cover them, the outer ones are chilled and the chances for a good hatch lessened. Always notice when the hen comes off the nest if all is clean and intact; should an egg be broken, get a basin of warm water and a clean cloth and thoroughly clean the eggs and put fresh straw in the nest. This is essential. On the seventh or eighth day test the eggs. This may be easily and quickly done by making a conical tube some six inches long with a strip of pasteboard. Place the egg at the small end between the eye and the sun or lamp; if the egg is clear like a fresh one it is infertile and should be removed from the nest; it is well to make a second test about the seventeenth day; this prevents the awful catastrophe of a rotten egg being broken in the nest. Where a number of hens are set at the same time, often two or more of them may be broken up or reset after the infertile eggs have been tested out of the lot. When the eggs are hatching do not disturb the hens; it naturally makes them nervous and fussy and they are liable to crush the chicks. Darken the place if possible and leave the biddies severely alone. Keep an eye on them, however, and if any of them are inclined to get off with the first-comers these will have to be kept in a warm basket and lightly sprinkle them with buhach and cover them with a warm flannel; now give the hens a second treatment for lice and scale; then turn them loose to shake, dust and refresh themselves for a half hour before putting them in their coop with the babies.

The Coop and Care.—An ordinary dry-goods box makes an excellent coop. One about 3x4 feet is about right; with strips of lath batten the cracks; turn it on one side, using the top for the front; over this front tack inch-mesh wire; also have a wide door in the front; with shingles make a roof over the top and have it extend well over the wire and door. Set the box some inches off the ground, but with sand make it level to the ground in front, so that the chicks may run in and out with no trouble. Give the coop a thorough whitewashing inside and out; put an inch of dry sand and small gravel in the bottom; over this in front sprinkle pounded shells and over the shells a handful of chick feed; outside have a drinking fountain made with an inverted can a half inch from the edge in the saucer. If you can have a small yard about the coop the hen may go in and out after the first two days and requires little more attention that giving her feed and fresh water and closing the coop at night.

If the hen can range where she can scratch out insects and get tender green grass and weeds, feed only chick feed the first three or four days, after that cracked corn and wheat; give no slops, milk or the like for the chicks to dabble in; a dirty pinafore doesn't agree with them as it seems to with some babies. When four weeks old give at noon a dry mash. If the hen is confined add well-cooked lean meat and green feed to the chick feed and grain. Chop the meat fine and mix with cut lettuce and a handful of bran, feed a little once a day; keep heads of lettuce, bunches of the large leaves or chard, mustard and the like tied securely above their heads; scrape out the coop daily, scatter a bit of lime dust in the bottom; over this a sprinkling of sand; occasionally dust buhach over the hen after she has gone to her corner; raise her wings and scatter it freely under her and over the chicks. Feed generously; never let the chicks yap with hunger; it gives them a set-back which many times the necessary amount of feed cannot make up; at the same time do not allow dirty soured messes to lie about.

POULTRY NOTES.

At the recent Chicago Poultry Show, twenty-one States from ocean to ocean and from Canada to Tennessee, were represented by their fowls. A woman, Mrs. Ralph Sturtevant of Wisconsin carried off the biggest plum. She won ten prizes on ten fowls, a State silver cup for the best cock, cockerel, hen and pullet, and the association challenge trophy for the best display.

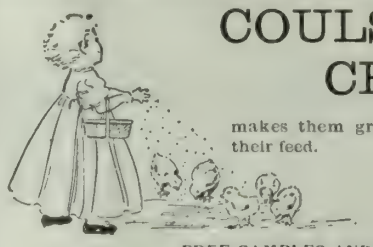
In the Madison Square Garden Exhibition of poultry and pet stock which closed January 2 there were 8000 entries and among them 500 blue-blooded cats. The competition of the song birds was interesting. The Sun says: Before being judged the songsters were placed in a small cage in absolute darkness. Each bird was taken out in turn and placed on a table on one side of a screen and the judge who had to try the singer's voice sat on the other side. In selecting the prize-winners, quality of voice and manner of delivering the notes as well as the variety of notes were taken in consideration. There are seven principal notes in a top-notcher's song.

A Poultry Feeder and Exerciser.—Among the new inventions at the above exhibition was an ingenious machine to make the fowls work for all they get and at the same time cut out the uninvited. "A hopper is filled with grain and set above the heads of the fowls. This keeps the grain from rats, mice and birds. Under the hopper close to the ground are four pedals and when the fowls start to scratch they knock against these pedals and each movement liberates a little of the grain. These machines occupy a space only four feet square, the feed is distributed evenly and no grain is wasted, for when the fowls stop scratching no more grain drops." That ought to get ahead of the sparrows; but the kind we have would be apt to catch on to the trick of the pedals.

NUGGET IN GOOSE'S CRAW.

Mrs. Ulmer killed the goose that was preparing to lay the golden egg. She didn't know it, however, until the well disposed fowl was dead and done for. In its dissection at the Callerman establishment a nugget was found in its craw.

This goose was raised by Bill Matthews and had been roaming about the beach in search of provender. Mrs. Ulmer is to have a pin made of the nugget.—Daily Alaskan.



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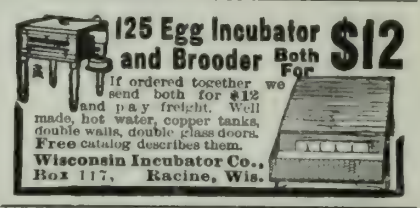
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Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

BREEDERS' SUPPLIES.

JUST OUT Croley s "Little Red Book No. 51." Free. Send postal GEORGE H. CROLEY, 637 Brannan St., San Francisco. POULTRY SUPPLIES.

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Stock for Sale Dept. 31, 320 McAllister St., S. F.

You Get the Most for Your Money

When buying **"Quality S. C. White Leghorn"** chicks from us at 10c. each, because we give you **Free** the **"Chick Book"** containing full instructions for raising them. Order 200 or more.

RANCHO LOS ENCINAS
R. F. D. 76. Glen Ellen, Cal.

velopments in the raisin market, but manifests no disposition to buy, even at the low prices which have been offered of late. The packers here have not secured any great amount of stock at the prices offered, as most of the growers hope to realize better values. Local packers are offering about the following prices, with some little variation, according to quality and location:

Evaporated Apples	4@ 5c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Some of the hold-over Association walnuts have been moved at the appearing quotations, but the market here is quiet and featureless, with supplies fully equal to the demand. The almond market exhibits marked firmness, prices to dealers being considerably higher than before. Stocks are closely cleaned up and there is a good demand. Little is left in the hands of growers, and packers are offering the prices quoted below, 1 cent higher than last week, without bringing out much additional stock.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

The honey market shows no life whatever, as the trade is well supplied [illegible] shows no interest in the market. [illegible] is plenty on hand for all [illegible] the time [illegible] and while first-class comb [illegible] ready sale, the general [illegible] tracted still in the [illegible] other day in the Bar [illegible] ceive little or [illegible]

very much and it must be tho drink with so eager to pick and get th fetch him. market that the growers hav ht back word ing in the rain. to meet the

It is bad for the keeping ed. the fruit to pick, pack and sh afe and chose that is damp. If the grow tion near the tend to ship them damp he and discussed not pick them in that cond hich I was to will dry quicker on the t and my friend than they will in a clo in case of need house. Just now and fo f a chair under it would be better to go . this hurrying to market table against the of lots of thought and eat for our guest Jones is watching the long the wall. In He knows that the E o have him hemmed plied and that the r hoped to get away shipments that the at us. In spite of all great demand for e were both distinctly reach the East af. He is going to get ared in the doorway we demand and to r y to give up. If he had while Jones is the stage he seemed enor- are hundreds t clothes. thinking out eally one of the most gigantic consequenc ings I've ever seen. He came rush and is twirling his mustache in a very winner d manner and eyed us rather sefere with a restless, quick moving gaze. gen After we had properly introduced ourselves we got him hedged in the place we had intended. He would take nothing but a glass of beer, so we ordered beer, and while we were consuming it we made a great play about taking lessons.

"My friend shot a glance at me as if to say 'Get ready!' and we both moved back our chairs warily. Poised for instant flight, I arose and said to our guest:

"'Mr. Hoggenheimer, sometimes in our legal profession we have to do disagreeable things.'

"'Ha! Vot is that? Why?' said he.

"'Because,' said I, producing the summons and shoving it into his tremendous paw, 'I must now serve you with a summons.'

"'Vot for?' said he, bristling.

"We both edged farther away.

"'That's the way we begin a lawsuit in America,' my friend explained. 'This is a suit brought against you by your wife for an absolute divorce.

"He rose to his feet and struggled out from behind the table as we raced for the door. I stumbled and fell and he lifted me in his arms like a kitten. You can imagine my feelings.

"'Mein friend, mein friend! Vot! Divorce from mein wife! Ach! Gott in Himmel! It is too good, too good. Ach! I shall be free! Ah, Gott be thanked! Come to mein arms, my friends,' he bellowed. 'She has begun at last, at last! Kellner! Kellner! Pring a bottle of wine —two bottles! Tonight we shall have a hummer!'

"So we sat down again and soothed our nerves with champagne until the wee small hours. He was the most delighted Teuton giant you ever saw. To see his happiness was worth the headache I had the next day."—New York Sun.

Bacon—Did you see that automobile drama at the theater last night?

Egbert—Yes.

"Was it realistic?"

'I should say so. Why, the machine broke down before they got it on the tage."—Yonkers Statesman.

"So your wife always lets you have the last word in an argument?"

"Certainly," answered Mr. Meekton. "It is necessary for me to have the last word in order to show that I agree with her perfectly."—Washington Star.

Little Willie—Say, pa, what is a respectable fortune"?

Pa—One that is large enough to make its possessor's opinion on any subject respected, my son.—Chicago News.

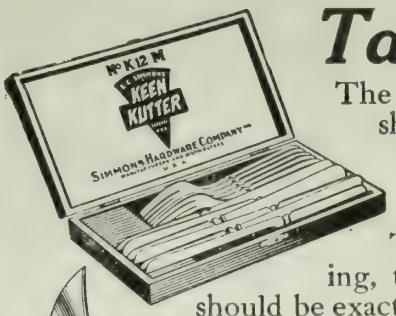


Table Tools

The temper of a carving knife should be unusual—so that the knife will cut easily without being worn out on the sharpening steel. Then, again, for easy carving, the handle and the blade should be exactly balanced for nice work. These are qualities found in all Keen Kutter carving sets.



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Table Cutlery

—from the carving set to the table knives and forks—gives ideal table service. When next buying cutlery be guided by the Keen Kutter name and trademark. It's an absolute guarantee of quality. The Keen Kutter name and trademark also include a full line of tools, scissors and shears, razors and pocket-knives.

If not at your dealer's write us.

E. C. SIMMONS KEEN KUTTER TRADE ST. LOUIS MARK U.S.A.

SIMMONS HARDWARE COMPANY (INC.), ST. LOUIS AND NEW YORK, U. S. A.

THE HOME CIRCLE CHAT.

The Farm Breakfast.

We note a city man's plaint for the old farm breakfast of his boyhood of buckwheat cakes with home-made sausage or ham gravy. His memory lingers lovingly around even the capacious stone crock in which the "risings" were nightly set; and he tells of the art which manipulated it so exactly that its contents never run over nor yet failed to reach the top in foamy lightness. He acknowledges that it may seem a rather strong breakfast diet, but adds that in his experience it produced none but the most pleasant results.

For a truth, when the mercury is playing around the zero point, and the snow creaks under foot while the breath whitens the eyelashes, to come in from doing the morning chores and sit down to a plate of hot buckwheat cakes with gravy from the fragrant sausage or home-cured ham and the accompanying sausage or ham and eggs, is calculated to produce pleasant results and leave a luscious memory. We see no reason why farmers of the present day, or any one else for that matter, should not indulge in these hearty luxuries occasionally during the cool weather—only most of us are short on the delicious home-made hams and sausages.

BUCKWHEAT CAKES.—The old-fashioned kind. Use the best quality of unadulterated buckwheat flour; put a pint of warm water into a warmed stone jar or pitcher; stir into this five teacupfuls of buckwheat flour and a teaspoon of salt; beat till the batter is smooth, then add one pint of warm sweet milk and one teacup of lively yeast sponge; beat well and cover tight and set in a warm place for the night. At breakfast time, fry on hot, well-greased griddles; put the cakes between hot plates as fried and serve piping hot. Many housewives think the cakes lighter if the batter is not stirred in the morning, and dip it out carefully, laying the spoon on a plate afterward. To make with baking powder, mix at night as above, leaving out the yeast, and when ready to fry beat in thoroughly one tablespoon of molasses or sugar and two teaspoons of baking powder.

FRIED MUSH is another excellent breakfast dish for cool weather. Into boiling

A sign hung in a conspicuous place in a store in Lawrence:

"Man is made of dust. Dust settles. Are you a man?"—Boston Record.

Country Boy Preferred

"Send us one of your graduates that you can recommend. We prefer a boy from the country —one who has a bright mind and a strong body, and who is capable of advancement. Good pay from the start, and excellent opportunities to advance."

We receive messages like the above daily from San Francisco's leading business houses. They call on us because they know we have the right kind of young men in our school, and because they know we are giving the right kind of training. If you are interested in the opportunities offered by the new San Francisco write us for particulars.

San Francisco Business College
733 Fillmore St., San Francisco, Cal.

$7.98 Dresses A Man

For $7.98 we will send you the following one Fancy Worsted Blue or Blac. Thibet Suit of Clothes (state color), one Merino Suit of Underwear, one pair of Best Socks, one Fancy Sunday Shirt, one collar, one beautiful tie, one strong pair of Suspenders, one pair of Donga $5.00 shoes. **Send no money.** We will ship you all of these goods to your city with the privilege of seeing them before paying one cent, and if not found in every way as represented and what your home dealer would charge $20.70, return them to us and we will pay all charges.

	Merchant's Price	Our Price
One Fancy Worsted or Thibet Suit of Clothes, state color wanted	$12.00	$5.68
One Merino Suit of Underwear	1.50	.58
Good Pair of Socks	.35	.07
Good Sunday Shirt	1.00	.37
Best Collar	.15	.04
Beautiful Tie	.35	.12
Strong Pair of Suspenders	.35	.14
Pair of Donga $5.00 Shoes	$5.00	.98
	$20.70	$7.98

Freight paid if full amount of cash is sent with the order to any city in the United States. We have 1,000,000 of the above bargain lots which we are absolutely positive will not last more than 30 days; **Order today.**
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"THE OLD RELIABLE"
DIETZ LANTERNS
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PATENTS

White for our Guide to Inventors, sent free on request; containing nearly 100 mechanical movements and full information about Patents, Caveats, Trademarks, and Infringements.

DEWEY, STRONG & CO.,
1105-6 Merchants Exchange Bldg., San Francisco. Established 1860.

salted water stir enough sifted white corn meal to make a ratner stiff mush when cooked; beat smooth while boiling, then set the vessel into a kettle of boiling water, cover tightly and let steam for several hours; turn into a square mould or pan. In the morning cut in even slices one-half inch in thickness and fry in plenty of hot drippings or home-made lard to a golden brown on both sides; drain by lifting with a wire ladle and serve at once on a hot platter; to be eaten with maple sugar or syrup. Cooked in this way the meal will be thoroughly done, tender and wholesome, and the most delicate need not hesitate to partake of a slice of this kind of fried mush.

Fruit when cold, especially in cold weather, is not wholesome for breakfast or likely to be relished—health oracles to the contrary notwithstanding. An appetizing breakfast fruit is:

FRIED APPLES.—Wash and core large tart apples without paring; cut crossways in slices one-quarter of an inch thick; fry in plenty of beef drippings to a light brown on both sides, taking care not to break the slices; when the apples are tender lift carefully onto a hot platter, sprinkle with white sugar and serve hot.

THE FARMERS' MAT.—This is a good time to make one of these handy conveniences for the back door in muddy weather. Nail fence pickets, or strips of board about that size onto two under pieces of four-inch scantling. This is excellent to scrape off the mud or stamp the muddy boots or shoes upon, and saves the steps and porch—and the good housewife's temper.

THE FAMILY ROOM.—This should be the sunniest and most comfortable in the house. The prevailing tint in shades, hangings, etc., should be some shade of yellow; this gives the effect of sunshine in our long rainy spells of weather, and with a bright fire and good heart-cheer makes summer in the home let the clouds hang never so low outside.

Women in the World's Work.

A schoolgirl in Ohio, after paying her father for the use of the land and all outside expenses, has cleared $100 the past season from a quarter of an acre set out to horseradish.

A woman of titled birth in England has become a press agent. It is said that some of the best singers of Covent Garden, London, this season are indebted to her for their success.

At the city court in Denver recently a woman served on the jury. She agreed with the male jurors and voted with them for the acquital of the man being tried for striking a woman.

It is a remarkable sign of the times, says the Sun, that even in Eastern countries, such as Turkey and Persia, the women are in the van in the political movements of the day. In Persia they take part in the struggle for a constitution.

In Finland women have the right to vote and are elected to Parliament. The electoral law states clearly that the citizen is either a man or woman—there is no dispute possible as to the exact meaning of an obscure word, such as "persons," which is just now troubling Great Britain. There is no opposition on the part of men to the presence of women in the Diet and the president himself commends their useful and quiet work.

Through Tropic Climes

ATLANTIC STEAMSHIP LINES
New Orleans-New York Service

In connection with the Sunset Route, between San Francisco-Los Angeles, and New Orleans.

Largest American coastwise steamers.

Elaborately furnished staterooms.

Electric lighted throughout.

Perfect dining service.

First Cabin, $35.00.
Round Trip, $60.00.
Second Cabin, $27.50.

Includes berth and meals en route.

SEE AGENTS

Southern Pacific

THE MARKETS.

San Francisco, Jan. 27, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The market has shown increasing firmness for the last week, as milling grades are very scarce, both here and in the North. The local mill men have been forced into the market, and are now paying the prices asked by holders, causing a sharp advance of about 5 cents on all the better grades. The buying interest, however, is acting with conservatism, and taking on only what is needed for immediate requirements, and the market for the cash grain accordingly shows no marked activity. There is more interest in futures, and the price is higher.

California White Australian	$1.85	@1.90
California Club	1.72½	@1.75
California Milling	1.75	@1.77½
California lower grades	1.45	@1.60
Northern Club	1.72½	@1.75
Northern Bluestem	1.82½	@1.87½
Northern Red	1.67½	@1.70
Turkey Red	1.80	@1.85

BARLEY.

There is now very little movement of shipping grain, and at the moment the demand for feed and brewing barley is also limited. Only moderate quantities are arriving, but supplies are sufficient for the present demand and prices show no further change.

Brewing	$1.45	@1.52½
Shipping	1.45	@1.52½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.40	@1.43¾
Common Feed	1.35	@1.38¾

OATS.

A condition of general inactivity has prevailed in the oat market, largely as a result of the reduced consumption and high prices. Locally, business is very quiet, but the scarcity of stock has brought about another advance covering nearly all lines. White oats are 2½ to 10 cents higher, and the other varieties, except black, show a similar change. Black oats are considerably lower.

White, per ctl.	$1.80	@1.95
Gray	1.80	@1.90
Red, seed	1.85	@1.95
Feed	1.70	@1.80
Black, seed	2.00	@2.30

CORN.

All the Western grades are 2 to 5 cents higher, and the market is quite firm, but shows no life locally. There have been moderate arrivals from the Western States since last report, but stocks in this market continue small, and there is little inquiry.

Western State Yellow	$1.60	@1.70
Mixed, in bulk		1.50
White, in bulk		1.53

RYE.

The scarcity of offerings of rye continue a feature, but immediate requirements have been filled and the demand is by no means large. Prices are firmly maintained at last quota changed hands

Rye

The market condition as la maintained on beans show a s an upward tenc It is doubtful if land along the year and this is on values. The fair proportions continues light. looked for next m est is shown by b eyes are rather we

Bayos, per ctl.	
Blackeyes	
Cranberry Beans	
Garvanzos	
Horse Beans	
Small Whites	
Large White	
Limas	
Pea	
Pink	
Red	
Red Kidneys	

ver cup for the and pullet, and trophy for the

SEEDS.

Continued rainy weath vented the active dema looked for at this time, more inquiry than at the month. The outlook is for active market within the ne Local dealers are quoting prices, which are firmly held:

arden Exhibi- which closed entries and cats. The was inter- being in a on

Alfalfa, per lb.	
Broomcorn Seed, per ton	$26
Brown Mustard, per lb.	
Canary	Each
Flaxseed	2¾ c
Hemp	
Millet	2¾ @3 c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Buyers are taking little interest in the market at present, and with the high prices now ruling they prefer to hold off as long as possible. A larger movement, however, is expected, as supplies are not large. The advance has been made necessary by the rise in wheat, and is firmly held, with no likelihood of a decline before next fall. At the present figures there is very little demand for export.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

Trading in hay has been unsettled for the last week, as the rain has caused some difficulty in making deliveries. Receipts, however, have been rather larger than last week, and as a result the market is inclined to weakness, though there has been no actual reduction of prices. Most of the week shipments have come forward without delay. Outside business was unusually heavy up to a few weeks ago, but has now fallen off materially, as it has been impossible in many cases to make deliveries in the country. A resumption of the country demand, however, is looked for, as supplies in most sections are not adequate for the season's requirements. Arrivals of alfalfa have been rather limited this week, and everything that has come in has met with a ready market at top prices.

Choice Wheat, per ton	$21.00@23.50
Other Grades Wheat	17.00@21.00
Wheat and Oat	16.00@21.50
Tame Oat	16.00@21.00
Wild Oat	15.00@17.00
Alfalfa	14.50@18.50
Stock	12.00@14.00
Straw, per bale	50@ 85c

MILLSTUFFS.

The demand for millstuffs is fair at the moment, but has produced no effect on the market for bran, shorts or middlings. A small lot of bran has just arrived from Japan. Rolled barley and oats are higher, however, and some advance is noted in oil cake and cocoanut meal.

Alfalfa meal, per ton	$23.00@24.00
Bran, ton—	
White	29.50@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Mealfalfa	23.00@24.00
Middlings	33.50@35.50
Mixed Feeds	28.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	28.50@30.00
Shorts	33.00@33.50

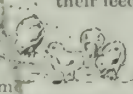
VEGETABLES.

Onions are becoming scarce, as some damage has been done to the already limited stocks by the storm, and arrivals of good stock in this market have been small. The price is accordingly still higher than last week, and everything is closely held. Receipts of miscellaneous vegetables have been moderate, and while the weather has been unfavorable to active trading, prices are generally firm. Some lots of poor beans and peas have been offered at lower prices, but choice lots are quoted as before. The best tomatoes are higher, and celery is not to be had under 50 cents a dozen. Cauliflower is easy, but cabbage shows a slight advance.

Onions	$ 1.75@	2.25
Garlic, per lb.	8@	10c
String Beans, per lb.	10@	17½c
Green Peas, per lb.	6@	8c
Cabbage, per ctl.		1.25
Marrowfat Squash, per ton	20.00@	25.00
Tomatoes, crate	1.25@	1.75
Bell Peppers, lb.	12½@	20c
Chili Peppers, lb.		10c
Egg Plant, lb.	15@	20c
Cauliflower, doz.	50@	60c
Celery, dozen	50@	70c

COULSON'S SPECIAL CHICK FOOD

makes them grow. Throw it in the litter and let them work for their feed.





It contains the best quality of everything they require for first six weeks, **except grit.**

FREE SAMPLES AND PRICES ON APPLICATION TO

Poultry and Stock Food Co.

PETALUMA, CALIFORNIA.

POULTRY.

ORPINGTONS Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

PIT AND CORNISH INDIAN GAMES. O. L. Crane, R. F. D. No. 3, Santa Rosa, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

PETALUMA HATCHERY

The leading varieties of chicks every week.

L. W. CLARK,
615 Main St., Petaluma, Cal.

the market than for some show a decline ment in the weat pected at any time, a looked for. Extras are now cents, and thirds are 5 cents lower than last week. The following prices are quoted by the San Francisco Dairy Exchange:

Egg Incubator and Brooder Both For $12

California (extras), per doz.	39 c
Firsts	37½c
Seconds	36 c
Thirds	35 c
Fresh Cal. Pullets	35 c

CHEESE.

Cheese is in about the same quiet condition reported last week, the only change in values being on new California flats, both fancy and firsts being ½ cent lower and weak at the decline. New York cheddars and Oregon flats remain steady, and Oregon storage stock shows some firmness, but little interest is shown in any description. The following price sare quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	13½c
Firsts	13 c
New Young Americas, fancy	16½c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

Speculative buying continues to be a feature of the market, though there is also a strong demand for immediate consumption. Stock is scarce, Oregon goods being entirely cleaned up, while large losses have occurred in the river districts. A further sharp advance has accordingly taken place on both Lompoc and river stock. Sweet potatoes are in good demand, and all good offerings bring top prices.

River Whites, fancy, ctl.	$ 1.50@ 1.75
Lompoc Burbanks, ctl.	1.85@ 2.00
Sweet Potatoes, ctl.	1.75
Early Rose	1.65
Sweet Potatoes, ctl.	1.75

FRESH FRUITS.

The condition of the fresh fruit market shows little change since last week, as there is little to choose from, and the demand is limited. Apples are fairly steady. Oregon Spitzenbergs being held at $1.50 and up. Poor stock is weak, and pears receive little attention.

Apples, fancy	$ 1.00@ 1.75
Apples, common	50@ 75c
Pears, box, Winter Nelis	1.25@ 1.75
Other varieties	50 @ 75c

CITRUS FRUITS.

Prices are unchanged in the citrus market, though supplies are only moderate and the tone of the market is strong. Trading, however, has been confined to narrow limits, on account of the unfavorable weather, and it has been impossible to get an advance over last week's quotations.

Choice Lemons	$2.00@ 2.50
Fancy Lemons	2.75@ 3.00
Standard	1.25@ 1.50
Limes	4.00@ 5.00
Oranges—	
Fancy Navels	2.00@ 2.50
Choice	1.50@ 2.00
Standard	1.25@ 1.50
Tangerines	1.25@ 1.75
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The packers are looking for a more active market within the next few weeks, and are taking on small quantities in nearly all lines, though in most varieties little is being offered. More prunes are moving than anything else. Apricots are in good demand, but little good stock is to be had. The demand for shipment is very quiet, as it has been for some time. Eastern trade being mostly of a jobbing character to fill immediate requirements. There is a little inquiry for prunes and apricots can be moved without difficulty. The Eastern trade is closely watching de-

velopments in the raisin market, but manifests no disposition to buy, even at the low prices which have been offered of late. The packers here have not secured any great amount of stock at the prices offered, as most of the growers hope to realize better values. Local packers are offering about the following prices, with some little variation, according to quality and location:

Evaporated Apples	4@ 5c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Some of the hold-over Association walnuts have been moved at the appearing quotations, but the market here is quiet and featureless, with supplies fully equal to the demand. The almond market exhibits marked firmness, prices to dealers being considerably higher than before. Stocks are closely cleaned up and there is a good demand. Little is left in the hands of growers, and packers are offering the prices quoted below, 1 cent higher than last week, without bringing out much additional stock.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

The honey market shows no life whatever, as the trade is well supplied and shows no interest in the market. There is plenty on hand for all current needs, and while first-class comb might find a ready sale, the general offerings of extracted still in the hands of growers receive little attention.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼ @ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Since the sales of a week or two ago no business has been reported in this locality, as the weather is preventing the movement from the growers. Prices are unchanged, though the market appears to be firm, with little stock on hand and a good demand in some quarters.

Hops, per lb.	5 @ 9 c

WOOL.

Wool continues very dull, as the weather prevents much business with the growers, and there is little offered anyway. The growers have already disposed of nearly all the fall clip, as there has been some interest in California wool in the Eastern markets of late. Prices are unchanged, but in the absence of business are practically nominal.

Red Bluff (f. o. b. Red Bluff) free	6 @ 7½c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 5 c
Mendocino, free	7 @ 9 c
Defective	5 @ 7 c

MEAT.

The long-continued stormy weather still holds back shipments to this market, causing a decided shortage in nearly all lines. A further advance has taken place on sheep and lambs, and dressed pork is also higher, while all other descriptions are very firm at the advance of last week.

Beef: Steers, per lb.	8 @ 9 c
Cows	7 @ 8 c
Heifers	7 @ 8 c
Veal: Large	9 @ 9½c
Small	9½ @10½c
Mutton: Wethers	11 @12 c
Ewes	10 @11 c
Lambs	12½ @13 c
Spring Lamb	15 c
Hogs, dressed	9 @10½c

LIVESTOCK.

Steers, No. 1	4½@ 4¾c
No. 2	4 @ 4¼c
Cows and Heifers, No. 1	3½@ 3¾c
No. 2	3¼c
Bulls and Stags	2 @ 2¼c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5 c
Ewes	4½c
Lambs, lb.	5½@ 6 c
Hogs: 100 to 150 lbs.	6 @ 6¼c
150 to 250 lbs.	5½@ 5¾c
250 to 325 lbs.	5¼ @ 5½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Jan. 25.—The orange market is in very fine shape. The prices over East are good and the demand is all that could be expected. Demand has been stimulated by the rains, the jobbers naturally thinking that shipments would let up somewhat while we were having such a heavy downpour out here in California. They guessed right; the output did let up somewhat, but not any more than that. Rain didn't seem to stop them very much and it must be that they are so eager to pick and get their fruit to market that the growers have been picking in the rain.

It is bad for the keeping qualities of the fruit to pick, pack and ship an orange that is damp. If the grower did not intend to ship them damp he surely would not pick them in that condition, for they will dry quicker on the tree in the sun than they will in a closed-up packing-house. Just now and for another month it would be better to go slow. Of course this hurrying to market is all the result of lots of thought and study. Farmer Jones is watching the market conditions. He knows that the East is not over supplied and that the rains have so cut off shipments that there is likely to be a great demand for the first few cars to reach the East after the rains are over. He is going to get out a few to meet that demand and to net the big prices! Now while Jones is doing this thinking there are hundreds of other brains at work thinking out the same routine, and the consequence is that all go to it with a rush and send out an over supply. The winner is the man who thinks out a different course from that followed by the general public. A very successful fruit man says that he has made it a rule to do just what the other fellows were not doing.

Shipments to date have been 3261 cars of oranges and 958 cars of lemons, against 4259 oranges and 900 cars of lemons to same time last season. It will be seen that the orange shipments are now 1000 cars behind those of last season.

PUBLISHER'S DEPARTMENT.

To anyone thinking of establishing a new creamery, we would suggest corresponding with W. N. Woodson of Corning before buying machinery. See ad in another column.

The Golden West Centrifugal Pump is a new ad to which we wish to call attention. It is worthy of study before buying other kinds.

A copy of "California Horticulture," by George C. Roeding, president of the Fancher Creek Nursery of Fresno, is just out, and is undoubtedly the finest and most valuable book ever issued by a nursery company in the West. The book contains 120 pages and cover; the profusion of illustrations are all new and remarkably fine. The text gives a description of over 2000 varieties of economic and ornamental plants, besides giving a full treatise on planting, cultivating, irrigating, pruning and marketing by a master in California horticulture. Mr. Roeding is perhaps as well fitted for writing such a book as any man in the State, and he has evidently thrown his whole heart in the work, which will mean much to horticulturists of the coast. Price 25 cents postpaid. The Kruckeberg Press of Los Angeles are the printers and are to be congratulated on the typographical appearance.

THE EMPIRE CATALOGUE.

The new 1909 catalogue put out by the Empire Cream Separator Co., whose ad appears in this issue, is now ready for mailing. It is replete with information for the cow owner. The cuts are excellent, and the line is so complete that any rancher can choose a machine to suit his herd of from one to one hundred cows, or to suit his pocketbook. Every man or woman who is interested in cream separators should send their address at once for one of these catalogues; it is worth reading.

The company is progressive and their phenomenal growth in the last ten years demonstrates how popular their machine must be. They claim their sales now are fifty times as great as eight years ago. They have kept experts at work for years making a study of just what would make the best all-around separator for the rancher to wear out. The result you can see by reading their catalogue or examining their machine.

In 1900 the main building of their large plant was erected at Bloomfield, New Jersey, a suburb of Newark, in which city their former factory was located, and this has been enlarged upon from time to time until today it is one of the largest and best equipped factories in the United States.

The company has a Pacific coast branch located at Portland, Ore. This branch carries a large stock of machines at San Francisco, Spokane, Wash., Helena, Mont., Idaho Falls, Idaho, and Vancouver, B. C. This saves the purchaser from paying a large amount of freight, as he is able to get machines right near home.

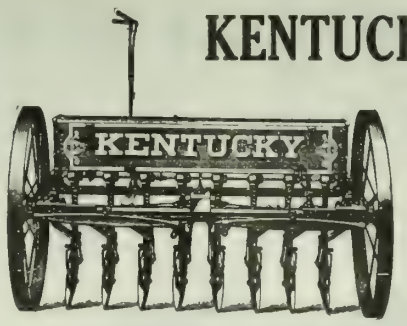
GERMAIN SEED CATALOGUE.

The Germain Seed and Plant Company of Los Angeles has just issued a new illustrated catalogue of 116 pages, which contains much valuable information to planters. The book has a lithograph cover, the front of which shows a street lined with large eucalyptus trees on either side, with the wording, "Eucalyptus the road to wealth." The back cover shows a picture of Germain's Oregon Evergreen Sweet Corn. Vegetable and flower seeds and plants are fully priced, illustrated and described. A complete catalogue of poultry and stock foods, as well as supplies of all kinds, including garden tools. Also general information about the care of the garden, when and how to plant. There is also a complete list of the best agricultural, horticultural and poultry books. This catalogue is sent free to any one mentioning this paper.

NOW BEING DISTRIBUTED.

The annual seed catalogue if the Chas. H. Lilly Co. is now being distributed throughout the entire Western country and is exciting much widespread interest. It is larger this year than ever before, containing 126 pages, sixteen of which are devoted to poultry and stock foods, sixteen pages to roses and plants, sixteen pages to flower seeds and the remaining 70 pages to farm, field and grass seeds, sprays, implements, fertilizers and cultural directions. The Chas. H. Lilly Co. are naturally very anxious for readers of this paper to get a copy of the catalogue. It will be sent to anyone free on request. Write for a copy to the Chas. H. Lilly Co. at either Seattle or Portland.

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5 "	14.50 "	42.50
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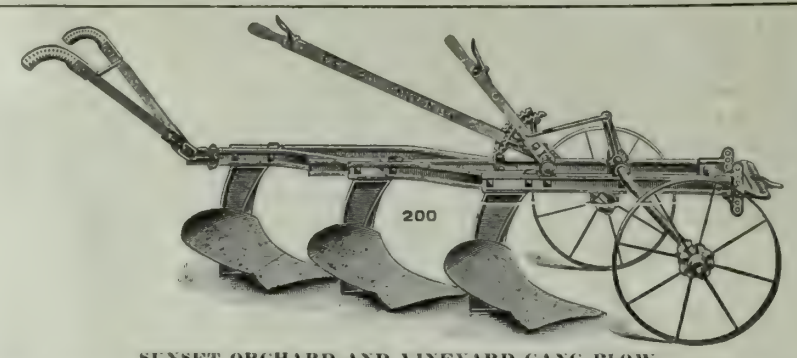
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The beams are of channel steel. The handles are of steel, with malleable handholds, and are adjustable to any desired height. Two levers give perfect control, and when the plow is at work the levers are low down, thus avoiding trees or branches. The beams are high and the bottoms set well apart, giving ample clearance for weeds and trash. The land wheel is set close in to the frame, thus enabling the operator to plow very near to the trees and vines and obviating the necessity of using a hand plow for the last furrow.

The plow is equipped with three 8-inch full steel bottoms, but chilled shares can be furnished if desired.

The third beam and bottom can be removed and the plow used as a two-gang if required.

The handles are used attached to the middle beam, instead of to the rear beam as shown in illustration.

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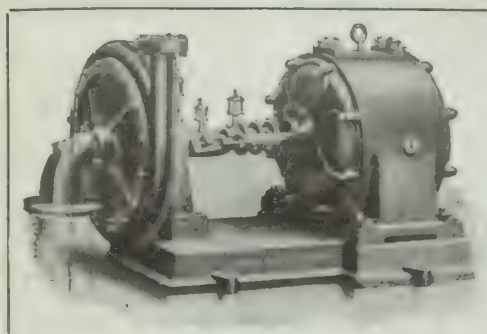
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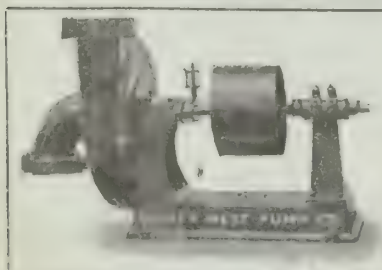
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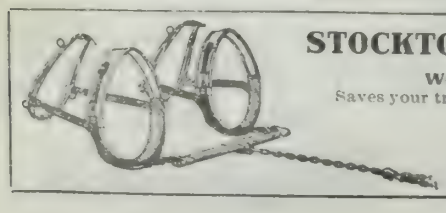


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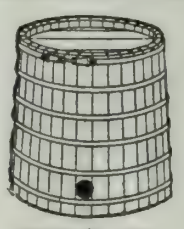
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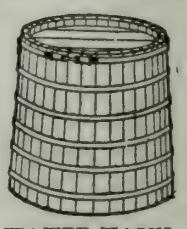
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 6. SAN FRANCISCO, SATURDAY, FEBRUARY 6, 1909. Thirty-ninth Year.

American National Live Stock Association.

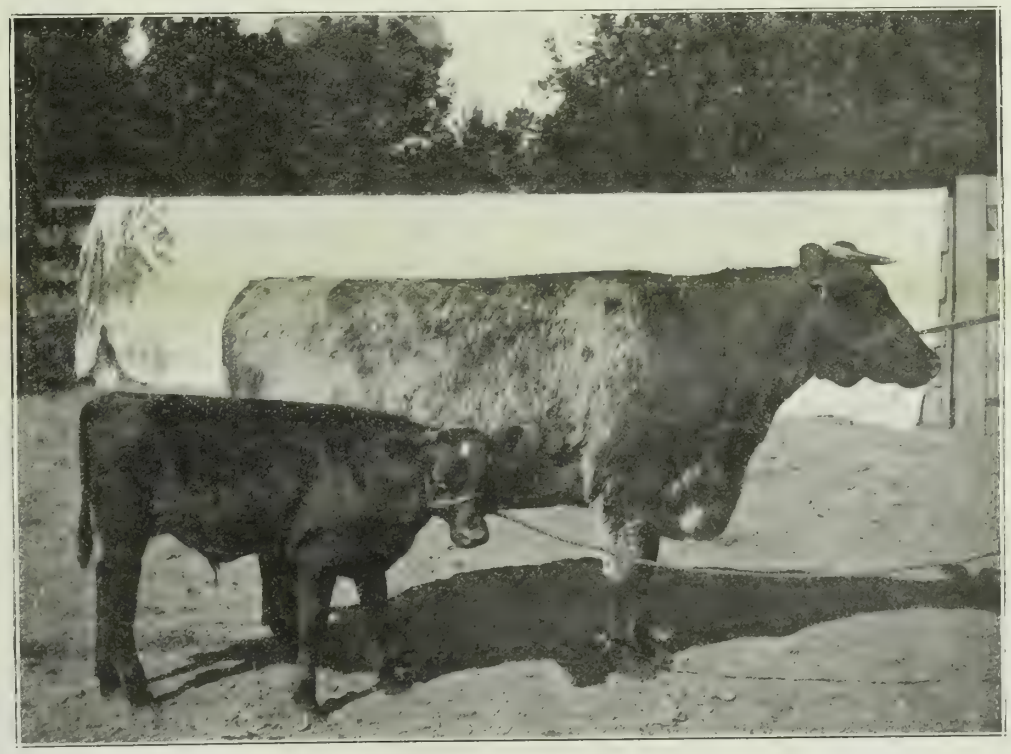
Address of President Jastro, and Proceedings, Reported for the Pacific Rural Press By Mr. L. W. Symmes.

The twelfth annual convention of the American National Live Stock Association opened in Los Angeles on January 26, 1909. Nearly a thousand delegates were present, most of them having come over a thousand miles to listen to the speeches and to take part in the deliberations. Nineteen States were represented, and it was estimated that the stockmen of this association represented a capital of $4,000,000,000. In fact, nearly every State which holds any importance in the live stock industry was represented. The largest delegation came from the Lone Star State, over eighty Texans arriving in a body. Arizona sent over fifty delegates, and Colorado was not far behind. The big men in the live stock industry of their respective States were very noticeable among the workers during the convention.

This association is composed principally of the numerous live stock associations in the various States, and the number of delegates from each State showed very plainly the importance and prosperity of these smaller organizations. The American National Live Stock Association is, then, the central body, representing the various live stock industries of the United States, and that it is an important body is attested by the representative and influential men who attend its conventions. Men of national reputations are among its principal speakers, and the results of its deliberations are felt at the national capital. Governmental policies and laws relating to the live stock industry are affected or made by its influence. Being of such national importance, California is most favored to have been selected for this important convention. Not only is this State honored by the convention just passed, but the executive officer of the association is a California man, Mr. H. A. Jastro, of Bakersfield.

I believe this association will do more for the live stock industry of the country than any other gathering. Its members are men who have built up this great Western industry; men who do more than talk; but they also know how to talk convincingly when it is necessary. With the convention being held within their own State, the live stock men of California were outnumbered by delegations from Texas, Arizona and Colorado. It is time for the stockmen of California to realize, as these men from Texas and other States have found by experience, that in union there is strength, even against the largest corporations. These conventions are productive of much good, and are well worth the time devoted to them. The subjects discussed are of national importance, and we might say, of vital importance to the live stock industry, the small stockman as well as the large one.

The sessions lasted for three days, and were largely attended. Owing to the delays to traffic, several large delegations were held up for several days, only arriving in time for the final session, which proved, however, to be a very lively one.



Mississippi Rose and Enterprise Saturn, Owned by H. P. Eakle, Woodland.

In his annual address President Jastro touched on several important points: what the association had accomplished for the stockmen and the live-stock industry, and what they hoped to accomplish. His address was, in part, as follows:

"This is the first time the American National Live Stock Association has honored California with its convention, and, being a Californian by adoption, I wish to extend to our members, delegates and other visiting stockmen my personal welcome and thanks for their attendance.

"In earlier days California was noted for its many large cattle and sheep ranches. Indeed, the live stock industry under Spanish rule, and for many years thereafter, was one of the most important industries on the Pacific Coast. Today the old ranches, with but few exceptions, have largely disappeared, and the land formerly used for grazing is being devoted to more diversified agricultural pursuits.

"This transition in the Far West is the same as experienced first in the Atlantic States, and then in the Mississippi Valley, and with each decade new conditions and new problems confront us. Before the railroads crossed the great Rocky Mountains and pierced the Pacific Coast there was plenty of free range for all those pioneers who were willing to brave the hazards of the live stock business in the unpeopled West.

"With the advent of adequate transportation facilities came the farmers, who settled in fertile valleys; later on irrigation vastly increased the land available for agriculture. The ranchman was slowly crowded into the mountains and onto the semi-arid region where farming cannot be conducted profitably without water, and where irrigation is impracticable.

"With this development of the West came also the overcrowding and overstocking of the free ranges, and their consequent depletion.

"The lands of Kansas and Nebraska, which were once great free ranges, have now almost entirely passed into private ownership; there is no more free grass in Texas, and it is fast disappearing in the Dakotas, Montana, and Colorado.

The ranchmen of the future in those States will have to own their ranges if they are to continue in the business. There are still, however, in some of our western States and Territories, such as Wyoming, Idaho, Utah, Nevada, California, Arizona, and New Mexico, great stretches of country in the mountains and on the plains, unfit for farming and impossible to irrigate.

"Such land has no value except for grazing, and in all human probability will always have to be used as grazing land. In many districts of this almost arid waste is takes from fifty to a hundred acres, and even more, to support one steer, and under unwise and indiscriminate use and abuse what little value is ever possessed is fast being destroyed.

"Years of experience, much of it full of misfortune, have impressed upon the stockmen the growing evils of uncontrolled and overstocked ranges. Although many solutions have been discussed by live stock associations and other interested, no definite plan satisfactory to all has yet been advised.

"Promptly on adjournment of our convention last year, I appointed a special committee to go to Washington for the purpose of appearing before the appropriate committees in the Senate and the House of Representatives, in support of this land bill, which had been formulated and recommended by our association.

(Continued on Page 114.)

Pacific Rural Press

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., February 2, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	——	——	25.11
Red Bluff	4.23	21.58	14.25
Sacramento	.36	13.15	11.05
Mt. Tamalpais	1.11	24.19	13.01
San Francisco	1.15	15.20	12.90
San Jose	.35	10.52	8.05
Fresno	.18	5.77	5 25
Independence	.02	6.32	5.17
San Luis Obispo	.82	20.79	10.86
Los Angeles	.27	11.36	8.30
San Diego	.01	5.79	5.33

The Week.

The rains continue, and agriculture still calls for a little fair weather during which it can right itself. Prices of several articles of produce are abnormally high because supplies are waterbound. Potatoes are behaving irrationally, meats are flighty, and fresh vegetables cannot get out of the mud. We call the potato market irrational because there has been no great loss by overflow, because there are plenty ready to move, and because there will be no great area of potato ground put out of commission for the season; the contrary of all of which is more or less freely alleged. We do not so much regret that people are paying good prices for potatoes as we fear the reactionary slump, which will hurt more people than the advance can help. When a Japanese grower gets $13,000 for 6000 sacks of potatoes, it is an accident which will hurt all growers next fall, because too many will grasp at the idea of a fortune in spuds, as they did two years ago. The advance in meats will also react in a different way and be injurious in the long run. It is evidently manifest that we cannot escape these irregular and distracting conditions without two great improvements, of which we have recently spoken appreciatively, and which are now pending before the legislature. One is the training of the rivers to adequate water-carriage without injury to adjacent lands, and the other is systematic improvement of highways, as planned by Governor Gillett with his bond issue. Both these enterprises are essential to further development of the State, for no State can be great which allows fertile lands to go under water by townships, and its produce to be held from market by impassable roadways.

Field and fruit work is still retarded by the rains. Winter work under blooming trees gets the grower out of sorts all the rest of the year, unless he is very phlegmatic, and the hope of harvest, with no chance to get in the seed, can only spring eternal in a very optimistic breast. The Californian always feels queer when he gets into a humid region, and it is even worse when the humid region attacks him on his own ground. If it were not for the exciting things in the legislature to occupy his attention, he would be less composed than he is. The general safety and soundness of public opinion on the racetrack abomination is, however, something of a consolation for frigid extremities, and the humorous aspect of the United States holding down California from declarations on the undesirability of the Japanese is constantly amusing.

Now that we are having so much trouble in determining whether there are fewer or more Japanese coming to this country than formerly, and what can be done without offense to overcome the desire of the Japanese to come, it is interesting to note that the Germans are coming in large numbers to help us provide enough labor for rapidly growing American industries. Cable dispatches from Berlin state that multitudes are moving. The last week in January one line of steamships alone brought 5000 passengers who intend to make homes in America, and the expectation is that the volume of emigration during the spring and summer will tend to make up to a considerable extent for the slack traffic of 1908, when the number of persons leaving Europe for America fell nearly 1,000,000 below the record for the previous year. If we can only get enough Germans the decrease of several other supplies will not be missed. The Germans are adventurous and build up the world, but the French seem to like to stay at home and make money to lend to other people. The statement now is that the French are now laying up savings at the rate of a billion a year, and all the world is paying interest thereon. A statistician has recently collected figures to show that France now receives $360,000,000 as an annual income from foreign holdings. He estimates the present wealth of the French people at $45,000,000,000, or more than $1100 for every man, woman and child, and as the estimate is based upon declared succession taxes, it is admittedly much below the real figures. California can support about the same population that France now has, and it favors the pursuit of about the same industries. How long will it be before California has the per capita wealth of France, and how can such a result be attained, and will it be a good thing to attain it in the same way? These are all questions for our high school debating societies.

Turn a glance at a characteristically American way to make money. A dispatch from Manhattan, Kansas, says that Prof. H. F. Roberts of the Kansas State Agricultural College has been experimenting in the breeding of wheat since 1906, and has found a variety which yields twice as much as the average acre-yield of the State. We have no doubt that such a statement is true. But the American way to use the fact is this: "Professor Roberts' experiments have now reached a stage that warning has gone to Kansas farmers to increase the size of their granaries and to buy more threshing machines. 'By next fall,' declares Professor Roberts, 'I will have secured an ideal wheat. Then watch Kansas. Her wheat yield will be doubled, and the farmers of the State will have their annual income increased to the extent of nearly $50,000,000.'" Now, we do not believe Professor Roberts said any such thing. It is only the buoyant kid reporter who can rise to such prophesy. Professor Roberts' work will no doubt lead to an increase of the wheat yield of his State, but he knows, and so does everyone else, except the kind of a prophet which we have indicated, that, no matter how good a variety he gets, he cannot double the average yield from the same area simply by finding or making a new variety. Nor do we believe he said that he will have secured an "ideal wheat by next fall," nor by any particular date. No genuine expert will speak in that boastful way, nor can anyone with a clear thought of an ideal believe that he can attain it by a definite date, if ever. An ideal which is worth having leads on and on, and a man who cannot conceive of such a thing cannot understand the nature of an ideal. We recognize the fact that in ministering to a "generation which seeketh after a sign," it is absolutely necessary to make a claim of "results," but declaration of results is always impeached by claiming too much and by lowering an ideal. Our agricultural experts do not do this, but the free writers of sensations do it, as they should not. The French have done something in this line with wild schemes, but it is not characteristic of them. Their national ideal is ceaseless effort and economy, by which each individual accumulates a little more than he disburses, and the result is that these small savings of the Frenchman make France "the world's banker." Booming enterprise may be the way to develop a new country, but durable development must be based upon sounder economic principles, like those which underlie the fame of France.

In the old days kings had jesters, harpists and that sort of thing to charm the blue devils out of them after they had been living too high or too low, as is the time honored way with kings. But old times have passed, and all things of kings are becoming new. Regard this announcement from the Court of St. James: "The King has been pleased to appoint Harold Robert Dacre Spitta, Esq., M.D., B.S., D.P.H., Cambridge, to be bacteriologist to his majesty's household." We are told, by way of explanation of the measure by which cap and bells have been displaced by lenses and culture media, that the reason for the appointment of a royal bacteriologist is to be found in the number of new diseases incidental to modern life. In future, whenever any member of the royal household, officials, or servants, are attacked with any illness which cannot be readily diagnosed, the royal bacteriologist will be called upon to make an examination. This is all very rational, from the point of view of modern science, but one is disposed to ask whether the germs which Dr. Spitta will spit are really the microbes which are making trouble for those in high places. If one reads "Holy Orders," by Marie Corelli, he will be apt to conclude that something like moral pasteurization, to kill the germs of evil which are already ensconsed in the upper crust of Great Britain, would do more for the country than to locate a bacteriologist at the palace gates. But that is probably too old-fashioned, and so the old national anthem must be re-written: "Bacteriologist save the King!"

All of this seems to have some kinship with the apothegm, "physician heal thyself," and that brings us to the somewhat startling proposition that though the royal family will have a special expert to pull them through, the rather trite condition of agricultural depression in Great Britain must be removed by the farmers, by and for themselves. Even this is not quite new, for various experts, during the last score of years, have reported that the farmers could do this if the government would teach them to do higher farming—that is, grow more jam and kitchen sass, and not so much bread and beef, which could be more cheaply bought abroad. We have read so many such reports that we have come to believe that the

British farmer would perish if the government did not teach him to be scientific. But now comes a declaration that the British farmer is saving himself, not by knowing more, but by working harder. It is so startling that we give it, thus: At the annual meeting of the Farmers' Club, held at the Hotel Metropole, London, the reader of a paper on "Past, Present and Future of British Agriculture," "rejoiced that agriculture bore a slightly different aspect from what it did 15 years ago. The expenditure in farmhouses was much less at that time, and there is a strict attention to business on the part of farmers and their families. There is still room for improvement; while farmers spend much time in general superintendence, there are still many little acts of manual labor which they might perform for themselves without loss of dignity or muscle, though possibly adipose tissue might suffer." Is it possible that we have been mistaken all this time: that all the bent backs were really convex on the ventral side: that all the horny hands were faced with velvet: that all eyes of toilers were not dimmed by over-heavy tasks unlit by thought, but by indulgence in indolent introspection! Oh, how we have been deceived by these lazy louts of British farmers. The fault is not in their schools but in themselves that they are underlings. Scourge the rascals out of their adipose! And a man at a Farmers' Club says so. Is it a wonder? They say that the best slave driver is one who has been himself a slave. If all the wisdom the British farmer is to have is from such Farmers' Club proceedings, we cry: Save the British farmer from himself!

The meeting of the National Live Stock Association in Los Angeles occupies several of our columns this week, and more will come later. Resolutions were adopted endorsing the work of the United States Forestry Bureau and declaring in favor of Federal control of grazing lands. The convention also endorsed the Curtis-Scott land bill, providing for Federal control of lands, with leasing privileges to stockmen; the Culberson bill for the improvement of railroad service; favoring a protective tariff on live stock, hides and wool, and the extension of our foreign markets; and endorsing President Roosevelt's attitude toward the live stock interests, and the administration of Secretary of Agriculture Wilson. One of the most gratifying transactions was the re-election of Mr. H. A. Jastro of California to the presidency of the Association.

Queries and Replies.

Stayman and Missouri Pippin.

To the Editor: I have purchased your "California Fruits and How to Grow Them" and find two mistakes. First your description of the Stayman Winesap states it is an old variety. I should call it new, and a very good one, too. Next you state the Missouri Pippin is losing favor on account of poor keeping qualities. The Missouri Pippin is the best keeping apple we have in California and there have been more of them planted in Santa Clara county the last two years than any other variety, because they do keep so well and show such good color. Mr. Gallagher picked 20 boxes to the tree on his 8-year-old trees this year and sold them at the same price as Newtowns.—W. H. Hannibal, San Jose.

Thank you. Old and new are relative terms of course. The Stayman was not the one which made trouble in the Garden of Eden; that was the Slayman, or the Outman. The Stayman originated from a seed of the Winesap with Dr. J. Stayman of Leavenworth, Kansas, in 1866, and therefore though not very old is not very new. We agree that it is very good. Our remarks against the Missouri Pippin was based upon its disposition to core rot nearer the coast than Mr. Hannibal's district. We are glad to know of its value anywhere and shall be glad to have further testimony either way.

Grafting Cork Oaks.

To the Editor: Would you be so kind as to let me know if anyone has grafted the cork bark oak on the live oak. I have the idea that they would unite, from a Frenchman. What do you think of it, if it never has been done? I sent to you a short time ago for information about bleaching walnuts, which was kindly furnished, and I found it effective.—Reader, Los Gatos.

We do not know anyone who has grafted the cork oak upon the live oak, but should think that it certainly would take well. The cork oak, as you know, has demonstrated its thrift in California, because it was introduced over fifty years ago and a few old trees are now to be found in different parts of the State. What advantage there would be in grafting on one of our native oaks does not, however, seem clear. It is not necessary to do so in order to get acorns, because there are plenty of them to be had from the trees which have been bearing in California for many years, and as the value of the cork oak tree is chiefly in the growth of a long straight stem for bark peeling, it would be much more likely to get such a stem from the seedling, unless the graft was put in at the root crown, and even this does not seem to be necessary, because it is so easy to grow cork oak seedlings.

To Catch and Hold On.

To the Editor: We find great difficulty in keeping our golf "greens" in good shape during the summer, for the reason that the soil, being so sandy, the water runs off just as fast as it is put on. Would this condition not affect the growing of the Bermuda grass? I had the impression that this required a great deal of moisture. Could you give us specific information as to planting the roots—that is, how far apart you would suggest planting them?—Driver, San Mateo County.

Bermuda grass is the most drouth resistant grass we know of in California, and will hold on to the sides of a dry roadway, and would soon cover it entirely if the wheels did not cut it off. We know no other plant which will hold on soil in a situation such as you describe and which starts so readily from the root that the long roots which the seedsman will furnish you can be cut up into small pieces and raked into the soil. This should be done after the danger of frost is over and there will be spring showers enough to start the roots; after that it will take care of itself.

A Refractory Subsoil.

To the Editor: I have poor spots in the orchard in places that have been scraped down all the way from 4 to 12 inches in grading the land. What can I do to improve the condition of this soil? I have tried stable manure, but it does not seem to do much good. Will gypsum do any good, and in what quantity? Will Myrobalan plum root do better in such soil than plum root? I planted an acre of apricots on Myrobalan root three years ago. Nearly all of them are in fine condition, but ten of them died last summer, and big lumps of gum came out on the stem and branches. The leaves turned yellow and the trees died in a short time. Last winter when I pruned I came to an apricot tree that looked very sickly. It looked as though it had been painted all over with some black gummy stuff. I cut all the limbs off, with the intention of digging it out, but neglected to do so, and it is now as large and fine looking as any of the rest. What was the matter with it?—Fruit Grower, Fresno.

As for the uncovered subsoil, treatment with stable manure would seem to be a very good thing, providing you use moisture enough to secure the decomposition of the stable manure, and do not allow it to act as a drying agency, which it certainly does when it remains coarse and undecomposed after application.

Whether gypsum would be of any use depends upon what alkali you may have; also upon whether your soil is heavy or light. On light, non-alkaline soils, it would be of no advantage. On clays it would render the clay more friable.

The Myrobalan root does better than the peach if the soil is inclined to be heavy and to hold too much water. It is also hardy against drouth. What you say of the vigor of most of your trees on that root is not surprising. The trees which die and indicate distress by gumming must be in places where the soil is too trying even for this root, because a gumming of the top almost always indicates root trouble, unless sunburn of the bark is the cause, but that you would be able to distinguish, because it is always on the sunny side. The tree that looked badly but grew well afterward was able to restore the fibers of its root system and therefore enabled to proceed regularly, and was helped to do this by pruning away the top; those which died found the condition too difficult for such restoration.

The Real Test of Value in an Almond.

To the Editor: I am sending a package of almonds and would like your opinion of them as a commercial almond, and how they will compare in quality with the IXL. These nuts grew in my orchard this season. The tree resembles the Drake's Seedling; the nuts, as you will observe, resemble the IXL, only they are darker in color and are a plumper nut than the IXL.—Grower, Sutter County.

The nut seems to be an acceptable one of the medium shell class, with possibly a little more of the aspect of the hard-shell almond than is desirable. It should, however, be very desirable for shelling purposes, because of the plumpness and relatively large weight of the kernel. The main question would be as to how full and regular it is as a bearer. For, as you know, some of the lower priced almonds are more profitable than the higher, because of the freer bearing. The real test of commercial value must be attained by submitting samples to those who are actually buying almonds. But unless you know something about regular bearing, it is too soon to do anything but watch it.

A Twin Almond.

To the Editor: I send a sample of almonds from a sport (seemingly) of one tree in my almond orchard. They begin to hull themselves on the tree. The left side dries first, then it commences to peel off the entire side, exposing a reddish hued almond, and as the hull has a peach blow cast, it makes a very pretty appearance. The tree had 24¾ pounds of nuts at the fifth summer from setting, and as there were others found under the tree and some eaten, I am safe to put the weight at 25 pounds. I would be pleased to have you give me the name of the variety; or, should it be a new sort, please name it for me.—Enquirer, Stanislaus County.

What you say about the almond is very interesting. It has, however, one defect, and that is that the kernels are twinned in the shell. This was in the early days thought to be a desirable thing, when philopena presents were more popular, and so a variety called the Routier twin almond was propagated and planted considerably. Whether this is the variety you have, or another sport, the fact that all the kernels are deformed, by occurring two in a shell, makes it wholly undesirable for planting at the present time, where the demand is for the single kernel symmetrically shaped and solid. Your tree may be interesting and profitable as a single specimen, but we would say it was not desirable for propagation.

Horticulture.

A PLEA FOR SEEDLING ENGLISH WALNUTS

To the Editor: I have followed with much interest the discussion in relation to walnut culture, both in the press and at the farmers' institutes. Some of these discussions have been very amusing, and a great deal of it very conflicting. At this season of the year the planter is much interested in the question of whether to plant seedlings or grafts, and what variety of either, and if grafts, then what root. For 15 years now these have been the interesting questions in our immediate vicinity and more or less all over southern California. Of late years it has spread up the coast clear to the Canadian line.

As to Grafted Nuts.—One of the amusing things comes from Mr. W. A. T. Stratton of Petaluma. He says: "Speaking of walnuts, I have several trees, 10 years old, growing in deep rich, black soil, that scarcely give me a quart of nuts a year. I keep them only for scions for grafting. Franquette does the best, with the Santa Rosa second." Are we to infer from this that Burbank's famous Santa Rosa is doing but a little better than a pint of nuts to the tree? Mr. Stratton's experience seems to indicate that either the grafted nut is an entire failure in that section or that the varieties were wrong.

This year a man in our county reports nearly 100 pounds per tree from grafted Placentia Perfection on their own root at nine years old. Some five or six years ago a nurseryman near Santa Paula was advertising the Placentia Perfection as free from blight, and only two years ago another near Whittier was advertising grafted Placentia Perfection as immune to the blight.

Last spring at the Farmers' Institute at Whittier it was said the Placentia Perfection would have to be discarded for varieties that were immune to the blight. For the past eight years there have been discovered many trees and varieties immune(?) to the disease. At the present time there are many varieties advertised all over the State, each as the only and sure immune one. The blight and observation have already removed many of these from the list of the immune, and it is the opinion of the writer that these agencies will soon remove them all from this list. Year in and year out, the grafts, so far, have proved very erratic bearers, being very tender and therefore subject to frost, excessive dampness, heat, and blight.

As to the Root for Grafts.—A great many desire a root that will grow in soils in which the soft-shell root cannot possibly thrive. In discussing this question with some planters at Santa Paula about six years ago, the writer told them that such soils were not suited for walnut culture, and that a man with such soil should go into some other line of ranching. I am strongly of the opinion that the soft-shell root is the best to graft or bud on. Yet if people will insist on planting walnut trees on uncongenial soil, then the northern California Black is the very best wild root.

As to the Seedling.—The seedling walnut, however, is the one so far that has produced the burden of wealth in the walnut sections. This, too, in the face of the facts that the selection of seed until recently was poorly done, the soil not always of the best, and the culture, irrigation and fertilization always at the minimum. There have been some good seedlings planted in central and northern California, and when these get to be ten years old they should give better than a "quart of nuts" to the tree. If the conditions are suitable for them they will give a good account of themselves, as they have done here. Yet we are digging up walnut orchards here, both seedlings and grafts. Last spring one man was digging out his grafted trees and selling them at $5 each to cut up for grafts. Another man is digging out his seedling orchard this winter, though he says that it pays him 20% net on his investment. Both of these men look for better returns from Valencia orange trees. In fact, the planting of Valencias threatens to outdo the Belgian hare.

Mr. J. B. Neff, here, is top-grafting to one of the so-called immunes, while a seedling orchard next to Mr. Neff's is reported to be netting 25% on the investment. He, too, is hoping for something better.

As to Selection.—The important thing with the seedling is proper selection. Not only should the trees from which the seed is taken be good regular bearers, but care must be taken to see that there are no bad trees in the immediate vicinity. The accompanying photograph gives a most striking illustration of the effects of pollen on the nuts. These nuts were grown in Mr. Hartung's back yard at Anaheim. The Klondike is a very large nut, with deep corrugations, making it exceedingly rough. The pollen from the tree of Group III smoothed down the roughness of the Klondike, so that one of the nuts of Group II is nearly as smooth as the soft-shell. The size, too, is considerably decreased, as can be seen. It should be noted that the nuts of Group II are not what is commonly called a cross or hybrid of the two varieties, but were growing on the same tree as Group I, and at the same time. This demonstrates that pollen from another tree will and does effect the growing nuts, as well as the nuts of the future generation. When selection is properly done, the seeding will give at least 95% No. 1 nuts. Even where the selection has been only moderately well done, the seedling has proved, and is proving, to be a money getter, even under very primitive treatment. Where conditions have been suitable and care moderately good, the yields often go more than a ton to the acre, for 17 trees, single trees going as high as 500 to 500 pounds.



Group I—Typical Klondike nut, grafted.
Group II—Nuts from the same tree as Group I, but modified by pollen from tree of Group III.
Group III—Typical soft shell nut.
All greatly reduced: the largest nut is 2½ inches in length

A Comparison.—To sum up, I think it cannot be gainsaid that the grafts produce larger, nicer looking and finer flavored nuts; that they bear earlier; that they are erratic bearers, with a strong tendency to shy bearing (this is strongly indicated in the case of Mr. Stratton); that they are more tender than seedlings, and therefore more subject to frost, excessive dampness, and heat, and to the walnut disease. That the seedling has proved successful under adverse treatment and selection; that with proper selection and care it will prove more successful in the future, and produce at least 95% No. 1 nuts; that it is hardier than the graft and is therefore less subject to frost, excessive dampness and heat, and to the walnut disease. Finally, that the seedling is reacting to the business demand, 20 to 25% net, while the graft, after 15 years, has its way to make, commercially.

A. A. Mills.

Anaheim, Cal., January 6.

[Mr. Mills' letter is very interesting, and as the recent talk has all been of grafts, we are very glad indeed to have a champion of the seedlings with such wide experience and observation as Mr. Mills has. It is rather unfortunate, however, that he makes so much of Mr. Stratton's casual remarks about walnuts in connection with his eucalyptus article. The Petaluma district has not done enough with walnuts to be cited as widely instructive. It is likely that the experience with seedling walnuts in that region might not be better than with grafted; perhaps even worse.—Editor.]

STRAWBERRY TESTS AT ELK GROVE.

To the Editor: Among our many experiments the past few years, we have tried some 90 varieties of strawberries that we believe have not been tried in our State heretofore. Believing that it is as good a policy to give a report on varieties we try as to report on seed and plants sent out by the Experiment Station, we are sending you the following:

Among the very early berries that are heavy bearers, large, and with all the good qualities, is the Morning Star. It ripens a few days later than the Excelsior, and is a large, beautiful berry, a very heavy bearer and quite firm. This is the best early berry we have found.

A close second to this is the Abington. It is larger than the Morning Star, bright red in color, firm and fine flavored. It bears abundantly, is a favorite in our local market and ships well.

One of the most beautiful early berries we have tried is the Virginia, an imperfect sort, that bears abundantly and is very attractive and very early. It is one of the smoothest berries we have.

The next early berry that we have is the Florella. This is one of the best varieties we have ever grown of the earlier varieties, and is one of the prettiest, being firm, a good shipper and fine flavored.

We have found in this lot of varieties a number that out-bear any of the old California favorites. The first of these is the Oom Paul, which is an excellent shipping berry, good flavor, and we believe this is the best bearing berry that grows, for our soil. All the berries are large, and the plants produce all the time, winter and summer. Many plants at this writing have a number of good sized berries on them.

The Crozier and Prof. Fisher are a close second to the Oom Paul, being heavy bearers, firm and of good flavor.

The Echo and Climax bear abundantly, the berries being firm and of medium size. The Glen Mary is a wonderful producer here. One of our plants had 281 berries and blossoms on it the 15th of April. Some of the berries were ripe, and all made large berries.

Among the good shipping berries that are good producers are: Oak's Early, Parson's Beauty Reliance, Warfield, Velvet, Wolverton (extra good), Vick's Uncle Jo (the finest flavored berry that grows here), William Belt (this out-bears the Jessie and is very firm). Steven's Late Champion has done well here. The Chesapeake is nearly a brother to the Dollar, but is preferred on account of its flavor, and is even more firm than the Dollar.

The largest berry that we have, and one that produces as many berries as any other, is the New Globe. It is solid, a good shipper, and the most attractive berry that grows. We shipped some of these berries to Seattle, and we got two letters from parties there asking for the name of the variety.

Among the local market berries that produce as much or more than the Jessie and Marshall, we favor the Fairfield (which has an apple flavor), Good Luck, President (very beautiful and large), Hummer, Pennell, Nettie, Tennessee Prolific, and Mitchell's Early. These will stand shipping to San Francisco, but not farther.

One of the best firm, fine flavored, erect growing, and great producers we have is the Cardinal. It is one of the most attractive and stands long-distance shipping.

Our descriptions are brief, but we feel that our experiments will help others, and when you may be asked about varieties this may be reference for you to those we have tried. We have many varieties that have proved failures.

Claud D. Tribble.

Elk Grove, Sacramento County.

Fruit Marketing.

THE CALIFORNIA FRUIT EXCHANGE.

To the Editor: I noticed in your issue of January 2, 1909, a letter by W. C. Walker, manager of the California Fruit Exchange, with a statement following it. If you can spare the space in

your valuable paper, I would like to ask Mr. Walker to answer two questions:

First, in Mr. Walker's letter he says, "The exchange is non-speculative, and does not buy in any manner whatsoever, etc." In the statement following his letter, paragraph seven reads as follows: "The California Fruit Exchange is represented by salaried agents, etc. Fruit is sold in carload lots to the wholesale trade only. There is very little cash f.o.b. business. However, a great many orders for shipment are filled. These cars are shipped subject to inspection on arrival. Rejections are comparatively few, as they aim at, etc." Are not these two statements slightly at variance?

Second: While this system of inspection on arrival is the safest that could be devised for the corporation, could you, after your experience for the past two years, get up a worse one for the fruit grower?

GEO. W. ASHLEY.

Lodi, California.

Answer by Mr. Walker.

To the Editor: The writer has perused the questions referred to in Mr. Ashley's letter of the 11th inst. The statement of the Exchange is perfectly clear in regard to its being non-speculative, and the paragraphs referred to are not in the slightest at variance. The fruit that we use for filling f.o.b. orders belongs to those shipping through the Exchange. The Exchange itself does not speculate at all.

In regard to the second question, the system referred to, namely, inspection on arrival, is not of recent construction, as anyone having a knowledge of the fruit business knows. The Exchange has been forced to follow the custom of the trade, because we have been in the minority, and it is certainly up to Mr. Ashley and persons in his position who believe in co-operation among growers to join hands with this Exchange and help change a great many conditions that have prevailed to the detriment of the California fruit growers. The writer, at the last State Fruit Growers' Convention, stated publicly that we desired to receive any suggestions whereby we could improve the systems that now prevail, and if any suggestions can be offered through your valuable paper, none will appreciate them more than this Exchange, as we are purely a growers' movement, and are aiming to improve their position. That is what we want, and it is what every fruit grower in the State should want. The policy of this Exchange, as shown at that wonderful meeting we held in the Y. M. C. A. Hall, Sacramento, proved to be broad and fair, and our growth of 92% in tonnage last year, against 67% increase for the State, must prove beyond doubt that our system is on the right track or else we would not have such a large flocking to our ranks.

W. C. WALKER,
Sacramento, Cal. General Manager.

Citrus Fruits.

THE REVERSION OF PHOSPHATES.

Written for the PACIFIC RURAL PRESS
By THOMAS C. WALLACE.

As three thoughtful growers have within the past fortnight propounded the same question, though varying in the detail phases of it, I presume it is a live subject for these columns, even thought what we say may be largely categorical. The broad question raised is, what has become of the very large amount of phosphoric acid put into the soils of their orchards during the past several years? All these enquirers are reading men who have informed themselves on, and accepted, the dictum of agricultural chemistry, that plants absorb only soluble substances, and accordingly they have been regularly for years putting water soluble phosphates into the soil for their trees. That they have not been able to detect any important after results on second and third crops from these applications does not prove that there has been none. They have applied phosphates steadily as a business transaction, and not with a view to experimenting, going on the basis of the knowledge that is, and simply choosing superphosphates as the most easily available, because the most soluble, for their trees. The general law recognized from the result of carefully guarded experiments in Europe and America is, that water soluble phosphates are changed to insoluble forms through the phosphoric acid making combinations with the lime, iron, alumina, and humate compounds of the soil. This action is called reversion of phosphates, and is a gradual result, not owing to any tardy chemical action, but due to want of contact or distribution through the soil. Most of the experiments have shown practically complete reversion in less than a month, but soils differ in the time required for reversion. As well the degree of saturation, or degree of constant water, in the soil affects the reversion, as also the rapidity of distribution. One grower who is well versed in chemistry raised the point that as our soils are alkaline the reversion of the phosphoric acid to difficultly soluble basic compounds is less likely to occur. This would be based on the presumption that the soda, potash, magnesia and lime of the soils would get such a proportion of the phosphoric acid that less would go into the iron and alumina. This may be true, but until it is so proved by actual controlled experiment in quite a number of different classes of soils which we have in the citrus belt, we must take the ground that the soluble phosphoric acid applied to soils so rich in iron and alumina as our present, is reverted quite rapidly into insoluble compounds, mostly mineral, as these soils are not particularly rich in organic compounds. The results of most orchard fertilizing experiments have led to the opinion that untreated steam bone (not glue-extracted) is a preferable form of phosphates for trees, as the feeding has to be extended over at least three seasons of each year, during which time the roots cannot be seriously disturbed. It is true that such bone contains practically no water soluble phosphate, but as against this it has the advantage of containing 30 to 40% of organic matter, which decomposes gradually and produces its own dissolving action to make the phosphate available to the tree. It must not be thought that the tree needs simple water dissolved food in the soil to get its nourishment, because the root feeds by osmose, which is a give and take method, the root passing out through its membrane substances which commingle with the surrounding food material in immediate contact with it, reducing it to a condition for easy absorption. It is quite true that the roots can get phosphoric acid from water soluble material with less exertion of its own power of assimilation than from the more difficultly soluble phosphate of bone, but unless we discard all known experimental results we must admit the disability of superphosphate to be that it reverts too rapidly for the steady and continuous feeding demanded for trees, when compared with the slower though more even offering of food by properly prepared bone. I use these two forms of agricultural phosphate to illustrate my point of view, as they are the only phosphates that carry within themselves the essentials of self dissolving in contact with soil. My opinion is that superphosphates used in our soils pass into insolubility, and as such are locked up until partly redissolved by the action of carbonic and other acids, resulting from decaying cover crops and manures, to fit them for root action to convert them to assimilable food. This opinion is based on observation, and such knowledge as we have, over a considerable period of years. When I came to southern California I feared to use untreated bone, as I found the soils so devoid of organic matter and continuous moisture that the results seemed too doubtful, as it did not appear that the natural heat and moisture of such soils would be sufficient to carry on rapid decomposition of the bone. With the improved methods of soil treatment which have since prevailed, this trouble has been overcome to a great extent, but beyond this I have found such excellent and continuous results accrue from the use of properly conditioned steam bone that I no longer doubt the efficacy of it, and that it is quite equal to superphosphate, though slower, in feeding value to citrus crops, and has the advantage of what may be termed "staying qualities." I consider that if abundant organic materials are put into the soil to decompose and reduce the reverted insoluble phosphates remaining in the soil to forms which plants can attack, that they can be recovered, but it is a very slow process, and may prove too tedious and costly for the grower's purse. This matter appears to be an important subject for experimentation by our experiment stations, and as it will take years to prove it out, no time should be lost in getting down to it.

CITRUS NOTES.

How Ill News Travels.—Evidence of the harm done by the "scared ones" or "calamity howlers" who give interviews to the newspapers to the effect that much fruit had fallen as the result of the late cold spell, shows up in the efforts of the Eastern fruit buyers to claim shrinkage on recent shipments. The Exchange grower is fully protected in such an emergency, as he has his own paid agent at the selling end to inspect and weigh the fruit. This has resulted in contradicting the claims of the buyer and establishing the soundness of the fruit. Of course, there has gone to the East fruit that was picked from the ground. This fruit is undoubtedly unsound, and likely to show up as such, but the fruit picked from the trees has not shown any appreciable defect in weight, and its quality has been as good as could be expected for the time of year. An orange may look perfectly sound to the eye, even after most careful examination, yet may be defective, and should not be marketed, as it not only lowers the standard of California fruit; but marketing it is an imposition on the innocent buyer, who does not find out the defect until too late to protect himself. Fruit which has fallen from the tree should never go into the packing house, but should be destroyed, as it is not marketable, in the fairest sense of the term.

An Agricultural Library.—An important movement is now being made in connection with Riverside's Carnegie Library to furnish the shelves with the best literature available on agricultural and horticultural subjects. The matter is in the hands of Horticultural Commissioner Condiff, with whom Mr. James Mills and the writer are acting as a committee. It is proposed to go further than the mere choosing and supplying of books, by mapping out a course of reading on each subject upon which the grower and farmer may desire to inform himself. This will include not only textbook reading but as well a reference table to the bulletins, experimental records, periodicals, and annuals which help to a more practical understanding of the subjects. From such a course it is thought the grower can inform himself more surely and more practically than by attempting original experiments without the best information and means of correct reading of results. There has been a vast amount of experiments all over the civilized world, much of which is valuable, and which, having been made by trained experimentors with facilities for controlling many disturbing factors, can be relied upon as settling points which years of home experiments by a grower may fail to more than puzzle him. In fact, some of their experiments have occupied the practical working life of some earnest, scientifically trained men, and the conclusions they have arrived at are usually good data for the practical student of today. To take advantage of all this, the grower must make himself acquainted with the records of experiments bearing on the subject of his research, as well as the conclusions and reasons of the experimentors as grouped by the textbook writers, or corroborating or contradicting them. It is for this reason that it is considered advisable to group the actual work as recorded with the text library. Few growers can afford the time, even if they have the inclination, to wade through the mass of bulletin and periodical records to find the evidence they require of the conclusions presented by the textbooks, and such a reading course as we propose should be of important value to them. Most of the writers in the periodicals are practical men or trained experimentors, who put in popular language the valuable conclusions reached in the course of daily agriculture and experimentation. Some of these are written in foreign languages, but they can be read and translated when found to contain valuable information for our growers.

T. C. W.

AGRICULTURAL REVIEW.

HORTICULTURE.

A 250-acre orange grove is to be set out near Globe, Tulare county, this season.

A 10-acre orange grove near Porterville sold last week for $12,000. This is a record-breaking price.

Orange growers of Lindsay will meet today, February 6, to organize an association for mutual benefit.

The estimates of the cantaloupe crop to be grown in the Imperial valley this year place the total at nearly 5000 acres.

Dried fruit is being shipped from Yuba City in large quantities now. Five cars were made ready for shipment last week.

Tree and vine planters in Kings county have secured a large amount of stock to plant, but are being retarded somewhat by the soil being too wet.

The Winters Express says the indications for a good fruit season in that locality are excellent, though apricots will be short. Frosts may come late and spoil the prospects, though not probable.

The date experimental stations at Indio and Mecca have distributed 200,000 date seeds, and have 150,000 more to give out. The prospects are good for date growing in those localities becoming a permanent success.

There is a scarcity of Thompson's Seedless grape vines in Sutter county this season, owing to the fact that they are being planted in large numbers and a county ordinance prohibits them from being imported.

Apple shipping for the season closed at Watsonville last week. For the year there were shipped from the Pajaro valley 3214 cars, and besides this large tonnage, about 1000 cars of inferior apples were made into cider, vinegar and other by-products.

E. K. Carnes, of the State Insectary at Sacramento, has taken a consignment of black scale parasites discovered in China to Riverside, for the purpose of experimenting in the orchards of that vicinity. The new bug is described as being unusually voracious, his especial delicacy being the black scale, which he attacks in a body, instead of in the playful manner of the scutellists.

AGRICULTURE.

There will be from 2500 to 3000 acres set out to cabbages this spring around Muscatine, Iowa.

A New York city syndicate is reported to have purchased two sections of land near Willows and will plant the entire acreage to eucalyptus.

Fully 20,000 acres are sown to grain in Escondido valley, San Diego county, of which two-thirds are oats. Prospects are flattering for a big crop.

It is stated that fully 1500 acres of land will be planted to alfalfa near Kern, in Fresno county, this season. The Kerman Alfalfa Co. alone will put out 480 acres.

Asparagus shipments were made from the Imperial valley last week, being the first of the season. It is estimated that 8000 crates will be raised there this year.

About 13,000 acres of flax will be planted in Colusa and Butte counties this year, it is claimed, and the further claim is made that a factory to handle the raw product will be established at Sacramento.

Owing to the increased price of $5 per ton offered by the Alameda sugar factory this year, the acreage to be planted to beets this year for the use of the factory will be largely in excess of past seasons.

D. W. Lewis expects to harvest 125 tons of asparagus from his 500-acre patch located near Corcoran, this season. The asparagus shoots are beginning to come up, and he will soon commence cutting and shipping.

California floods have affected the potato market in Nevada to such an extent that the price, which was $15 per ton two weeks ago, has raised to $29. The irrigated lands of Nevada produced 40,000 tons of potatoes last year.

There is estimated to be nearly 440,000 bags of beans still held in Ventura county. The prospects are that a smaller acreage will be planted this year than last, but that the sugar beet acreage will be largely increased in that county.

A correspondent writing from Pomona, says that the large grain acreage is nearly all sown in that valley, most of it is up, and shows a good stand. The rainfall for January has been heavier for the month than any other January during the past 25 years.

The farmers in District No. 70, in Sutter county, are preparing to plant large acreages in potatoes this season. Much of the island potato districts having been overflowed, it is thought there is a good opportunity for making money in supplying the markets from other districts.

Owing to low prices received last spring the acreage set out to radishes near Long Beach, Miss., and Roseland, La., this year is some less than in former years. Still, these places will raise plenty of radishes this year. These two sections will have about 200 cars of the vegetable to ship this spring.

LIVE STOCK.

The Southern California Horse Show is scheduled to be held at Pasadena four days, commencing March 9th.

Hay was worth money in Trinity county last week, it selling for $40 per ton. The scarcity was caused by impassable roads.

Many herds of sheep and cattle are being transferred from the recently overflowed lands in Colusa county to new pastures in Yuba and Sutter counties.

The crane fly pest is reported to be creating havoc with the pasture lands above Wheatlands. Last year in that vicinity considerable damage was done.

Stockmen in Modoc county say that, owing to plenty of rain and absence of snow and cold, the pasturage is better now in the foothills than for years past at this time.

The St. Louis markets were deluged with rabbits week before last, when it is estimated that between 350,000 and 400,000 were received. Most of them sold at good prices.

J. A. Costa, who has one of the finest dairies in Merced county, southwest of Turlock, has just installed a De Laval steam turbine separator, with a capacity of 1000 pounds per hour.

The Wool Growers' Association of Yuba and Sutter counties held a meeting last Saturday, at which time a committee was appointed to look into the scab law now before the legislature.

The Imperial Valley Beekeepers' Association held a meeting at El Centro last week and decided to proceed at once to erect a warehouse having a capacity of eight carloads of honey.

Jones & Sladen, of Globe, Tulare county, are securing some fine stock for their ranch. Last week they secured a Short horn bull from R. M. Dunlap of Visalia. The price paid is said to be $3500.

The California State Beekeepers' Association held a two days session at Los Angeles last week. Owing to good weather conditions, the beekeepers predict a big crop of honey the coming spring.

Big sales of sheep were made at Red Bluff last week, one party selling 1800 head of ewes at $4 per head, and another sale of 1400 lambs was made at $2.25. The

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latter band was intended for the San Francisco market.

Owing to fine growing weather, the dairymen of Tulare county have produced large quantities of milk during the past month. The co-operative creamery at Porterville beat all January records on butter output last month.

A civil-service examination will be held at San Jose, February 17, by the Government, to pass upon applications for positions for veterinarian in the Philippine Islands. There are about 25 vacancies to be filled, and the salary is $1600 per year each, and field expenses.

The supervisor of the Mono National Forest Reserve has announced that permits for grazing for the season must be made at his office at Gardnerville, Nevada, prior to March 1. The Secretary of Agriculture has authorized the grazing of 3875 head of cattle and 45,100 sheep for 1909. The season extends from April 1 to October 15 for horses and cattle, and from June 15 to October 15 for sheep.

MISCELLANEOUS.

Several large packing firms of the State are now at work stemming and picking raisins and shipping to the East on orders. Conditions among the raisin men seem to be getting in much better shape.

The 1200-acre Humphrey ranch, near Marcuse, in the uper Sacramento valley, has been sold and is to be subdivided into small farms.

A big rose nursery is being started near El Centro, which is to raise flowers for the Eastern trade.

A force of men are at work planting trees around the summit and down the slopes of Mt. Hamilton.

A distillery is to be erected near Hilo, in the Hawaiian Islands, to make rum from the molasses from a number of sugar factories.

Dr. R. P. Shepherd and associates, of Pomona, have recently purchased 320 acres of land east of Ontario and will plant it to eucalyptus.

The table grape growers' association of the northern San Joaquin valley is preparing a bill to send to the Ways and Means Committee of Congress to re-open the tariff on Almeria grapes.

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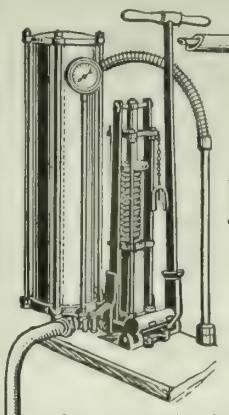
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CANTALOUPE GROWING.

Director R. H. Forbes of the Arizona Experiment Station has prepared an excellent account of cantaloupe growing from an Arizona point of view, which is very instructive in this State also:

THE BUSINESS.—Cantaloupe growing, as developed since its origin near Rockyford, Colorado, in 1885, requires unusual judgment and cultural skill on the part of the farmer. Co-operative organization and good business management are also essential, for only by these means can the crop be properly timed and prepared for shipment, and necessary arrangements made with transportation and selling agencies.

In Arizona the first noteworthy acreage of cantaloupes was grown in Salt River valley in 1899. Since that time the industry has steadily expanded until, in 1908, 368 cars of melons from about 1250 acres were shipped through five growers' associations, principally to markets east of the Mississippi.

CLIMATE FOR CANTALOUPES.—The most important prerequisite to successful cantaloupe culture seems to be an arid or semi-arid climate. In such a climate, in Colorado, under irrigation, melons from Eastern seed developed the superiority which gave rise to a new industry. An early growing season is an added advantage, in that it gives the producer a wider range, in point of time, or markets for which to calculate his plantings. Dry, sunny climate, early seasons, fertile irrigated soils, and necessary commercial facilities are all to be found combined to excellent advantage in the irrigated valleys of the arid southwest. To the resulting excellence of the product, and its successful management, is due the rapid development of cantaloupe growing in Arizona.

SOIL.—Cantaloupes are grown to excellent advantage on light warm loams properly fertilized by the addition of the organic matter and nitrogen in which our desert soils are usually deficient. Heavy soils may also be used for cantaloupe culture, but are less easily prepared and tilled during the progress of the crop. Old alfalfa ground is most excellent for cantaloupe culture, and well rotted barnyard manure is effective. Bermuda sod plowed up and exposed to the sun without irrigation the preceding summer makes excellent cantaloupe ground, the intensive cultivation necessary serving both to benefit the crop and to restrain this formidable weed.

Alkaline lands should be avoided, since soluble salts in excess, even though insufficient to kill the plants, are commonly believed to be detrimental to the quality of the melons.

LAYOUT OF GROUND.—The soil should be so arranged that the rows may be irrigated without submerging the vines and the fruit. One good way to accomplish this, and also to fertilize the soil, is as follows: The field is first irrigated, plowed and harrowed to a condition of fine tilth. With a 12-inch plow, at intervals of 6 feet, double furrows are then broken out, going and returning along the same lines. In the deep, wide furrows thus formed well rotted barnyard manure is distributed to a depth of three or four inches, then plowed in and the field again harrowed level. By then plowing toward the middle of the spaces between the fertilized furrows, the soil is finally left in oval ridges separated by back furrows for irrigation. The rough furrows and ridges are then finished with a harrow and the newly prepared ground irrigated to establish the water line for guidance in planting.

SEED.—Seed should be most carefully selected with reference to flavor and appearance of the fruit; to good shipping characters, including small cavities and heavy netting; and to a tendency to produce melons of standard size. Early strains are desired for some situations; but in Arizona rust resistance is not a necessary character, as this class of diseases is little to be feared under our arid conditions.

Seed should be purchased only from most reliable sources. Rockyford growers are at present the principal means of supply. Some associations go so far as to send a representative to Colorado to select in person the seed melons from which to supply their members. Home-grown seed in Arizona is sometimes sprouted and inferior, due to the heat to which the mature melons are oftentimes subjected in the field.

About one pound of seed is required for an acre. Cantaloupe seed improves to some extent with time, and is stated by experienced growers to give more satisfaction at two years of age than at one.

PLANTING.—With irrigating furrows six feet apart, rows may be planted one on each side of each furrow. The hills should be ten feet apart in the rows, "breaking spaces" between rows. On this plan the ground will be quite uniformly occupied, with a distance of about six feet between adjacent hills.

With a hoe each hill is planted by making a small furrow a foot long just above the water line. About ten seeds are dropped in this furrow, covered an inch deep, and the soil pressed down lightly with the blade of the hoe. After early plantings, when frosts are feared, a second set of hills may be planted alongside the first, ten days or two weeks later. When danger from frost is past, while the plants are still small they are thinned to one or two of the strongest to each hill. Care must be taken not to overcrowd the ground with vines, as a high percentage of pony melons will follow. Under Arizona conditions the six-foot spacing of hills recommended above, with not more than two plants in the hill, gives best results.

IRRIGATION AND CULTIVATION.—A dependable supply of irrigating water is essential to successful cantaloupe culture. Early in the season when the plants are small and the irrigating supply is cold, water should be applied sparingly. But between the setting of the crop and the ripening of the first fruits, when both vines and melons are developing rapidly and when the weather is usually hot and dry, frequent and copious irrigation is necessary, for if water is stinted at this time a large percentage of small or pony melons is likely to follow. During the picking season water should again be sparingly applied—just enough to prevent the vines from wilting. This procedure gives quality and solidity to the melons, and incidentally maintains the field in convenient condition for picking.

As long as the vines will permit, the middles should be kept free of weeds by means of a one-horse cultivator, and the furrows run through with a small plow after each irrigation. The young plants should also be hoed by hand two or three times. When the ground is once well covered with vines weeds will make but little headway, even Bermuda grass being effectually checked by the dense cover.

MARKETING THE CROP.—The first shipment of melons from Arizona in 1908 was made at Yuma, June 13, about 130 days after planting. The season closed August 17 in Salt River valley.

The critical operations of picking, packing and shipping are usually under the supervision of the receiving company's agent. Riper grades are sent to local and coast markets; but for more distant East-

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MAYWOOD COLONY NURSERY COMPANY

W. Herbert Samson, Prop., Corning, Cal.

MODESTO NURSERY.

Complete Line of Citrus and Deciduous TREES,

BERRIES, VINES AND ORNAMENTAL STOCK.

Write for PRICES NOW.

SHERLOCK & CARDWELL, Modesto, Cal.

Box 272.

DEAD
CITRUS
WOOD

Is more or less prevalent in every orange and lemon grove, i. e., trees that are unprofitable. How many such have you in your orchard? Would it not pay you to put paying trees in their stead?

YOUR HOME GROUNDS

Should contain at least a few trees of the better varieties of oranges and lemons. For this purpose we have some exceptionally fine trees to offer, being grown as specimens. Possibly you would like to plant a few citrus trees about your home this season. If so, will you do us the favor to correspond with us about it?

The Citrus Fruits

Historically, Horticulturally, Commercially

A new treatise, giving more valuable information about varieties, methods of planting, cultivating, pruning, picking, packing and shipping than anything of its kind ever issued, which will cheerfully be sent you for the small sum of 25 cents. Correspondence a pleasure.

San Dimas Citrus Nurseries

R. M. TEAGUE, Prop.
SAN DIMAS, CAL.

Now is the Time for Ordering Trees.

We have a large lot of **EUCALYPTUS, CYPRESS, PINE TREES,** transplanted in flats; also a large variety of **ORNAMENTAL TREES AND SHRUBBERY, EVERGREEN AND DECIDUOUS,** most suitable for planting along streets and sidewalks and for beautifying parks and gardens.

Also **PALMS, DRACENA, ROSES, ERICAS, CAMELLIAS, AZALEAS, RHODODENDRON, FRUIT TREES** and **BERRY BUSHES.**

THE PACIFIC NURSERIES,
3041 Baker Street, - - San Francisco,
And Millbrae, Cal.
Send for Catalog. Mention Pacific Rural Press.

NORTHERN GROWN
BEST FOR THE WEST

LILLY'S BEST SEEDS

SOLD BY DEALERS
CATALOG FREE - CHAS. H. LILLY CO. PORTLAND

FOR SALE—California Black Walnut seed in sack lots. Wanted—Mayette, Franquette and Parisienne Walnut scions; also Rupestris St. George, Rip. x Cord. x Rup. 106-8, Rip. x Rup. 3306 and 3309 cuttings, grafting size. Address FANCHER CREEK NURESRIES, FRESNO, CAL.

ern markets the melons must be picked considerably before full maturity, when they first part easily from the stem. In favorable weather the melons ripen so rapidly as to require picking two or three times daily. At the packing shed, which must be provided with padded benches to prevent bruising, the cantaloupes are sorted into three sizes—ponies, standards and jumbos—which are packed each in its own sized crate. The wrapped and crated melons are then hauled in spring wagons to the association shed, where they are inspected and received usually by a representative of the commission firm handling the crop. The accepted melons are shipped in refrigerator cors.

ENEMIES.—The two principal enemies to cantaloupes thus far known in Arizona are the melon aphis and nematode worms. The aphis is especially favored by the mild climatic conditions of the Southwest, and is always to be expected even in new districts. It is much affected by extremes of temperature, being repressed by cold or wet weather and also by extreme heat. In southern Arizona the aphis is usually in evidence early in June, increasing rapidly until the crop is harvested and the vines destroyed. Kerosene emulsion checks but does not usually exterminate the aphis, which is difficult to reach with spraying apparatus on the under side of the leaves, where it is chiefly to be found. Preventive measures are more satisfactory than curative ones in the case of the aphis, which is first established at comparatively few points in a field by means of old females which have wintered over in protected situations. These pioneers colonize on the young vines early in the season, at which time, when the plants are small and easily treated, the grower would do well to assume the presence of aphids and spray the whole of his plantings thoroughly with kerosene emulsion, diluted thirty times. Professor C. P. Gillette, of the Colorado Experiment Station, recommends fumigation with hydrocyanic acid gas, which he accomplishes by means of washtubs and potassium cyanide at the rate, to each three cubic feet of space, of one gram of cyanide dissolved in sulphuric acid in the usual manner. The fumigations are continued five to eight minutes and, by means of several tubs used in rotation, may be rapidly operated. It is common practice, also, among growers to burn or bury infested plants early in the season. These are discovered by the wet or greasy appearance of the infested leaves due to the excretion of honey dew by the aphids or by the presence of a species of ladybird which preys upon them. It is important at the end of the season to burn all the old vines, thus lessening the number of possible hold-overs for the following year.

Nematode worms occasionally damage or destroy the roots of cantaloupe vines, especially when grown after crops favoring the development of these organisms, such as tomatoes, chili, egg plants, peas and preceding crops of melons. Affected roots may be recognized by their characteristic swollen, knotty appearance.

No satisfactory method is known for the eradication of nematodes, but infested grounds may be sown to unaffected crops, such as alfalfa, and new ground employed for cantaloupes.

YIELDS AND PROFITS.—The average yield in Arizona during the season of 1908 was about 117 crates per acre. Skillful growers frequently secure over 200 crates, and in one instance 345 standard crates were grown by Mr. E. L. Crane, of the Station, on a measured arce near Yuma. The profits vary greatly with the grower, the season and market conditions for the time being.

The following table relating to the

EUCALYPTUS TREES
AND GENERAL NURSERY STOCK.

Large supply of Peach trees, Ornamental trees, Ornamental plants, and Rose bushes, in large quantities.

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FULLERTON, CAL.
BRANCH NURSERIES:
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THE MARSHALL NURSERIES
FOR FRUIT TREES, GRAPEVINES, PALMS, ROSES.
FULL LINE OF EVERYTHING GROWN BY US.
S. W. Marshall & Son, Nurserymen.
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½ Million Eucalyptus Trees (in Variety.)

Transplanted in flats of 100 each. We prefer orders of 1,000 rather than 10,000; outside limit 20,000. Our trees are of the highest standard in quality. Correspondence invited. Our Booklet telling when, how, and what to plant free to our patrons only. Address

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ENCINAL NURSERIES

SPECIALTIES: **Franquette Walnut,** grafted on Black Walnut root. Absolutely genuine.

Wonder Walnut.—New: The largest, most prolific, and youngest bearer known. Twelve nuts grown on a **one year tree** in nursery row, placed side by side, measure 22 inches; each measuring 5½ to 6½ inches in circumference. Thin shell, blight resistant. Fully tested for years. Limited stock of grafting wood and trees.

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GRAPE VINES, BERRIES AND ROSES
Ornamental, Shade and Deciduous Fruit Trees.
A Good Class of General Nursery Stock.
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FRUIT TREES and VINES, Etc.
BERRIES EUCALYPTUS WALNUTS ROSES
A Good Class of General Nursery Stock.
Our Prices are Attractive.
HANNAY NURSERY CO., SAN JOSE, CAL.

Grafted Walnut Trees
On Black, Soft-shell and Resistant Roots.
Seedlings, Citrus, Deciduous, Berry Bushes, etc.
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EUCALYPTUS
Large Stock—All Varieties
Hardy and Selected Rapid Growers
Write for free illustrated booklet.
LLOYD R. TAYLOR, Modesto, Cal.

CRIMSON WINTER RHUBARB
Now is good time to plant pedigreed plants only.
$1.50 per doz; $6 per 100; $40 per 1000.
All kinds of small fruit and berry plants,
J. B. WAGNER, Pasadena, Cal.
The Rhubarb and Berry Specialist Dept. I.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J. St., Sacramento, Cal. Send for catalogue.

EUCALYPTUS
GROWN IN SUNSHINE
with roots balled while growing in flats. Saves all roots; make sure success when removed to the field and good growth the first season.
Sample lots at wholesale rates. Can take from flats and send in tight packages to save cost, risk and time.
HENRY SHAW,
320 River St., - - - - Santa Cruz, Cal.

Mesa Melon Growers' Association summarizes in part the experience of that organization for the several years of its history:

Year.	Acreage.	Crates.	Net return per standard crate.
1902	27	2,960	$1.11
1903	..	5,550	1.20
1904	..	27,454	1.00
1905	..	18,130	1.70
1906	..	54,808	.80
1907	..	65,297*	....
1908	605	77,027*	.72

*Estimated.

Under favorable cultural conditions, with good markets and a well placed crop, small, thoroughly cultivated fields frequently yield gross returns of from $100 to over $200 per acre—sufficient to leave a handsome profit after costs of seed, water, crates, wrappers and labor have been substracted. On the other hand, in 1908, three of five Arizona associations, by reason of demoralized markets, bad weather, scant irrigating water and unseasonable yield, conducted operations at a loss. Such combinations of adverse circumstances, however, are not likely again soon to occur; and the natural advantages of the region—long season, productive soil, and superior quality of product, insure this new industry a place among Southwestern farming developments so long as present cultural and commercial conditions endure.

R. H. Forbes.

Nitrate of Soda

Nitrate Sold in Original Bags

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64 Stone Street, New York
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CALIFORNIA GIANT SWEET PEAS

All the Best Hybrids. All the colors. 5c. per oz., 50c. per lb., sent postpaid.

HOPKINS' TESTED SEEDS

Everything for the flower and kitchen garden. Generous packages; 6 for 25c., 13 for 50c., 30 for $1.00, postpaid.

BERRY PLANTS

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BURBANK, CAL.

MUIR AND OTHER PEACHES

SANTA ROSA AND OTHER PLUMS

General assortment of Nursery Stock. Price List on application.

T. J. TRUE,
R. F. D. No. 1, Modesto, Cal.

BETTER THAN A HEDGE.

To the Editor: I want to plant a hedge along a driveway where the soil is not very deep and inclined to be somewhat rocky and dry, but where irrigation will be possible. I would like to combine usefulness with ornamentation. I believe I have seen mention at some time of fruit-bearing hedges, but where and what it was I do not remember. Can you recommend anything for this purpose? I would like something that would hedge at least four feet.—A. H., Loomis.

RESPONSE BY MR. CHAMBERS.

To the Editor: In answer to the above, would not advise a hedge proper. If the enquirer will plant pomegranates, say 12 feet apart, he would find them both profitable and ornamental. They will do in almost any soil after once being well established. The Japanese chestnut, planted 12 to 15 feet apart, would make a handsome as well as profitable tree along a driveway. There are many other things I could suggest if the writer simply wanted something for ornamental purposes only. In evergreens would also recommend the loquat of some improved variety. This is a very ornamental tree, and the fruit from improved varieties is marketable and in demand. If desired, he could alternate the trees named, that is, plant a pomegranate, then a loquat, and so on. This could be done with the chestnut as well.

Chas. A. Chambers.

Fresno, Cal.

VINEGAR METHODS.

To the Editor: I have five barrels of one and two year old apple vinegar of very fine flavor, made from sound winter apples, but find no market for it, as it is cloudy. What is the best method for clearing it. The market seems to demand it absolutely clear. Is is customary to dilute extra strong vinegar, and to what extent.—Mendocino Farmer.

ANSWER BY MR. HOLM.

To the Editor: In regard to the questions by "Mendocino Farmer," allow me to say that isinglass, prepared from fish sounds, is used for clarification of cloudy vinegar. Four grams of isinglass per 100 litres of vinegar. The isinglass should be previously soaked in a small quantity of water to which a little vinegar has been added. Then add it to the vinegar, stir it well, and let stand for clarification. Only the best isinglass should be used.

It is customary to dilute strong vinegar to between 4 and 7% of acetic acid.

H. C. Holm.
Instructor in Zymology.
University of California, Berkeley.

Pumpkin flour is the latest product to bid for public favor. A manufactory has been established near Hanford by Kendall and Robinson, which is now making this new kind of flour.

A dispatch from Willows says that a shipment of 1,500,000 eucalyptus trees from Los Angeles will soon arrive in Glenn county, to be planted on a 4000 acre tract owned by Eastern capitalists.

According to Secretary of Agriculture, the production of sugar from cane and beets reached its greatest total in 1908. The value of all sugar, molasses and other by-products for the year is placed at $94,000,000.

FIRST CLASS TREES AND VINES

Muir, Lovell, Tuscan, Orange and Phillips peach, 4 to 6 ft., $12.50 per 100; Calimyrna, Adriatic and Black figs, 3 to 5 ft., $10 per 100; Logan, Phenomenal, Himalaya and Dewberry vines, $10 per 1000.

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Gridley, Cal.

TREES

True to Name — Buy the Best

Place Your Orders Now

Every planter knows the necessity of having trees true to name, and recognizes the advantages of buying from a firm of known responsibility. Our twenty-five years experience, our immense nurseries comprising over 1500 acres, and the superior character of our trees are valuable points you should consider. We have the largest stock on the Coast in all of the standard sorts.

BIG RAINFALL THROUGHOUT THE STATE.

Which insures large planting and good crops. From present indications this will be one of the largest seasons in years. It does not seem hardly necessary to urge getting your orders in early. Every Fruit Grower should realize this.

CITRUS AND OLIVE TREES, WALNUTS, PECANS, ALMONDS, ORNAMENTAL TREES, PALMS AND ROSES.

The Rutland Plumcot
The Paradox and Royal Walnuts

BURBANK'S NEW CREATIONS

The Formosa, Vesuvius and Santa Rosa Plums

Luther Burbank has done more for the propagation and development of trees and plants than any other man in this country. We are sole propagators and distributors of his products, and are now offering for market seven of his valuable new tree creations.

Send 25 cents for our booklet, beautifully illustrated in colors, describing them.

CALIMYRNA FIGS.

The genuine Smyrna Fig of Commerce. The only variety to plant if you want to be a factor as a Commercial Fig Grower. This fig is coming to its own, and its future as one of the great and promising industries of this State and other States with similar climatic conditions.

Our imports of the famous Smyrna Fig in 1907 were 12,000 tons.

SPECIAL DECIDUOUS TREE OFFER.

We will deliver to any point on the Pacific Coast, charges paid to destination, 100 Peach Trees of any one of the following varieties:

Elberta, Lovell, Muir, Runyon's Orange Cling, Tuscan Cling, and Phillip's Cling,

2 to 3 ft. stock, for $12; 50 trees, $7. **100 Bartlett Pear** trees, 2 to 3 foot stock, $15; 50 trees, $8.

No orders accepted for the above price for less than 50 trees.

This stock is first class in every respect. Your money refunded if you do not find it as represented.

ROEDING'S NEW BOOK, CALIFORNIA HORTICULTURE.

The Fruit Growers' Guide, just off the press; finely illustrated; contains suggestions about planting, pruning, etc., and describes 2000 varieties of trees and plants. Mailed postpaid on receipt of 25 cents in stamps.

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GEO. C. ROEDING, President and Manager.

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NURSERYMAN WANTS SITUATION

Deciduous or citrus work, or foreman on fruit ranch.
Address

R. C. MORRISON,
Care Golden Gate Nurseries. Loomis, Cal.

RANCH MANAGEMENT

Capable Superintendent, 12 years California experience, seeks position as manager of orchard or vineyard. Experienced in both citrus and deciduous fruits; used to handling men; good business ability; not afraid of work. Competent to take full charge. Good references. Moderate salary, or will handle well equipped place on shares.
Address A. B., care Pacific Rural Press.

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We graft walnut trees, any kind, size and variety, to the English varieties; budding and grafting of every description. Unprofitable trees made profitable. Seven years experience with walnut grafting. Grafting wax for sale. Write for information, advice and references.
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Headquarters for Ranchers, Gardeners, Nurserymen and Poultrymen.

A SPECIAL EUCALYPTUS DEPARTMENT.

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113-115 N. Main St., Los Angeles, Cal.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.
That corporation now offers for sale these extensive holdings.
The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.
The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.
This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.
The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.
It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.
It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.
The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.
The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.
The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.
Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

Ask for SNOW'S GRAFTING WAX

IN USE ALL OVER THE STATE
For sale by all the large grocers, or
D. A. SNOW, Lincoln Avenue, San Jose, Cal.

VINE OR BINE.

To the Editor: Prof. F. T. Bioletti asks in your last issue, "What is a vine?"

If there be any confusion in the matter, it is probably due to the American disrespect and disregard for spelling. When a Britisher speaks, or writes, of a "vine" he has usually in his mind one kind that he has always associated with the fig tree. He longs to "sit under his own" where "none shall make him afraid." On the other hand, when he fears to go "where the woodbine twineth," he never dreams of grapes, and he spells all such bines with a b. If he looks in the Standard Dictionary, to which all such modest and diffident persons as I refer, he finds: "Bine: A flexible shoot or climbing stem of a plant; specifically, a hop-bine; used of other climbers, in composition; as woodbine.

"The crimson and scarlet of berries that flamed upon bine and vine."—Tennyson.

Always avoid bad spells, whether magical, pathological, or simply etymological.

Pacific Grove. EDWARD BERWICK.

TO REFOREST GREAT BRITAIN.

It is reported from London that the royal commission appointed to consider the question of afforestation as a palliative for unemployment has issued its report. It recommends the planting of 9,000,000 acres in Great Britain and Ireland over a period of 80 years, about 150,000 acres to be afforested annually, and the work to employ 18,000 men in the winter months.

The report says Parliament could be asked to grant the necessary powers, and the scheme should be financed by a loan, the interest on which would be defrayed by taxation. It is estimated that the forests will be self-supporting after the fortieth year, and after 80 years the income from them will reach $7,500,000. One member of the commission is H. Rider Haggard, the author. It is understood that the Government, probably at the next session of Parliament, will take steps to obtain approval of the scheme.

This is hailed editorially by all the morning newspapers as an important and businesslike proposal, especially in view of the great advance in the price of timber in recent years, and the fact that Great Britain in 1907 imported timber to the value of $160,000,000, of which 20 varieties could be grown in Great Britain.

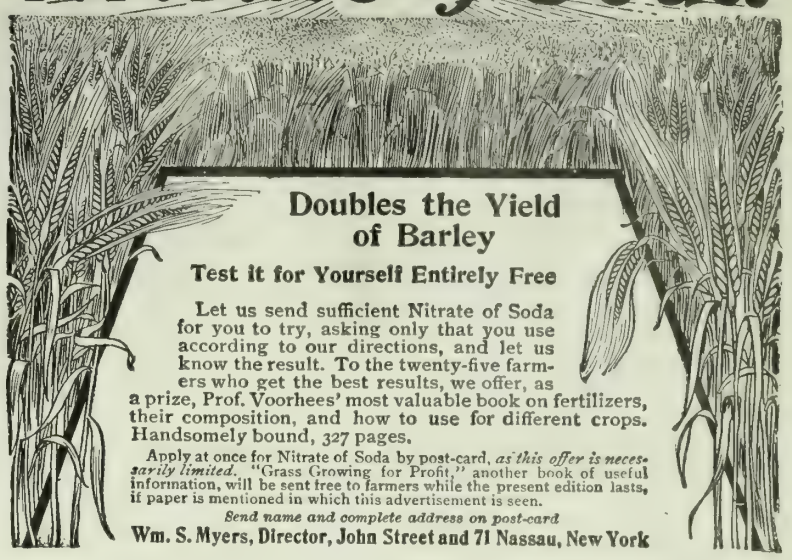
NEW CO-OPERATIVE ORGANIZATION.

There is now in the hands of the Senate Judiciary Committee, Johnson's "fruit district measure," enabling growers to organize and do business without actually issuing stock. Heretofore there has been much trouble in the management of such districts on account of their constantly changing membership. Parties going out of a district and carrying with them their capital stock have been a source of annoyance, creating a constantly increasing burden of non-resident influence. Under the proposed law, members would have an equitable interest for which they would be compensated upon withdrawal.

The California Fruit Growers' Exchange, which is the parent organization of its kind, and representing 5000 citrus fruit growers, is behind the Johnson bill, as are the dried fruit, walnut, vegetable and deciduous interests generally.

The bill provides that three or more persons engaged in the production, preserving, drying, packing, shipping or marketing of agricultural or horticultural products may form a "non-profit co-operative association," and carry on business just as if incorporated under the general law.

Nitrate of Soda



Doubles the Yield of Barley

Test it for Yourself Entirely Free

Let us send sufficient Nitrate of Soda for you to try, asking only that you use according to our directions, and let us know the result. To the twenty-five farmers who get the best results, we offer, as a prize, Prof. Voorhees' most valuable book on fertilizers, their composition, and how to use for different crops. Handsomely bound, 327 pages.

Apply at once for Nitrate of Soda by post-card, *as this offer is necessarily limited.* "Grass Growing for Profit," another book of useful information, will be sent free to farmers while the present edition lasts, if paper is mentioned in which this advertisement is seen.

Send name and complete address on post-card

Wm. S. Myers, Director, John Street and 71 Nassau, New York

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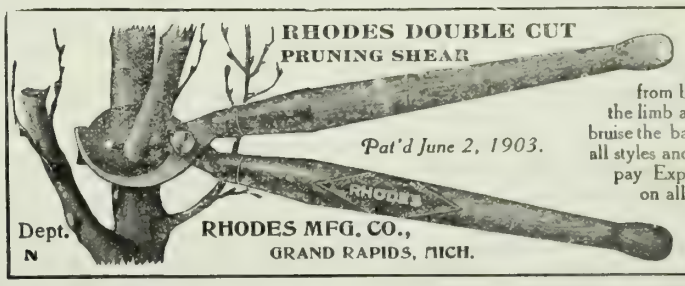
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CAPITOL AVENUE AND McKEE ROAD
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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

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There is scarcely any limit to the possible improvement in seeds, but it takes time and money. We have been improving flower and vegetable seeds for over 50 years. More than 2000 people are working to make Ferry's Seeds suit you. Buy the best—Ferry's. For sale everywhere.

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For DUST SPRAY Use

VIGORITE BRAND HYDRATED LIME

MANUFACTURED BY

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THE "BOSS"

TREE PROTECTOR

MADE OF YUCCA PALM.



Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES

12 in. long,	$ 9.00 per 1000
14 in long,	10.00 per 1000
16 in. long,	11.25 per 1000
18 in. long,	12.50 per 1000
24 in. long,	15.00 per 1000
30 in. long,	17.50 per 1000

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We have attachments to make your Phonograph play Amberol Records; $10; retail orders delivered free.

Peter Bacigalupi & Sons,
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Edison Victor Zonophone

CERTIFIED MILK.

What It Means and How It is Produced.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES, Agricultural Engineer.

(*Concluded From Page 93 of Last Week's Issue.*)

After the regulations about dairy buildings and their environment the specifications of the cities of San Francisco and Oakland proceed as follows:

THE DAIRY HERD.—The herd shall include no sick animal, and especially none showing signs of tuberculosis, contagious abortion, or other trouble associated with parturition, or with mammitis, mammary abscess, or other disease of the udder, persistent diarrhea, actinomycosis, fever, or any febrile disease. Such animals and any other diseased animals on the farm must be promptly reported to the commission and disposed of as it directs.

The herd shall be examined thoroughly by the veterinarian of the commission at least once in each month, and whenever ordered by the commission, and animals unsatisfactory to the commission shall be removed.

The herd shall include no animal not approved by the veterinarian.

Animals proposed to be added to the herd shall be kept in a separate building until approved by the veterinarian after a physical examination and tuberculin test.

Tuberculin shall be used in examination for tuberculosis at least once in six months.

Any animal showing evidence of ill health or suspected of being ill, and any animal off feed or excited, shall be at once removed from the main stable, and the milk of all such shall be discarded from the market milk.

The udder and adjacent parts of milk cows shall be groomed before each milking.

A stiff brush shall be used to remove dry matter, and places soiled with fresh manure shall be cleaned by washing.

Long hair on the udder and flanks shall be clipped.

Cows shall never be unduly excited by loud talking, abuse or otherwise. They shall not be driven faster than a walk. They shall at all times be treated quietly and kindly.

Any cow in the habit of hooking others shall be either dehorned or separated from the herd.

No dusty or mouldy hay or straw, bedding from horse stalls, or other unclean material shall be used for bedding cows.

Cows shall be removed from the stable in which the herd is kept at least 15 days before due to calve, and shall not be returned until at least six days after calving.

The herd shall be maintained at an average quality to test not less than 3.5% of fat and as close as possible to 4%.

FEEDING AND WATERING.—All food stuffs must be kept in an apartment separate from the animals.

Only those foods shall be used which consist of fresh, palatable or nutritious materials, such as are known will not injure the health of the cows or affect the test or character of the milk. No beet pulp or brewer's grain shall be used for feeding.

Cows shall be fed liberally and regularly, that is, in the same order and at the same hour every day.

A well balanced ration shall be used, and changes of food shall be made slowly.

An entire change of grain shall be made only gradually, extending over several days.

The ration shall be reported to the commission whenever it is proposed to materially change it, the changes being named.

If garlic or other weeds which cause undesirable flavors in milk are in the pasture, cows shall be brought to the stable long enough so that the weed flavor may not be noticeable in the milk.

A light feed of hay or some sweet forage before milking appears to assist in the removal of weed flavors.

No dry or dusty food shall be given within one hour previous to milking, if its use is necessary, it must be sprinkled before it is fed.

Cows shall be watered at least twice a day. Pure water shall be provided in abundance and easy of access.

Cows shall not be allowed to drink regularly from stagnant pools.

Salt shall always be accessible or given at regular frequent intervals.

EMPLOYEES.—Employees shall be clean in habits and appearance.

They shall be continually vigilant to keep everything connected with the cattle and milk scrupulously clean and in good order.

The dairyman shall keep informed as to the health of all employees and the members of their households.

The commission reserves the right to personally inspect all buildings connected with the dairy, and to personally examine all persons who directly or indirectly come in contact with the industry.

No person having throat trouble or being otherwise out of health shall be admitted to the stable or dairy room.

The existence of smallpox, typhoid fever, diphtheria, scarlet fever, measles or other contagious disease on or in the vicinity of the dairy farm shall be promptly reported to the commission, and the sale of milk shall be stopped till its resumption is authorized.

No person connected with the dairy shall enter a house where it is known that there has been a contagious disease, until it has been disinfected.

No employee or other person shall be permitted in the dairy who has been in contact with any contagious disease.

While engaged about the dairy or in handling milk the use of tobacco or intoxicating liquors shall not be permitted.

MILK ROOM.—There shall be a room which shall be used for no other purpose than to provide a place for handling the milk, storing clean milk utensils and holding fresh milk previous to its removal from the dairy.

It shall be within easy access of the stable, but so placed that it cannot be easily reached by dust or odors from the stable or yard or other sources.

If under the same roof with the stable, it shall be separated therefrom by a light, clean, ventilated room or passageway at least four feet long and four feet wide, with doors kept closed by springs. Or, the arrangement shall be such that it will be necessary to pass out of doors in going from the stable to the milk room.

The milk room shall be entered only by persons having business therein; no one shall be admitted who has been where a contagious disease exists or who is wearing dirty garments.

It shall be kept scrupulously clean and shall be occasionally thoroughly dried in all its parts.

It shall contain nothing that is not required for handling milk.

Dairy utensils shall be removed to another room for cleaning as soon as they have been used.

Sour milk shall not be left in the milk room.

The milk room shall be well lighted.

Windows and doors shall be fitted with screens to keep out insects.

It shall have a hard floor impervious to moisture.

The drain shall be so constructed that it can be easily cleaned by steam or disinfectants.

Except under unusual conditions the drain shall be at least 200 feet long. No permanently moist place, except running water shall be allowed in its vicinity.

The walls and ceilings shall be clean and light colored. If whitewashed, a fresh coat shall be applied at least every three months, or oftener if necessary to keep the walls clean.

Spots of mould shall not be allowed to develop on the walls.

If there are shelves of wood in the room they shall be painted or oiled.

No accumulation of dirt, cobwebs or rubbish or unclean materials shall be permitted.

MILK UTENSILS.—So far as possible, milk vessels shall be made of metal, glass, or glazed earthenware, and shall be of simple construction so as to be easily cleaned; joints and rims of metal utensils shall be smooth, and cracks entirely filled with solder.

No milk vessels shall be used which are dusty or dilapidated.

Vessels used for carrying milk shall be used for nothing else.

No milk vessels or utensils except pails shall be taken into the stable or milking room.

All utensils shall be cleaned in a separate wash room (not in a dwelling house or milk room) especially fitted for the purpose, containing a boiler and a tight chest for steaming, or ample facilities for sterilizing with boiling water.

All utensils shall be cleaned immediately after use.

Before cleaning, milk utensils shall be rinsed with cold or lukewarm water; they shall then be washed thoroughly with hot water with the aid of borax or sal soda, then rinsed with clean water and sterilized by exposure for at least ten minutes to live steam or water that is actually boiling.

Every part of an article, outer as well as inner surfaces, shall be cleaned with a brush, or be in plain view when cleaned.

After cleaning, vessels shall be inverted, without covers, in a clean, dry, dustless and odorless atmosphere.

Cleaning cloths shall be washed and sterilized daily.

Sponges shall not be used for cleaning.

MILKERS AND MILKING.—Before beginning to milk, the milkers' hands shall be carefully washed, using soap, and then rinsed in clean water.

A special suit of clean outer garments, of cotton or linen, and cap, and white sleeves, shall be worn during milking and during no other time; when not in use, these must not be kept in the stable or living room, but in a clean and ventilated place.

Just before milking, the udder and surrounding parts of every cow shall be brushed and then wiped with a cloth, clean and damp but not dripping.

The milkers' hands shall be kept clean and dry when milking; they shall not come in contact with the milk.

The first three or four streams of milk from each teat shall be drawn into a separate vessel, to be thrown away, but not on the floor or in the gutter.

Milking shall be done in a quiet, clean and thorough manner and at the same hours daily.

Milkers shall avoid handling the cows more than necessary.

No strange person or animal shall be allowed in the stable or milking room at milking time.

If the milk from a cow is bloody or stringy or thick, or if it has an unnatural appearance, or if manure gets into it, it shall be discarded and the pail washed and sterilized before it is again used.

Cows separated from the herd shall be milked after the herd is milked, or by other milkers than those employed by the herd.

The milk from any cow whose health is suspected shall be discarded.

CARE AND DELIVERY OF MILK.—Immediately after each pail is filled the milk shall be taken to the milk room. It shall then be promptly strained through a fine wire gauze and a layer of absorbent cotton protected on either side by a layer of cheese cloth.

It shall be thoroughly aerated and

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cooled to 45° by some modern appliance.

The cooling shall be done within fifteen minutes after being drawn, and the milk be bottled directly from the cooler.

Milk shall be stored, while on the farm, in the regular milk room only.

When milk is stored in cold water in a tank, the water shall be changed often enough to prevent its having any unpleasant smell or appearance. Care shall be taken to have the water higher than the level of the milk in the bottle. The storage tank or ice box shall be thoroughly scrubbed out at least once a week. The overflow pipe shall be properly trapped to prevent the entrance of sewer gas.

No ice shall be put into the milk.

Night and morning milk shall not be mixed.

No preservative or other substance shall be added to the milk for any purpose, and no part of the milk shall be removed.

The addition or subtraction of cream shall not be permitted by the commission.

Every possible precaution shall be taken to improve the keeping quality of the milk, to maintain its purity, and especially to prevent the entrance of objectionable bacteria.

The milk shall be placed in flint glass jars at the dairy where produced as soon as it is cooled, and no jar shall be opened before delivery.

The jars shall be of a pattern which has a comparatively simple and cleanly method of closing.

The jars shall be filled by hand, pouring from a pitcher or can, or by a machine so constructed that every part may be completely cleaned.

Spilling of milk when filling jars should be avoided; if any milk is spilled it shall not be returned to the jars or reservoir.

As soon as filled, the jars shall be sealed, and a label affixed bearing the name of the dairyman, also the special mark adopted by the commission.

In warm weather the jars shall be surrounded by ice or cold water.

Milk packages shall not be unnecessarily agitated, and they shall be protected from the heat of the sun.

Milk for wholesale trade shall be in vessels sealed before leaving the milk room.

As much care shall be exercised during transportation as at the dairy.

No milk shall be sent from the dairy over eighteen hours old.

While awaiting delivery in the city, milk shall be held in a clean room not used for domestic purposes.

Delivery wagons shall be so constructed as to protect the milk from the weather, and all fittings and inside parts shall be cleaned frequently; in warm weather they shall be washed daily with warm water.

The collection of empty bottles and milk tickets or checks from houses where an infectious disease is known to exist shall be made by other persons and vehicles than those delivering the milk. When returned to the dairy, the bottles shall be taken to a separate building and thoroughly sterilized before being carried to the dairy room, and all such collected tickets and checks shall be promptly recorded and destroyed. All tickets, checks and labels shall be new when delivered, and none shall be used a second time.

CONCLUSION.—So from these requirements we readily see that on almost perfect milk is guaranteed to consumers. The conditions are strictly enforced, and, as we stated in the beginning, it is not every dairyman who can enter into the production of certified milk, and not every man can expect to make a success if he should go into the business, but we can do much toward improving the quality of milk if we follow the rule: Keep the dirt out of the milk, rather than try to strain it out afterward.

LIVE STOCK CONDITIONS IN CALIFORNIA.

Dr. C. M. HARING, Veterinarian, University of California, at the Twelfth Annual Convention of the American National Live Stock Association, in Los Angeles.

There is one thing more than anything else that characterizes the live stock industry of this State; that is its diversity. The rainfall, temperature, soil, kind, quality and quantity of food and methods of handling and marketing vary so greatly that a description of live stock conditions in one section might be entirely inapplicable to many other localities in the same county. The State at large is recognized as having the most diverse agricultural conditions of any in the Union, and the impossibility of doing justice to so broad a subject as live stock conditions in California causes me to limit this address to a brief statement of sanitary conditions, so-called.

TEXAS FEVER.—During the past two years very effective work has been carried on in eradicating the fever tick. The Texas fever quarantine line crosses the State a little south of the middle, and the problem of dealing with this is an intra, instead of an inter, state one. There is good ground for the hope that the tick can be entirely eradicated from the State. In 1907 more territory was freed from ticks and placed north of the quarantine line than in all the other States, and the same thing was repeated last year. This work was carried on by the United States Bureau of Animal Industry and the State Veterinarian, with the assistance of local authorities in various counties. The quarantine line now passes between San Luis Obispo and Monterey counties on the coast and just north of Kern county in the San Joaquin valley. The area of worst infection is on the coast, particularly in San Luis Obispo and San Diego counties; and if these can be cleaned up the rest will be easy. The task of preventing fresh introductions of the parasites would be simple compared to that problem in States not so isolated and protected by natural barriers. The appreciation and co-operation in the work of the Pacific Coast stock men has greatly aided in the work. It has made the results accomplished possible.

BLACK LEG.—A disease that for years caused immense losses is black leg. It has become of minor importance since the value of vaccination as a preventive is so generally recognized. Each year its use is rendering it more efficient. Experience teaches when to inoculate in order to get the greatest efficiency. The fact that this time varies markedly in different portions of the State further illustrates the great diversity of climatic and food conditions in California. By vaccination the amount of infected ground is undoubtedly reduced, because deaths from the disease are prevented, and each animal dying of the disease adds to the infection already present in the soil. It is probable that time is a factor in lessening the number of germs present in the ground. Much of the vaccine is produced in local laboratories, although last year the U. S. Department of Agriculture distributed over 53,000 doses in this State. In some portions of the State the ranges are entirely free from this disease, but every year marks the infection of some of this previously black leg-free fround; and once infected, of course it is there to stay. Vaccination is ever after necessary, except in places where the ground comes under cultivation.

ANTHRAX.—Another disease usually contracted from infected ground is anthrax. Although the infected area in this State is comparatively small, the vast swamp areas of the valleys furnish the most suitable environment for its increase. Care in the disposal of carcasses of animals that have died of anthrax is of vital importance. The disease is capable of being carried great distances, and under favorable conditions the germs will remain alive in the ground indefinitely. A turkey



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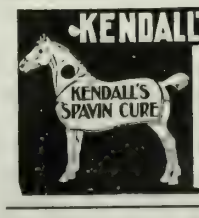
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1 600 lb. Simplex Combined Churn and Butter-worker.
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1 No. 2, L-2, 1200 lb., Simplex Turbine Separator.
1 No. 3 Jumbo Butter Mold and Cutter.
2 200 gal. Jensen Sanitary Receiving Vats.
1 24 bottle Facile Turbine Tester for 9 inch bottles.
1 80 gal. Double Weight Can.
1 30 gal. Haughdahl Starter Can.
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1 Trommer Cream Sampling Scale.
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buzzard is known to be an agent in its spread. Mrs. Florence M. Bailey, in "Handbook of Birds of the Western United States," page 145, says:

"The ranchmen, who are numbered among their constituents, find it quite unnecessary to bury their offal, depending entirely upon the good offices of this self-constituted garbage committee of Nature's Board of Health."

This is misleading. Experiments conducted at the University of California, and as yet unpublished, show that anthrax may be carried by buzzards. They do not disinfect what they eat, and an animal dead of an infectious disease might better remain in one place than be scattered over the country by buzzards.

TUBERCULOSIS.—Bovine tuberculosis is a factor of no minor importance in California beef cattle. The impression is widespread that an active outdoor life will not only prevent but cure tuberculosis, but this does not hold true with cattle constantly endangered and reinfected by association with diseased animals. The amount of tuberculosis in range cattle reaching the abbatoirs in San Francisco and Oakland proves conclusively that outdoor life alone is not sufficient to prevent or frequently bring about a cure. Mr. C. S. Baker says: "It is not at all uncommon to find steers, two to four years old, with well defined progressive cases." The introduction upon a range of untested bulls, or worse still, of tubercular dairy cows, is a mistake from which the stock man will in due time reap abundant losses.

WHAT WE ESCAPE.—We are fortunate in this State in being entirely free from many diseases which are of importance in the Middle West. One of these is cattle mange. So far as known, this does not occur in California, although there have been frequent reports to that effect, everyone investigated has proved to be something else. The usual cause is lice, a severe infestation of which is frequently the cause of the mistake.

Another disease, the prevalence of which east of the Sierras is causing alarm, is infectious anaemia of horses, also known as swamp fever. This is causing considerable loss and has extended through all of the West Central States from Texas to Dakota. The sanitary authorities of this State are watching with interest for the report of the first case here in California. The disease is a chronic one, the animal lingering and terminating in death only after a course of from two months to one year. It seems to spread under range conditions quite readily. As yet nothing is known regarding its cause or a means for its prevention, although it has been proved to be transmissible.

Rabies, the disease of dogs, which frequently causes great loss among live stock in the East, is unknown here. Occasionally the report of a "mad dog" comes to the notice of the State Board of Health, but as yet no actually proved case of rabies or hydrophobia has been discovered. This disease cannot originate from climatic conditions, privation of dogs from water, etc. It is a specific infectious disease, and occurs only by transmission from some previous case, and we believe that the State is fortunate in thus far escaping the introduction of a rabid animal.

SHEEP SCAB.—The combat with scabies in sheep has been actively carried forward in California. During the past year over a million and a half of dippings have occurred. An effort was made last spring and summer to dip every sheep in the State. This work resulted in a great decrease in the amount of the disease. Efforts are now directed toward the detection of infected bands, and in the spring vigorous measures will be taken to rid those discovered of scab. We hope that in a year or two a Bureau of Animal Industry order will be issued, releasing California from the quarantine on account of this disease in sheep.

SPAYING.—The benefits to be derived from the spaying of cattle is coming to be more and more recognized in California. One veterinarian from the Middle West employed by some of the large cattle companies of this State is said to have made the boast that he took $10,000 out of this State last season. We have several veterinarians on the Coast who are acknowledged experts in the operation, and many of the stock men do their own work. At the short course in animal industry and veterinary science at the University Farm, Davis, California, one of the features of the instruction work was the spaying of cows and heifers.

INSTRUCTION.—For several years the University has endeavored to give practical instruction in agriculture through short courses at Berkeley. A serious handicap was found in the lack of field operations whenever such courses were offered. The State has provided the University with a large farm at Davis. It consists of 780 acres of as fine land as there is in California. In fact, at one time it was the banner wheat farm of the State. And with the equipment so far secured courses were offered which were of immediate practical benefit to farm boys and ranchers to whom a four year agricultural course would be impossible. The importance of the stock interests of the State warrant considerable attention to this branch of agriculture, and it is the purpose of the University to enlarge the scope of the work in animal industry, stock judging and veterinary science instruction at the University Farm.

At present the work at the University Farm is being directed along four lines. An agricultural high school has been established which accepts students who have completed the grammar school work. University instruction, which is given to agricultural students from the College of Agriculture, Berkeley, who are privileged to go there for the last term of their four-year course; the short courses which are given during the fall and experimental work.

RESEARCH.—Some of the experiments in progress will be of interest to stock men.

One of these is on the immunization of cattle against tuberculosis. Twenty-five calves have been inoculated with bovovaccine and are being kept with a like number of non-vaccinated animals; with these are being kept a number of tubercular cows. As the calves react to tuberculin they are shipped to San Francisco and killed, subject to Federal inspection. Investigations along the line of immunization against tuberculosis give promise of hopeful results. As yet, we cannot recommend the work as a practical proposition, although some immunity can undoubtedly be produced by the injection of non-virulent cultures of tubercle bacilli.

The foundation of fine herds of beef and dairy cattle is being laid by the purchase of the best types of animals. The number at the farm is small at present, but during the short course was augmented by the loan of valuable cattle by prominent breeders.

The College of Agriculture and Agricultural Experiment Station at Berkeley, in addition to its teaching and experimental work, is reaching out a helping hand to ranchers through its numerous bulletins and circulars and by a large correspondence in answer to questions. The station has recently published a bulletin on bovine tuberculosis, in which it offers tuberculin free, and special instruction in the tuberculin test.

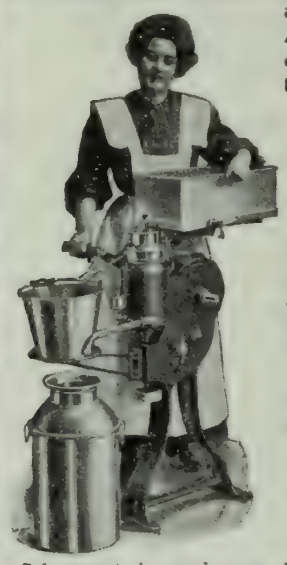
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AMERICAN NATIONAL LIVE STOCK ASSOCIATION.

(Continued From Page 101.)

"Through the efforts of that committee and your attorney, Mr. Cowan, our bill was introduced in the Senate by Senator Curtis, and in the House of Representatives by Congressman Scott of Kansas, and both bills were referred to the Committee on Public Lands.

"After careful consideration and review of the situation in Congress it was decided by your committee that it would not be possible to secure favorable consideration of this bill at the last session, and therefore no attempt was made to have formal hearings before the committees, but our efforts were confined to acquainting the Senators and Congressmen of the purport and necessity for such legislation, so that when the bill comes up for consideration the members of Congress will be fully informed.

"As many of you know, there is considerable opposition to this measure, and it will require the persistent and vigorous support of all interested to secure its passage. As announced in our call, this question of Federal control of the open range will be up for discussion, and you will have an opportunity to hear from thoroughly well informed speakers regarding it. It is a very important question with many of our members, and this association should again record its views by appropriate resolutions.

"Closely allied with this subject is the forest reserve policy of our Government. I believe we are all agreed on the importance of conserving our natural resources, particularly our forests, for on them depends our water supply, as well as the future timber supply of the country.

"The Forest Service department has been freely criticised by various interests, and in the majority of cases, unjustly; but the criticisms have been directed largely, if not entirely, against some of the details of their administration, and not against the general policy of forest preservation. In the management of such an extensive domain, consisting of many millions of acres, upon a new plan, it would be more than surprising if there were not some complaints; indeed, objections of one kind and another could naturally be expected.

"At the time of our last meeting there was pending in Congress a bill, known as the Culberson-Smith car and transportation service bill, which had been prepared

by our attorney, and which was designed to prevent unreasonable delays in furnishing cars for live stock and other perishable freight, and to compel reasonable and adequate service and at a minimum speed.

"That bill was unanimously approved by you, and in carrying out your action your transportation committee and officers have zealously endeavored to secure favorable action by Congress on this measure. Mr. Cowan and others have appeared before the appropriate committees many times; we have secured the support of various commercial organizations to this measure, and we have the promise of support from many influential members of Congress.

"Owing to the fact that last year was a presidential year, it was possible to have considered only the most urgent legislation, and this bill met the fate of many other equally meritorious measures.

"It is scarcely necessary for me to refer to the heavy losses sustained by the stockmen of the West by the failure of the railroads to promptly furnish cars upon reasonable notice.

"Not longer than a couple of years ago, it was a frequent occurrence for a ranchman to drive his stock to the loading points, and then wait from two weeks to two months for cars which had been ordered in ample time, and which, in many instances, had been promised for a certain date.

"In extreme cases the stock had to be turned back onto the range because it had shrunk too badly to be shipped. It was because of this disregard of their plain duties as common carriers that our association urged the passage of the Culberson-Smith bill.

"The past year the railroad service has materially improved, and undoubtedly our efforts to secure such legislation have been a great incentive toward its improvement. The opportunity for similar abuses still exists, and we should continue to demand such a law.

"When this association secured the extension of the 28-hour law to 36 hours, it was confidently expected that the extra time would prevent many unnecessary unloadings, and enable us to get our live stock to destination in much better condition and with much less hardship and suffering to the stock.

"Contrary to their promises, the railroads have simply consumed the additional time between their usual stopping places by handling the live stock at a lesser rate of speed, so that almost as many unloadings are necessary today as under the old law.

"Therefore the enactment of a law providing for a speed minimum, not only in the different States, but also by the Federal Government, graduated according to the territory of the country traversed, is imperative.

"Probably the best way to handle this matter on interstate shipment is to empower the Interstate Commerce Commission to fix the rules and regulations relative to handling perishable freight, which would include the fixing of a speed minimum.

"The railroads now are contesting in the courts the Nebraska speed minimum law, and upon the request of the Nebraska Stock Growers' Association this association is assisting in a defense of that law.

"Unquestionably it lies within the regulating power of the States to prescribe a speed minimum, as well as to fix rates.

"We pay the railroads for good service, and they should be compelled to furnish it.

"Our association has also been active in its support of the bill we had introduced in Congress, and which you approved at your last convention, prohibiting the railroads from advancing freight rates except subject to the power of the Interstate Commerce Commission to inquire into the reasonableness of the advances before they take effect, and to suspend same if deemed unreasonable. The wholesale increases in rates already made all over the country, as well as those contemplated advances so wildly discussed in the newspapers, emphasizes the necessity for such a law.

"Just now all California is protesting against a general advance in transcontinental rates.

"Without seeking to defend the present transcontinental rates, or condemning the proposed advance, I contend that if such rates have been long in effect, as I understand they have, it is a fair proposition to submit tneir advance to the Interstate Commerce Commission for approval before the advances are made.

"The terminal charge case, which this association has been prosecuting for many years, is still in the courts, but I am glad to inform you that it has finally reached the Supreme Court of the United States once more, and a decision by that court is expected early this year.

"One of the vital questions which has been occupying the attention of this association and your officers for several years is the securing of more extended foreign markets for our live stock and meat food products.

"The price of our surplus largely fixes the price of our live stock at home, and the importance of increased foreign outlets cannot be overestimated. That we cannot sell to many continental European countries is well known, but the reason is perhaps not generally understood.

"This nation has created a tariff law to protect certain Eastern manufacturers, and continental Europe has given us a dose of the same kind of medicine by imposing prohibitive duties on our agricultural and meat products, the very articles it would benefit us most to sell abroad.

"If we will permit other nations to sell us some of the articles which they excel us in manufacturing, then they will reciprocate by admitting our live stock and meat products.

"If we will remove some of our unnecessary duties, they will do likewise, and our international trade will then develop along natural and not artificial lines. The live stock industry needs no favors, but it demands a square deal.

"In California we raise and finish, ready for the block, many thousand head of live stock every year; we sell our steers on the hoof to the packers in San Francisco and Los Angeles at 4 to 4½ cents a pound. After slaughter the California packing houses sell them to the retailers in the carcass for from 7 to 8 cents per pound, and I might add in passing that the California packing houses have not yet been accused of being a trust.

"The demand for the choice cuts is keen, but there is not the same demand for inferior cuts, and frequently it is extremely difficult to dispose of them, even at a heavy discount.

"The less desirable cuts constitute the bulk of a carcass, and if they do not meet with a ready sale and at reasonable profit, then the retailer must secure proportionately more for the choice cuts.

"The same animals that are sold to the retailers by the packers at from 7 to 8 cents per pound in the carcass are sold at from two to three times that price in France and Germany. Before American consumers can expect cheaper meats, they must either learn how to economically utilize all parts of the carcass, or there must be some foreign outlet found for those portions which the American does not seem to want and which the foreign nations are anxious to purchase.

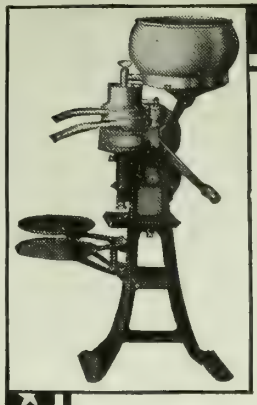
"From every aspect the importance of carefully fostering our foreign meat trade is manifest, and should receive your attention."

One of the most interesting points touched by Mr. Jastro was the condition of the live stock industry in California. The following statements are certainly most interesting to anyone in the live stock business in this State, and only go to show that we have much room for improvement, and plenty of leeway in market conditions for all of the stock we can raise:

"Before closing, it may prove of interest to many of you to refer briefly to live stock conditions in California. Proportioned to its area, California cannot be classed as a great live stock State. Out of the 72,000,000 head of cattle in the United States, California possesses only about a million and a half; of the 53,000,000 sheep in this country, California has about 2,500,000; and of the 54,000,000 hogs, California has only about 500,000; from which you will observe that this State has relatively fewer hogs than any other class of live stock. In fact, our packers are compelled to ship hogs in here from Kansas and Nebraska to supply the demand for fresh pork, and a large part of the cured pork products consumed in California are shipped in here from the East. With proper attention to that branch of live stock production, the California farmer ought to be able to supply all the hogs needed for consumption in this State, and it is a matter worthy of the earnest consideration of all interested.

"Those States which follow a diversified agriculture, and feed on the farm a good share of their grains and grasses, are noted for the fertility of their soil. Continual cropping of the land impoverishes the soil, but the feeding of live stock on farms enriches and, in some cases, increases its fertility. This subject is well worthy of consideration by our small farmers."

Certainly here are some important facts for us to consider. It seems hardly possible that hogs are imported into this State, but Mr. Jastro's remarks are correct. I had the pleasure of visiting some



The Simplest, Strongest And Most Convincing Of

Cream Separator Arguments

We cannot believe that there is a sensible man living who would put his own money into the purchase of any other than a DE LAVAL cream separator, for his own use, if he would but first avail of the opportunity open to everyone to see and try an improved DE LAVAL machine before buying any other.

It is hardly possible to say more than this. It is hardly possible to put the simple truth in plainer words. It would hardly seem possible to say it more convincingly.

The trial of a DE LAVAL machine is free to every responsible man thinking of buying a cream separator. We have agents in every locality for this purpose. If you don't know the agent in your neighborhood, send to us for his name and address, and it will be a pleasure to give your inquiry prompt attention.

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42 E. Madison Street CHICAGO
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Box 1052 VANCOUVER, B. C.

COMPARE PRICES AND RESULTS

Analysis (from Bulletin 164, Jan. 1905—University of California.)

DIGESTIBLE PROTEIN IN

Linseed Oil Cake Meal	**24.4 per cent**	Shorts	12.2 per cent
Cocoa Cake or Meal	**16.4 "**	Mixed Feed	9.6 "
Wheat Middlings	12.2 "	Corn Meal	6.4 "
Wheat Bran	11.2 "	Wheat Hay	3.6 "

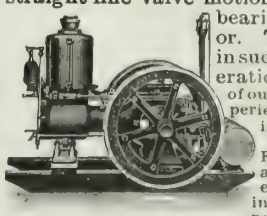
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PACIFIC OIL & LEAD WORKS, - - - SAN FRANCISCO, CAL.
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Stickney Gasoline Engines ARE THE BEST

Why? Because of the outside igniter, modern open cooling system, straight-line valve motion and ball-bearing governor. Thousands in successful operation because of our years of experience in building the best. Send for our Free Catalog and our Catechism telling fifty-seven reasons why



Stickney Engines Are the Best.

Seven sizes: 1½ to 16 H. P. Stationary and portable.

De Laval Dairy Supply Co.

SAN FRANCISCO - LOS ANGELES - PORTLAND - SEATTLE

The Poultry Yard.

THE CARE OF BROODER CHICKS

Written for the Pacific Rural Press
By M. R. James.

The care of brooder chicks under proper conditions is simple and less trouble than the care of a large number of hens with chicks. The first requirement is:

A Good Brooder.—Never use a low brooder, with hot pipes directly onto the chicks; it is little less than a death-trap. When the brooder is heated by pipes these should be several inches above the backs of the chicks, and a burlap hover should extend beneath the pipes to distribute the heat more evenly and in a measure prevent its striking the chicks directly. The correct method of heating a brooder is by upward currents of hot air. The plan of such a brooder was published in England in the Lewis Poultry Book for 1871. The principle has not been improved upon, though the plans may have been somewhat simplified. This brooder was heated by a hot water tank between the lamp and the brooder. As used by the N. C. Experiment Station, it may be readily made when the tank is done by the tinsmith.

The brooder is in two parts—the lamp box, on which the tank rests, and the brooder proper, which fits over it. For a small brooder the lamp box is 10 inches high and 3 feet square, perfectly tight except for inch holes in each of the four upper corners for the smoke to pass out, and a row of smaller holes in the bottom of the door for lamp ventilation. The sheet-iron tank forms the top and is made with the bottom extending two inches beyond its sides all around, and is one inch in depth. The floor of the brooder is made of six boards 3 feet long, 6 inches wide, and 1 inch thick; these boards must be tongued and grooved. On the under side of this floor, at the edge all around, strips 1 inch thick and 1½ inches wide are nailed; now this floor will fit over the lamp box, leaving a space of one inch around the tank on the sides and one-half inch on the top. In the middle of this floor is inserted an iron tube 1 inch in diameter and 3½ inches long, or 2½ inches above the floor. This tube is for the hot air to pass up into the brooder. On either side of the tank through the strips under the floor is a hole some half inch across for the cold air to enter; this cold air passes around the hot tank, is heated and rises through the tube and flows into the brooder, and more cold air takes its place around the tank, so that there is a constant stream of pure air passing into the brooder through the tube, but nowhere else, as the floor is perfectly tight. This warm air flows over the backs of the chicks as evenly and gently as the natural heat from the mother hen. The box of the brooder should be at least two feet high above the brooder floor in front, and a foot at the back, with holes close up under the edge of the top in front for ventilating the brooder. As may be readily seen, no smoke or foul air can enter the brooder, and no direct heat strikes the chicks. A hover some two feet across is placed over the hot air tube, on adjustable pegs or legs. A number of the best brooders on the market are planned on this principle, and in buying a brooder it is the part of wisdom to get one of this sort.

We hear a good deal of the "fireless brooder"—in fact, since there is little science in its construction, the persons advertising either the brooder or the plans are increasing and multiplying. We have it from no less an authority than the Petaluma Incubator Co. that the original fireless brooder, or night box as they then called it, was made by them in 1879, and sold quite extensively for several years, the illustrations and descriptions being published in the Pacific Rural Press of that period, and they add: "Fashions change, and what was in style and discarded years ago is the style of today." All of which would incline the cautious to be a bit slow in discarding the style of brooder which has remained from the first, and is likely to continue to the last, for a style that comes and goes.

This much we would advise, that at about three weeks of age, when the chicks are beginning to crowd the brooder and the latter is needed for the next hatch, cold brooders may be used by making large hovers thickly hung with woolen felt or coarse flannel strips and placing them in shallow drygoods boxes, allowing a height of only six inches from the floor to the top of the hover. These low hovers with warm hangings keep the chicks warm and prevent their huddling. As the chicks grow older the hovers should be gradually raised, and when they are about six weeks old, in warm weather, the hovers may be entirely removed and the chicks taught to roost in the open by a gradual process which prevents "jars" and trouble.

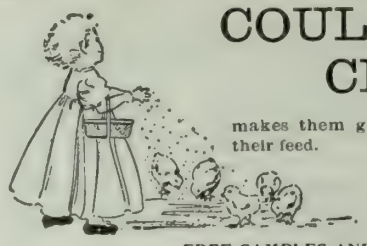
The Brooder House.—Never, no never, try to raise chicks in out-of-door brooders without putting those same brooders under cover—in fact, housing them. The out-of-door brooders *in* a brooder house are better than indoor brooders, because they are higher and more roomy, but don't try depending upon them out of doors. If you have no brooder house, improvise one out of an old shed. By battening the cracks and putting a half sash, or even some lights of glass, low down on the south side, a very fair brooder house may be made, always providing there is a tight dry board floor in the same. We never tried to raise chicks in outdoor brooders, but we have seen others try—and the picture of those same miserable chicks still vexes our memory—chicks with the roup at two weeks old, chicks bedraggled, bald and gray!

The Preparation of the Brooder.—If the brooder has been used before, we will presume that it has been well cleaned before being laid aside; in any case it is well to make doubly sure by thoroughly spraying every part, crack and crevice with cheap coal oil or a solution of carbolic acid, then drying and airing perfectly. Now place an inch of coarse sand that is clean and dry over the entire bottom of the brooder; over this, beneath the hover put a thick litter of cut alfalfa hay or the dry leaves of clover; in the front of the brooder sprinkle pounded shells. Some twelve hours before you want to put the chicks in the brooder, turn on the heat and gradually and thoroughly warm it up; and when ready to put the chicks into it, have the temperature the same as that of the incubator from which you take them, which should be at least 95 degrees under the hover. Next week we will consider the proper care of the chicks in the brooder.

Questions and Answers.

Guinea Fowls.—Miss H. M. W., of Lathrop, writes: "I have read your article in the Pacific Rural Press for January 9 relating to guinea fowls, and am quite anxious to know where I can purchase the eggs for setting. Thought you might be able to give me the address of someone who has them for sale.

Rhode Island Reds.—T. G. T., of Modesto, writes: "I read in the Pacific Rural Press your report of the poultry show, in which you mentioned the exhibit of R. I. Reds. I will take it as a great favor if you will give me the address of the breeders, as I want to take up that breed and buy several hundred of the chicks."



COULSON'S SPECIAL CHICK FOOD

makes them grow. Throw it in the litter and let them work for their feed.

It contains the best quality of everything they require for first six weeks, **except grit.**

FREE SAMPLES AND PRICES ON APPLICATION TO

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PETALUMA, CALIFORNIA.



DISTEMPER ALWAYS DANGEROUS

Valuable horses fall easy victims to this often fatal disease. When it once breaks out it spares none. To prevent its spread and cure the sick put a teaspoonful of **CRAFT'S DISTEMPER CURE** in the feed or on the tongue once a day and your trouble will soon end. Get it from your druggist or we will send it prepaid, 50 cents and $1 a bottle.

D. E. NEWELL, 56 Bayo Vista Ave., Oakland, Cal., Pacific Coast Agent.

The above two inquiries naturally suggest that breeders of poultry who have stock for sale would find it to their interest to make it known through the advertising columns of this page.

Poor Hatches.—J. S. of Sonoma writes: "Have had poor results from a hatch set the first of January—infertile eggs, chicks dead in the shell and cripples. A fourth of those hatched are more or less crippled. Kept the thermometer at 103 degrees and attended carefully to the eggs. Can you give a poultryman out of luck any points?"

We have had lately a number of letters of this same tenor. In the first place, we would say that late fall and winter hatches are seldom satisfactory. Hens beginning to moult, immature pullets, moulting cocks and other causes all tend to reduce the fertility and stamina of hatching eggs at this season. Such hatches are unprofitable from every point of view, for, even should they turn out well, the pullets will begin to lay in the early summer and go into the moult the same as old hens. Don't begin hatching till February, and bring off the bulk of the hatches in March. In the latter month eggs are at their best—more chicks and better will come out of a given number of them than in any other month. Your large percentage of cripples denotes too much heat, sudden jumps of temperature, and too little airing may have contributed toward it. Have your thermometer tested before another hatch. In the article, "Hatching the Chicks," in the Pacific Rural Press of January 23, you may find some helpful points.

VALUABLE IN EVERY HOUSEHOLD.

"It is with a source of great pleasure that I read each week your valuable paper, and from it learn a great deal valuable to every farmer and fruit grower. It is a valuable addition to every household."—Subscriber.



THE OLD RELIABLE LAMBERTS'

Death to Lice

is practically indispensable to those who raise, sell or exhibit Poultry. Is the quickest and safest Lice Killer on the market, and is guaranteed not to injure Eggs or Chickens. Pocketbook Pointers on "Modern Poultry Methods" sent for 2c. stamp. Write today.

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Dealers in PAPER

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Egg Cases

OUR PRICES

Heavy 36-doz. Cases and Fillers...	$ .60
Heavy 36-doz. Cases nailed.....	.45
Heavy 36-doz. Shook and Irons...	.40
Heavy 30-doz. Cases and Fillers...	.55
Heavy 30-doz. Cases nailed.....	.40
Heavy 30-doz. Shook and Irons...	.35
Heavy 18-doz. Cases and Fillers...	.40
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No. 1 Fillers, 10 sets per case.....	1.50
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1 doz. Egg Cartons and Fillers, per 1000.....	7.00

BOXES FOR HATCHING EGGS

15 egg size, per doz.....	1.00
30 egg size, per doz.....	1.75

We also make a full line of paper boxes. Paper Baby Chick boxes; all kinds of Fruit Boxes, Fruit Wrappers, etc.

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You Get the Most for Your Money

When buying **"Quality S. C. White Leghorn"** chicks from us at 10c. each, because we give you **Free** the **"Chick Book"** containing full instructions for raising them. Order 200 or more.

RANCHO LOS ENCINAS

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PETALUMA HATCHERY

The leading varieties of chicks every week.

L. W. CLARK,
615 Main St., Petaluma, Cal.

POULTRY.

ORPINGTONS—Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

PIT AND CORNISH INDIAN GAMES. O. L. Crane, R. F. D. No. 3, Santa Rosa, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley s "Little Red Book No. 51." Free. Send postal GEORGE H. CROLEY, 637 Brannan St., San Francisco. **POULTRY SUPPLIES.**

OAKLAND POULTRY YARDS
Established 36 Years.
Importer and Breeders of all Varieties of Land and Water Fowls
Stock for Sale Dept. 31, 320 McAllister St., S. F.

The Home Circle.

Country Children.

Little fresh violets, born in the wildwood,
Sweetly illustrating innocent childhood—
Shy as the antelope, brown as a berry,
Free as the mountain air, romping and merry.

Blue eyes and hazel eyes peep from the hedges,
Shaded by sunbonnets frayed at the edges.
Up in the apple trees, heedless of danger,
Manhood in embryo stares at the stranger.

Out on the hilly patch seeking the berries,
Under the orchard tree feasting on cherries,
Tramping the clover bloom blown 'mong the grasses;
No voice to hinder them, dear lads and lasses!

No grim propriety, no interdiction—
Free as the birdling from the city restriction;
Coining the purest blood, strengthening each muscle,
Donning health armor 'gainst life's coming bustle.

Dear little innocents, born in the wildwood!
Oh, that all little ones had such a childhood!
God's blue spread over them, God's green beneath them,
No sweeter heritage could we bequeath them!

To Let—Inquire Within.

The lady flounced out in a huff. Two damsels and a spinster aunt came in, and after a lengthy inspection of the premises came to a state council in the parlor.

"I like the house very much," said the spinster aunt solemnly, "and with a few alterations I will engage it for my brother's family."

"Very good, ma'am," said Nahum, rubbing his hands and scenting a speedy termination of his trials. "Name 'em."

"The door handles must all be gilded, and I would like the house re-painted and newly papered in valvet and gold, and the partition between the parlors taken down and replaced by an arch, and a new style of range in the kitchen, and a dumb waiter put in, and another furnace in the subcellar, and——"

"Hold on, ma'am, just hold on one minute," interrupted Nahum, feebly gasping for breath. "Wouldn't you like the old house carted away and a new one put in its place? I think it would be less trouble than to make the trifling alterations you suggest."

"Sir!" said the spinster loftily.

"I don't think we can agree, ma'am."

"Very well, very well—come girls." With prim dignity the lady marshalled her charges out, with a parting fling about the impudence and extortions of landlords nowadays. While Nahum, wildly rumpling his iron-gray hair with both hands, soliloquized:

"Well, if Job had been alive and had a house to let there never would have been any book of Job written. There goes that everlasting bell again! I'll sure jerk it out by the roots if this thing goes on much longer. I'll tear down the bill and put up the place at auction!"

Another lady, but quite different from those who had preceeded her—a cast-down little lady with a head that drooped like a flower, and a dress that had been mended and turned till even Nahum Briggs, man and bachelor though he was, could see how shabby it was. Yet she was pretty, with shining brown hair and fair fleeting color where the roses of youth had once bloomed, and a fair-haired bit of a lassie clung to her dress.

As Nahum Briggs stood looking at her there came back to him the sunshiny days of his youth; a field of blooming clover crimsoned the June light like waves of blood, and a rosy girl leaned over the fence, her bright hair barred with level sunset gold, and he knew that he was standing face to face with Barbara Wylie, the girl he had quarreled with years and years ago, and whose memory had kept him a bachelor all those years.

"This house is to let, I believe," she said timidly, with a quiver of the mouth.

"I believe it is, Barbara Wylie!"

She looked up startled with a quick flush of recognition; then she turned very pale and could not keep the tears from her eyes, but she hastily brushed them away and said: "If you please, Mr. Briggs, I will look at the house. I am a widow now, and must make my own living. I am thinking of keeping boarders. This house would be fine for that purpose, I'm sure. If only the rent isn't too high."

"We'll consider the rent afterwards," said Nahum, fiercely swallowing a big lump in his throat that threatened to choke him. "Come, give me a kiss, little girl," he said, reaching out his hand to the child. "I used to know your mamma when she wasn't much bigger than you."

Barbara, with her blue eyes still drooping, went all over the house, without finding a word of fault, and Nahum walked by her side, wondering if it were really fifteen years since the June sunshine lay so brightly on the clover field.

"I think the house is beautiful," said meek Barbara. "Will you rent it to me, Nahum?"

"Well, yes," said Nahum thoughtfully. "I'll let you have my house if you want it, Barbara."

"With the privilege of keeping a few boarders?"

"No, ma'am."

Barbara stopped and looked wistfully at him. "But I don't think you understand how very poor I am, Mr. Briggs."

"Yes, I do."

"And that I cannot afford to take the house without the privilege of boarders."

"I'll tell you what, Barbara," said Mr. Briggs dictatorily, "I'll give you the privilege of keeping just one boarder, and him you've got to keep all your life long if you once take him."

"I don't think I quite understand you," said Barbara, but she blushed very becomingly, and we are inclined to the belief that she told a little fib.

"What do you say to me for a boarder, Barbara?" said the old bachelor, taking both the widow's hands in him. "We were young fools once, Barbara, but that is no reason why we should be old fools now. I love you just as well as ever I did, and I'll do my best to be a good husband to you and a good father to your little girl, if you will be my wife."

Barbara blushed still rosier and hesitated, but Nahum was not to be eluded this time.

"Shall I take down the sign, 'To Let,' Barbara?"

"Yes," she murmured, almost under her breath.

On the plantation the dairy hands were accustomed to do the milking, squatting down in a primitive fashion, until the owner introduced milking stools, along with other modern improvements.

The boy who first sallied forth with the stool returned bruised and battered and with an empty pail.

"I done my best, sah," he exclaimed. "Dat stool looked all right to me, but de blamed cow she won't sit on it."—Uncle Remus's Magazine.

Fashion Notes and Clippings.

In fashions, as elsewhere, the useful is always simple and inexpensive. This holds true even in this season of extremes in outlay and display. Women of perfect taste, even in the fashionable world, appear on the street, at church and such places in costumes of extreme plainness and simplicity. Such a costume, worn by a woman with a reputation for perfect dressing, is illustrated in Harper's Bazar. It is a tailor-made suit of mouse color without a particle of trimming. The plain skirt is walking length, clearing the ground well and hanging evenly; the jacket is half-length and buttons up neatly to the small turn-over collar; the sleeves are plain coat shape slightly fulled at the top and finished at the wrist with narrow stitched cuffs. The hat worn with it is a plain felt simply trimmed with a broad feather mount; the gloves the same tone as the dress. The Bazar says: Dozens of women of small income would scorn a suit so simple; yet the plainness of this suit makes its style. In the morning, worn with a plain shirtwaist, a linen collar and a smart tie, it will prove appropriate for any purpose that may arise outside of a wedding. In the afternoon the shirtwaist may be replaced by another of lingerie, of lace or silk, or of some novelty material that matches the suit in color. The neckwear may also be changed to meet afternoon requirements, to a fancy soft linen collar, a collarette of ruching, or a regular silk stock with a small or large jabot of lace.

The plain shirtwaist is the only tasteful one for general uses. Lace, silk and fancy blouses are out of place in the office or school-room or home, when work is to be done. They are also inappropriate for traveling.

Indications are that we are to have a great embroidery summer, and embroidered bands of great beauty are to be had in all widths, some of them showing fine and delicate embroidery designs on plain batiste or mull, the material being left with rough edges and meant to be used in such fashion that the embroidery will have the air of having been executed to order for the frock.

In skirts some both side and box plaited are worn, though not really what might be called smart. For the walking length skirt the plain straight effects are best, though some fan-plaited panels are mentioned as possibilities.

The most fashionable of prevailing colors in the new weaves are pine green, mole gray, chestnut, and many grayed ruddy shades. The idea seems to be to select bright colors and then gray them over.

The new serges are the softest fabrics of the kind ever produced, some of them so fine and soft that a width may be crushed in the hand like a width of chiffon. They are wide ribbed, beautifully dyed and closely woven.

There are indications of a drift toward the fashions of the fifties and sixties, say the fashion wise. Hoop skirts, bustles and puffed draperies would be a bit startling after the sheath effects.

Only very light exercise should be taken before breakfast. Few things are more exhausting to the system than heavy exercise before breakfast. Always take some refreshment, if nothing more than a cracker and a glass of milk or water before an early morning walk, especially in a miasmatic climate.

Never sit in a cold damp room without a fire. In damp rainy climates there should be some arrangement for warming and drying every room used. This is more essential than such precautions in a severe but dry climate.



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SEE AGENTS

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One Fancy Worsted or Thibet Suit of Clothes, state color wanted	$12.00	$5.68
One Merino Suit of Underwear	1.50	.58
Good Pair of Socks	.35	.07
Good Sunday Shirt	1.00	.37
Best Collar	.15	.01
Beautiful Tie	.35	.12
Strong Pair of Suspenders	.35	.14
Pair of Donga $5.00 Shoes	$5.00	.98
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Freight paid if full amount of cash is sent with the order to any city in the United States. We have 1,000,000 of the above bargain lots which we are absolutely positive will not last more than 30 days. **Order today.**

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Department 380.

AMERICAN NATIONAL LIVE STOCK ASSOCIATION.

(*Continued From Page 115.*)

of the large packing houses situated in Los Angeles, and the manager of one of them remarked on that same point, and said that they were compelled to buy in the Middle West in order to supply their demands. Let us have more hogs and supply our home trade at least. There is a ready market awaiting them, and to satisfy these demands we must do a little finishing with some grain on our alfalfa raised stock.

The subject of "Our Foreign Markets" was ably handled by Senator W. A. Harris of Kansas. From former Senator Joseph M. Carey of Wyoming the convention learned many things regarding "Land Laws: Their Administration and Effect." Senator Carey is one of the best informed men on this important subject, being the author of the Carey Act, which most stockmen know about. Mr. Carey is an interesting speaker because of his knowledge of the facts in the case, besides being a cattleman himself. S. H. Cowan, the attorney for the association, spoke on the subject, "What the Live Stock Industry Demands of Congress," and gave a very interesting and witty speech on how Congressmen make speeches in Congress.

Mr. C. D. Marsh, an expert for the Department of Agriculture, gave one of the most interesting talks of the convention. His subject was, "The Loco Weed Investigation." Mr. Marsh has been carrying on the investigations of poisoning of horses and cattle on the ranges by this "loco weed." He illustrated his lecture with views of animals afflicted with loco poisoning, and showed some of the animals experimented upon, before and after treatment. The investigation is not yet completed, but Mr. Marsh believes that injections of strychnine will prove to be efficient. This subject proved to be very interesting to the majority of the stockmen from the open ranges of the Southwest and the Rocky Mountains, where loco weed is prevalent, and where great losses have occurred by stock eating this plant, becoming "locoed" and finally dying.

The second day brought out many interesting and important papers.

"Bovine Tuberculosis" was discussed by Dr. O. E. Dyson of Chicago. "Benefits Derived from Live Stock Organizations and Co-operation," was the subject of the address delivered by the president of that greatest of cattle organizations, Mr. I. T. Pryor of the Cattle Raisers' Association of Texas.

In the absence of Gifford Pinchot, head of the United States Forest Service, who was scheduled to deliver an address, W. C. Barnes of Washington, D. C., who is one of Mr. Pinchot's assistants, delivered an address dealing with the forest reserves. He assured the live stock men that the Forest Reserve service is anxious to work in harmony with them, and pointed out that co-operation is certain to advance the interests of both.

The annual call for donations of funds with which to defray the expenses of the association for the ensuing year met with a liberal response, a total of $9125 being subscribed in a short time, and without urging. That the association has and is accomplishing things for the stock interests was very evident from the liberal donations. The Cattle Raisers' Association of Texas started the list with a subscription of $1500, and President Jastro and Murdo Mackensie, first vice president, followed with $500 each. The other donations ranged from $250 to $25.

E. S. Gosney, president of the Arizona Wool Growers' Association, spoke of the "Forest Service Policy," and was followed by Dr. C. M. Haring of the University of California, who gave the convention some interesting facts on "Veterinary Science and Its Relation to the Live Stock Industry of California." "Federal Control of Public Grazing Lands" was the subject of an address by Dwight B. Heard, president of the Arizona Cattle Growers' Association. J. C. Underwood of Wyoming followed with a presentation of the subject, "The Future of the Cow-Man."

The general discussion and the vote on the resolutions presented to the convention brought out many impromptu speeches and some tilts, but the convention endorsed President Roosevelt and the Forest Service, under Gifford Pinchot's administration.

The convention unanimously re-elected the same executive officers for the ensuing year, and accepted Denver's offer to hold the next convention in the Centennial State. Fort Worth, Texas, made a strong bid at first, but finally withdrew in favor of Denver, expecting the convention to go to Texas in 1911.

While the mornings and afternoons were well occupied with the business for which they had come so far, the stockmen found time to thoroughly investigate Los Angeles and its surrounding territory. Many entertainments were provided by the Los Angeles Chamber of Commerce, including automobile rides about the city and trolley rides to near-by towns and beaches. Most of the delegates arrived early and stayed late, and will leave southern California with nothing but praise for the good time they were given, despite the fact that the weather man was unable to hold the elements in hand for the convention period. We shall take pleasure in presenting portions of some of the interesting papers delivered during the convention, and feel certain that they will be beneficial.

THE MARKETS.

San Francisco, Jan. 3, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Stocks of wheat in California warehouses are somewhat smaller than at the first of January, though there has been a considerable movement from the north throughout the month. The position of the market is very strong, spot stocks being firmly held at the recent advance, while May wheat is already quoted higher. As a further advance is looked for within a few days, the local milling interests are making rather larger purchases than before, though no great activity has developed.

California White Australian	$1.85	@1.90
California Club	1.72½	@1.75
California Milling	1.75	@1.77½
California lower grades	1.45	@1.60
Northern Club	1.72½	@1.75
Northern Bluestem	1.82½	@1.87½
Northern Red	1.67½	@1.70
Turkey Red	1.80	@1.85

BARLEY.

Stocks on hand show considerable reduction since a month ago, as there has been a fairly steady movement, both for shipping and consumption. There is still some movement to the southern part of the State, but the local market is rather quiet, and prices have a downward tendency. Shipping and brewing grades in particular are several cents lower. Good feed is now moving at $1.40, though some fancy lots bring as high as $1.42½. Chevalier is unchanged.

Brewing	$1.12½	@1.17½
Shipping	1.42½	@1.47½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.37½	@1.42½
Common Feed		1.35

OATS.

All prices have been held at the advance quoted last week, and no further change has taken place. Supplies are even lighter than last month, as there has been a little demand for the last few weeks, and arrivals have been limited. While the market is by no means active, most varieties are very firmly held, especially whites. The feeling in regard to reds is a little easier.

White, per ctl.	$1.80	@1.95
Gray	1.80	@1.90
Red, seed	1.85	@1.95
Feed	1.70	@1.80
Black, seed	2.00	@2.30

CORN.

The amount on hand is about stationary, consumption and arrivals being about equal, and both very light. Further firmness has developed in the Western grades, white and mixed in bulk having advanced several cents. There has been a little movement of white Egyptian, quotations being established at $1.75 to $1.80.

Western State Yellow	$1.60	@1.70
Mixed, in bulk		1.52
White, in bulk		1.56
Egyptian, white	1.75	@1.80

RYE.

Requirements for this grain are very small, and there has not been enough movement in the last week to establish any new quotations. Stocks on hand, however, continue extremely small, and none is offered at anything below the last quotations.

Rye	$1.65	@1.70

BEANS.

Considerable activity has developed in the bean market this week, due principally to the advance in white beans, both large and small varieties being quoted considerably higher. There is a continued good consumptive demand on the Coast, though the outside movement is still rather limited. The firmness in cranberry and bayo beans continues, both varieties showing an advance. B'ackeyes are steady at a slight decline, and pinks are quiet at unchanged values. Limas have again declined, and the local buyers are showing considerable interest in the market at present values, though there is little movement in the East. Reds are scarce and show an abrupt advance.

Bayos, per ctl.	3.10	@3.25
Blackeyes	2.80	@3.00
Cranberry Beans	2.75	@3.25
Garvanzos	2.00	@4.00
Horse Beans	1.50	@2.00
Small Whites	4.75	@5.25
Large Whites	3.80	@4.10
Limas	3.80	@3.90
Pea	4.75	@5.00
Pink	2.45	@2.60
Red	4.75	@5.00
Red Kidneys	3.00	@3.40

SEEDS.

The seasonable demand is beginning to make its appearance, though the weather conditions are still unfavorable to much activity, and the movement has by no means reached the proportions expected. Local dealers are carrying plentiful supplies, but all prices are steadily maintained in the anticipation of large requirements later in the season.

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy		Nominal
Yellow Mustard		Nominal

FLOUR.

The local dealers are still holding prices very firmly at the former quotations, and there is little likelihood of any material reduction until the next crop of wheat is available. The demand for shipment is limited, as usual, and the local trade is not taking on any surplus at present, so the market remains rather quiet.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

Receipts of hay have been rather heavy again this week, but notwithstanding the large arrivals prices have been firmly maintained. It had been predicted that with improved crop prospects there would be some pressure on the market from holders in the country, bringing an easier condition of the market, but available stocks throughout the country, in first hands or in the warehouses, seem to be very light, and no reduction is looked for until the new crop comes into the market. A large acreage has been sown, and prospects are for a heavy crop. Alfalfa shows some advance, and is in very heavy demand, especially from the dairying interests, which are expected to take up all available supplies at about the present values. Straw is inactive, both supply and demand being light.

Choice Wheat, per ton	$21.00	@23.50
Other Grades Wheat	17.00	@21.00
Wheat and Oat	16.00	@21.50
Tame Oat	16.00	@21.00
Wild Oat	15.00	@17.00
Alfalfa	16.00	@19.00
Stock	12.00	@14.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

Supplies of millstuffs have diminished somewhat of late, but the demand has also fallen off considerably, and while some scarcity is reported in the North, the tone of the local market is easy. Prices have thus far been maintained, however, and no change appears in any line. Miscellaneous feedstuffs are fairly firm at appearing quotations.

Alfalfa meal, per ton	$23.00	@24.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Mealfalfa	23.00	@24.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	28.50	@30.00
Shorts	33.00	@33 50

VEGETABLES.

The onion market has quieted down somewhat this week, as the retail trade is well supplied, and stocks in receivers' hands, while small, are adequate for current requirements. All stock is closely held, however, and prices are firm at last quotations. Asparagus is arriving rather more liberally, and values are lower. Green peas are also lower, though beans bring high prices. Tomatoes are easier, though very few of good quality are offered. Celery is also lower. Mushrooms are still plentiful, but command slightly higher prices. The market is kept fairly well cleaned up, as receipts are not excessive in any line, and the demand is fairly good for nearly everything.

Onions	$ 1.75	@ 2.25
Garlic, per lb.	8	@ 10c
String Beans, per lb	12½	@ 20c
Green Peas, per lb.	4	@ 7c
Cabbage, per ctl.		1.25
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, crate	1.00	@ 1.50
Green Peppers, lb.	12½	@ 20c
Egg Plant, lb.		25c
Cauliflower, doz.	50	@ 60c
Celery, doz.	40	@ 60c
Asparagus, lb.	15	@ 25c

POULTRY.

Arrivals of Eastern stock continue more than liberal, but there is a good steady demand, and the market is kept in a strong condition, with little or no surplus held over from week to week. Receipts of native poultry are very moderate, and prices have been held up firmly, with some advance on fryers and broilers. Any decrease in outside shipments would cause considerably higher prices in nearly all lines. Few turkeys are arriving, and fancy stock is in good demand, dressed turkeys being quoted a cent higher.

Broilers	$ 5.50	@ 6.50
Small Broilers	4.50	@ 5.00
Fryers	6.00	@ 7.00
Hens, extra	7.00	@ 9.00
Hens, per doz.	5.50	@ 6.50
Small Hens	5 00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	7.00	@ 7.50
Young Roosters, full grown	8.00	@ 9.00
Pigeons	1.00	@ 1.25
Squabs	2.00	@ 3.00
Ducks	5.00	@ 9.00
Geese	2.00	@ 3.00
Turkeys, live, per lb.	19	@ 21c
Turkeys, dressed, per lb.	22	@ 26c

BUTTER.

There has been a marked downward tendency in butter this week, as a temporary change in the weather was considered to favor production. The demand has been only moderate, and with plentiful supplies extras are down 7 cents, to 33 cents, and firsts have dropped 2½ cents. The lower grades and storage stock are still quoted at former figures, but are rather quiet at the moment.

California (extras), per lb.	33 c
Firsts	32½c
Seconds	28 c
Storage Ladles, extra	23½c
Cal. Storage, extras	31 c

EGGS.

The egg market shows an advance throughout the list, though the change on the upper grades is small. There has been considerable fluctuation during the week, the price going as low as 35 cents in favorable weather, and up to 43 cents on large shipments to the North. Extras are now 1 cent higher than last week, lower grades and pullets 2 to 3 cents higher. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	40 c
Firsts	39 c
Seconds	38½c
Thirds	38 c
Fresh Cal. Pullets	37½c

CHEESE.

The downward movement of cheese continues, though new California flats are the only article showing any change this week. After a little fluctuation during the week, fancy and firsts are ½ cent lower. Other grades remain as at last report. Supplies of local stock are liberal, with a moderate demand. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	13 c
Firsts	12½c
New Young Americas, fancy	16½c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

While statements have been made that the recent advance was unwarranted by the actual conditions, and liberal supplies have come forward this week from river points, it appears that supplies will not be more than sufficient for the season's requirements, and that there will be no great reduction from present quotations. River stock is a little lower, but most of the supplies are now in strong hands and firmly held. Lompoc, Salinas, and Oregon Burbanks are offering in a limited way at very strong prices. The market, however, has quieted down for the time being, as the trade has taken on liberal supplies during the last two weeks.

River Whites, fancy, ctl.	$ 1.40	@ 1.65
Lompoc, Burbanks, ctl.		2.00
Salinas Burbanks, ctl.	1.65	@ 1.80
Sweet Potatoes, ctl.		1.75
Early Rose		1.65
Sweet Potatoes, ctl.		1.75

FRESH FRUITS.

This market now has very little interest, owing to the limited variety of offerings. The demand for apples and pears is limited, the less desirable lots being almost entirely neglected. Some outside inquiry for fancy apples is reported, however, and while supplies on hand are largely in excess of local needs, the prices are firmly held on all grades.

Apples, fancy	99c	@$1.75
Apples, common	50	@ 75c
Pears, box, Winter Nelis	$ 1.25	@ 1.50
Other varieties	50	@ 75c

CITRUS FRUITS.

Oranges have been very quiet most of the week, but during the last few days there has been a liberal movement for shipment from this market, both to the North and to the Islands. A fairly good local demand has also developed, and the market shows more activity than for some time past. Prices are unchanged except on the lower grades of navel oranges, which are higher.

Choice Lemons	$2.00	@ 2.50
Fancy Lemons	2.75	@ 3.00
Standard	1.25	@ 1.50

Limes	4.00@ 5.00
Oranges—	
Fancy Navels	2.00@ 2.50
Choice	1.75@ 2.00
Standard	1.50@ 1.75
Tangerines	1.25@ 1.75
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The dried fruit market appears a little more active than for some time past, although the packers here state that business continues very slow. While there is little or no change in the packers' shipping quotations, the market for Eastern shipments has an easy tone in everything but apricots and the larger sizes of prunes. There is little movement in apricots, but the shortage serves to keep the market firm. There has been a little buying of California and Oregon prunes, though the Eastern interests are not anticipating their future requirements in this line. Peaches are about the easiest article on the list, as there has been pressure to sell in some quarters. The packers are taking on a moderate amount of fruit from the growers, offering the prices quoted below. Some sales of raisins were recently made in the East at comparatively low prices, but the firm attitude of the growers has caused the withdrawal of the lowest quotations. Very little is moving at present, and the movement from growers' hands is also light, as the prices offered by the packers, as quoted below, are generally considered too low.

Evaporated Apples	4@ 5c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

The firmness of the almond market is still a noticeable feature. Notwithstanding the higher prices offered to growers, little is being offered, and the crop seems to be pretty thoroughly cleaned up. The packers have little to offer, and numerous inquiries are being received. Less interest is taken in walnuts, but the supplies held by the associations in the South have mostly been disposed of at the reduced prices.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

This market is in a rather uninteresting condition at present. Little has been offered by growers lately, and supplies held locally are not large, but the demand is unusually small. Prices are comparatively low, but the market is quiet.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼@ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Business in hops in this State has been limited for the last few weeks, though the Oregon market is strong and active, with higher prices. The market is considered to be in a good position, as stocks are low in all quarters, and there is a steady inquiry. The top price quoted is being offered for contracts on the next crop.

Hops, per lb.	6@ 10c

WOOL.

The price is steadily held at former quotations, and offerings can be moved at about the figures given. There is apparently very little held by growers, however, and business has been interrupted by the unfavorable weather.

Red Bluff (f. o. b. Red Bluff) free	6 @ 7½c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 5 c
Mendocino, free	7 @ 9 c
Defective	5 @ 7 c

MEAT.

There is still a decided scarcity of meat in this market, as very little live stock is being shipped in. As the outlook is good for feed on the ranges, stockmen are holding back, having disposed of most of their surplus last fall. Nearly all lines of livestock are higher than last week, and dressed beef is also higher, though mutton has declined on account of the diminished demand.

Beef: Steers, per lb.	8½@ 9 c
Cows	7½@ 8½c
Heifers	7½@ 8½c
Veal: Large	9 @ 9½c
Small	9½@11 c
Mutton: Wethers	10½@11½c
Ewes	9½@10 c
Lambs	12½@13 c
Spring Lamb	15 c
Hogs, dressed	9 @10½c

LIVESTOCK.

Steers, No. 1	5 c
No. 2	4½c
Cows and Heifers, No. 1	3¾ @ 4 c
No. 2	3½c
Bulls and Stags	2½c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5½c
Ewes	5 c
Lambs, lb.	6 @ 6½c
Hogs: 100 to 150 lbs.	6 @ 6¾c
150 to 250 lbs.	5½@ 5¾c
250 to 325 lbs.	5¼ @ 5½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

THE MOST IMPORTANT FARM MACHINE

THE MANURE SPREADER

Are you Saving Money, or are you Losing it by being without One?

You believe that money spent for a mowing machine or a binder is well invested. Still you use these machines only a few days in the year.

You use the hay rake, because it saves you time and labor.

These are valuable machines. They are now counted indispensable by most farmers, even though they stand unused over eleven months in the year.

But a manure spreader is a still more valuable machine Its purpose is to keep up the fertility of the soil. It is the machine you use *all seasons*, and the one on which the real usefulness of all your other farm machines depends.

If you have not already done so, you should consider now the advisability of having an I. H. C. manure spreader on your farm.

You will have choice of three different spreaders in the I. H. C. line—the Cloverleaf, endless apron spreader, the Corn King, return apron spreader, and Kemp's 20th Century, a return apron spreader. Each of these spreaders handles the manure in all conditions perfectly and will give you long satisfactory service.

These spreaders are not ordinary. Their frames are made of air dried wood stock. They have serviceable, tractive power producing wheels, beaters that are unsurpassed for tearing the coarsest manure into the smallest pieces and applying it uniformly, aprons that deliver the manure to the beater with the least possible friction and in a uniform manner. Any one of these machines will, if given proper care, last a lifetime.

The labor of spreading manure is greatly lessened by using one of these I. H. C. spreaders. Not only is the labor lessened, but it is changed into agreeable work.

But the strongest reason for using an I. H. C. spreader is the increased value you get out of the manure. The best authorities agree that manure spread by an I. H. C. spreader has at least double the value of manure spread by hand.

The I. H. C. spreaders pulverize and make the manure fine, and spread it evenly over the ground just as thick or as thin as may be required. The manure is placed upon the ground in a condition that is at once available for plant life. All is washed by the first shower into the soil—none is wasted.

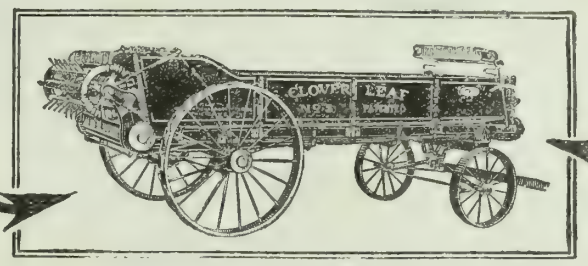
The good effects upon the crop are immediate and the permanent benefit to the land is greater than when the manure is spread by hand. There is no question but that land manured by an I. H. C. manure spreader will give an increased yield of from two to ten bushels per acre over land where manure is spread by hand.

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INTERNATIONAL HARVESTER COMPANY OF AMERICA
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CHICAGO, U.S.A.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Feb. 1, 1909.—While the orange market is not particularly strong, it is holding up remarkably well in the face of the discouraging features now prevailing east of the Rocky Mountains. First, the severest blizzard in years, and then unprecedented cold. Only the rains, which served to prevent excessive picking, held up shipments just before the cold wave arrived. The demand up to that time had been good, and all factors were anxious to get there with their fruit. Even during the fore part of the cold wave the output was large, considering the weather here in California, but now that the full extent of the snow and cold are known, it should serve to hold the shippers back from their wild endeavor to get the fruit forward. Markets are now stocked too heavily under the circumstances. Today New York City could not sell on account of the cold, and this happened at all the auction points one day last week. To pile up fruit in unwilling markets only spells disaster, and it is to be hoped, for the good of the industry, that this will not be done. However, it is too often the case that where one shipper is counseling moderation he is working hard to get his own fruit forward, trusting that the other fellow will hold back and that he will get the cream. This might work all right if too many were not playing the same game.

The orange shipments for the past week have been as follows: Monday, 91; Tuesday, 96; Wednesday, 108; Thursday, 107; Friday, 134, and Saturday and Sunday, 188 cars. For the same time last year the output was 115, 49, 111, 91, 143, 105 cars. The total shipments to date, up to and including Sunday, the 31st ult., were 5038 cars, of which 1060 cars were lemons. To the same time last year, 5612 cars, of which 1028 cars were lemons.

The lemon market is in very fair condition, considering the vast quantity of Sicily fruit that is now available. It was thought for a while that the foreign lemon business was down and counted out for the time being, but the quantity of fruit now available, afloat and in storage at this end, amounting to 80,000 boxes, shows that this was not the case. At the same time last year the lemons available amounted to 70,000 boxes, and in 1907, 85,000 boxes.

PUBLISHER'S DEPARTMENT.

The Hopkins Seed & Plant Co., of Burbank, Cal., the well known berry growers, have recently added a line of kitchen garden seeds to their business, and offer them to the farmers of the State through our columns. Read their ad. on another page.

We take considerable pleasure in reproducing a letter in this issue, recently received from Jno. Swett & Son, of Martinez. Such high praise from leaders among the leading horticulturists of the State is very gratifying.

The new seed catalogue from the old reliable firm of D. M. Ferry & Co., of Detroit, Mich., has been received. It is unusually handsome this year, and contains much valuable information, so much so that we would advise our readers to send for a copy.

The newest book to come to our table is "Gardening in California, Landscape and Flower," by John McLaren, and it is indeed a grand work. No other man in the West is so well fitted, from a practical standpoint, to write such a work as Mr. McLaren, who has been superintendent of Golden Gate Park for the past 20 years. His great work in the park is reflected in the book, and every plant lover in the country will rejoice that his experience has been put in permanent form. The book gives in detail plans for laying out private grounds, covering from a 30-foot lot up to a 10-acre tract. How to make lawns, plant trees, build roads and walks; all are given in a way that are of the greatest practical value. The description and habit of every known ornamental tree, shrub or flower that will live in this climate is given, together with directions for planting and care. A. M. Robertson, of 1539 Van Ness Ave., San Francisco, is the publisher, and he has spared no expense in the way of cuts, quality of paper, printing and binding, to make the book worthy of its contents. 340 pages, full buckram binding, illuminated gold cover, sent postpaid for $4.00.

The auction sale of horses held in San Francisco on Tuesday of this week was a great success. There were fully 400 people in attendance, and 460 horses were sold, at prices ranging from $65 to nearly $200 per head. Watch for future sale announcements in our columns.

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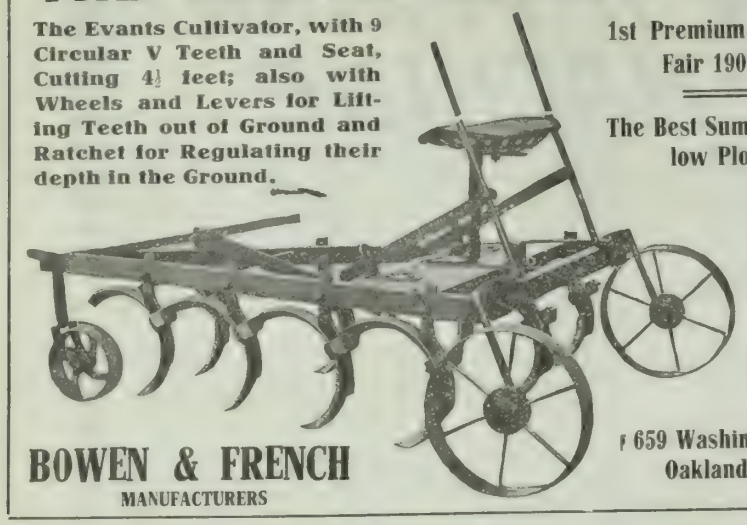
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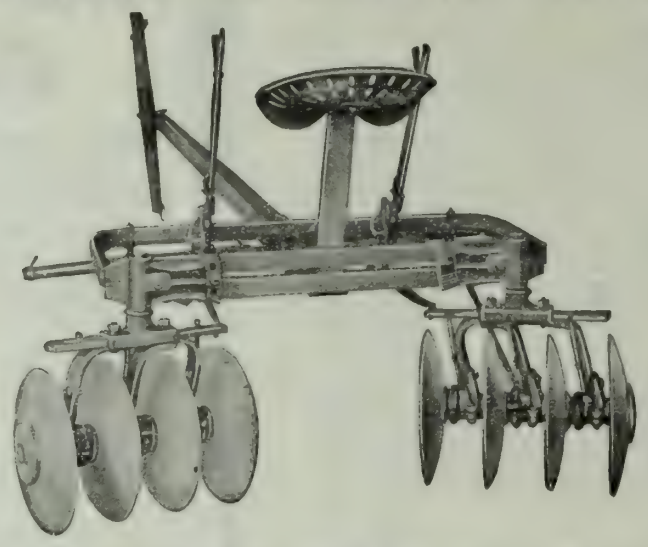
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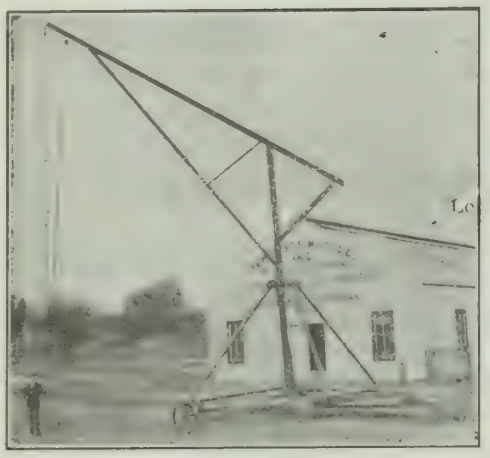
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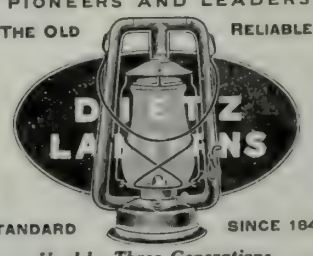
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 7. SAN FRANCISCO, SATURDAY, FEBRUARY 13, 1909. Thirty-ninth Year.

THE PAUL CHERRY.

Written for the PACIFIC RURAL PRESS
By Mr. LEONARD COATES of Morganhill.

A good deal of interest has been aroused among fruit growers as to the origin, habits, etc., of the Paul cherry, and the following description and history is furnished by Mr. E. V. D. Paul of Ukiah. The orchard is situated in Mendocino county, at an elevation of about 3000 feet; the soil, a fairly rich, gravelly loam; the exposure, a north hillside. The trees are grown without artificial irrigation. When Mr. Paul purchased the farm he was informed that the orchard contained about 300 cherry trees of many varieties, some being grafted trees and some seedlings, a few trees, whose identity could never be traced, bearing "big black cherries with very tough skins, which were very late and could be kept for a month after picking." Black Tartarian, Lambert, Royal Ann, Black Republican, Bing, Centennial, May Duke and others are included among the varieties growing in this orchard, but in seasons when some or all of these bore lightly or were a total failure, the Paul invariably matured a full crop. In three years out of five during Mr. Paul's ownership, the Paul was the only variety which did not fail to bear well. Not only this, but the trees, with exactly the same treatment, showed greater vigor and a healthier appearance, giving conclusive evidence of its wonderful hardiness and exceptional adaptability.

The trees are either seedlings or grafted from seedlings, or some unknown variety whose identity it has been impossible to trace.

In color it is a rich mahogany black, slightly flecked with dark red dots, and becoming purplish black when fully ripe. The flesh is purple red, juicy and firm; skin is thick and exceptionally strong. Stem is very short and adheres well to the fruit under all conditions.

During the seasons of 1906, 1907 and 1908, over 100 sample boxes of these cherries were shipped by express throughout the Eastern States and all over California and the Pacific Coast, one box having been sent on a round trip to Maine, New Jersey, Pennsylvania, and back to California, before it was opened, and after 26 days the fruit was in good condition, simply drying up a little, without any signs of decay.

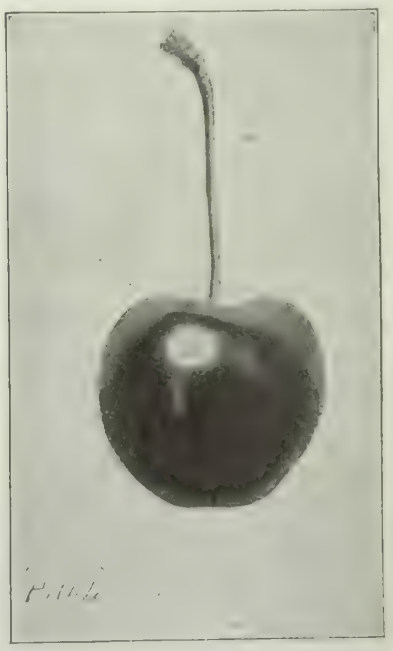
Mr. E. E. Chase, manager of the Golden Gate Packing Co., San Jose, after experimenting with it, pronounced it the finest black canning cherry he had seen. Wetmore Bros., commission merchants, of San Francisco, give unequivocal testimony as to its shipping and good selling qualities.

Mr. Luther Burbank says it is the finest shipping cherry he has ever seen, and Professor Wickson also says: "Your cherries are grand, and justify all that you claim for them."

The fruit is of enormous size, as shown in the illustration, and with very small seed. In 1907 Mr. E. V. D. Paul sold to The Leonard Coates Nursery Co., Inc., of Morganhill, the exclusive right to propagate the Paul cherry.

We are glad to have the foregoing statement about the Paul cherry from Mr. Leonard Coates, because he is the man who has given the most attention to the introduction of new varieties to our cherry list during the last third of a century. He first brought out the Centennial, which perhaps only failed to supercede her mother, Royal Ann, because her cheek was too red for the canners will only kneel to a pallid beauty—and the dowager never abdicated in favor of the debutante. Mr. Coates also developed the California Advance and the Chapman from the seedlings grown by Mr. Chapman in the Napa valley. All the other new cherries which have made a stand in California during the period indicated have been of Oregon origin. They are the Black Republican, Bing and Lambert. Mr. Coates' record then is that of being the introducer of all the Californians which have won position in our commercial cherry production up to this time, and now he adds to this the introduction of the Paul, which will stand as a new California variety until someone can demonstrate another birthplace for it. We do not forget the Nonpareil, but that, so far as we know, has never passed out of private ownership in the Vaca valley. We have had the pleasure of examining the Paul cherry from three successive fruitings, in 1906, 1907, and 1908. It has always justified the high praise it has received for size, beauty and flavor, even after many days of mail or express carriage. In 1907 the fruit was picked on June 29 (Ukiah is a late ripening district), and the little box was tangled up in the mail and express, having four times covered the distance from Ukiah to Berkeley, and, with intermediary delays, having been traveling three weeks before we opened the box to find the contents sound and enjoyable. In fact, for so firm a cherry, the Paul has exceptional eating quality. We fully expect that it will demonstrate as great commercial value as is open to a handsome large dark cherry.





The Paul Cherry in Cluster and Natural Size.

Whether the Paul is really a new variety or will in future be demonstrated to have been previously named cannot now be determined. That there were several trees of the kind creates an impression that it is not new, but even that may be explained. However, it has not as yet been recognized as an old acquaintance by cherry men.

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., February 9, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	4.35	33.74	26.95
Red Bluff	2.20	23.78	15.03
Sacramento	1.63	14.78	11.80
Mt. Tamalpais	2.33	26.52	13.90
San Francisco	2.26	17.46	13.79
San Jose	2.16	12.68	8.66
Fresno	1.10	7.35	5 67
Independence	1.74	8.12	5.55
San Luis Obispo	3.50	25.35	11.89
Los Angeles	2.40	14.05	9.09
San Diego	.80	6.59	5.90

The Week.

The weather and the Japanese question continue to be the twin subjects of denunciation in California, and fortunately one can cover them both with the same words, which results in a wonderful economy of language. Nearly every day the Weather Bureau announces: "another area of depression has appeared in Washington and threatens to extend over California"—which manifestly can be taken to be descriptive of weather or diplomacy, or of both, as the reader chooses. California is evidently getting more than usual of Washington disturbances this year—and that remark, too, can be turned either way or both. As we linger so long in the southwest quadrant of a low barometer, we get thunder and hail such as we seldom hear—and that is two sided, too, for we get it both by wind and wire. But what is the use of writing about it; either one of the visitations makes us feel as rebellious as we can, and both at once cannot do more.

Of course the immediate agricultural view must be in sympathy with the Washington policy about Japanese immigration, whether the big stick looks to us like the trunk of a sequoia or the lash of a mule-driver—according to individual conceptions of the situation. Under present agricultural conditions we seem to need a certain number of Japanese, as we apparently cannot get an equal number of Chinese, which would be vastly preferred. Nearly everyone would like to see the Japanese go—but not too quickly; we would not have them branded 23 until it appears a little more clear what labor we can have in their place. Even if they do like to grow spuds on their own account and sell them for twice the usual price, for themselves rather than for us, we must admit that if they were not here many California land owners would have to do what the British farmers were exhorted to do last week, less planning and more manual labor by and for themselves. And so, when you extract the heat and the dislike of being driven, the agricultural labor situation here indicates the Washington treatment of the Japanese question as better than the California treatment—or at least the treatment which is upheld by local radicalism, for the cool California sentiment is, we believe, predominatingly in favor of the Washington attitude. We seem to need enough Japanese to keep some lines of our agriculture going; it is hard to see how a ruinous slump could be avoided without them. But we do not wish too many, nor do we wish them to buy up and lease up all the good things in the State and paint the future for Americans on this coast dark brown. We need those who will work for fair wages and fly away with them, and not those who propose to nipponize the coast, which is clearly a proper field for American expansion and enterprise and which it is simply decently patriotic to protect for that purpose. As we understand it, the Washington government appreciates this aspect of the case and is promoting it with the understanding, also recognized in Japan, that America is for Americans, or those whom we cordially invite to become such. And so what is the use of becoming hot about it. We desire American prominence and leadership in the commercial, intellectual and social advancement of all Pacific border nations. This means the recognition of American mastery if Americans are broad enough to attain it. It also means the wonderful building up of the Pacific Coast States of this nation. It is not reasonable to obscure this clear line of progress by throwing a lot of political or diplomatic litter over it. There is the fullest assurance that we are to be strongly protected against any kind of a Japanese invasion—and this is about the only menace there is to be averted. The exclusion of the Chinese was a radical measure which has seriously retarded and incommoded nearly all lines of California activity. There should manifestly have been restriction rather than exclusion. The figures show that restriction at least is now operative with the Japanese movement this way. It is of industrial as well as of national moment that change should be gradual and undertaken under the guidance of international good will, if it can be attained that way, and to yield to prejudice or hatefulness at this time is an injurious as it is unnecessary. There will be plenty of chance to do other things later if present policies, invoked in the settlement of the question should prove ineffective.

You remember what we said last week of the desirability of the five thousand Germans who started in a single week to make American homes and of our assurance that we would get our share of them. Our joy turns to bitterness as we learn that not California but Oregon has the best of the bunch. For the telegrams from New York say that four hundred German maidens from Wurtemburg arrived there on the sixth en route to Oregon in search of husbands. We are glad for the four hundred of Oregon who are thus to be rejoiced, but chagrined that California has lost because she did not have the woman for the emergency. Our California women seem to lack breadth of view. That all women are matchmakers has been asserted often enough to be true and we suppose it is true, but there is a lot of difference between going at it with a pin-hook or a drag-net. The telegrams continue: "The attention of the four hundred German maidens was drawn to Oregon by delightful pictures brought before their eyes by Mrs. Frieda Walburg, wife of an Oregon sheep herder, who is reported to be responsible for the migration of German women. Her enrapturing tale of how she found a husband in the evergreen State, was wooed and won by him and lived happily ever after is said to have allured the dazzled maidens, and there was a scurrying along the Wurtemburg pavements, a raid on the trans-Atlantic company's ticket office and the emigrant ship became a floating fairy castle of Teutonic beauty." For once we rise in emotion to the altitude of the buoyant reporter and say: "Well done, kid; you ought to have one of those flamingoes for yourself." But, oh, the sadness of it, our California women have been whirling around in eddies of healing, Fletcherism and suffragettism, while with one shake of her flaxen tresses this Oregon woman has done more for coming generations of Oregonians than the whole flock of you will do for this State between now and Washington's birthday.

There are evidently several ways of uncovering a cat, as the proverb has it, and our dairymen who have been bothered by legislation about short-weight butter rolls ought to have thought of that long ago. There has recently been trouble at the East over falsely labeled canned peaches. It seems that the peaches were labeled as being in two and one-half pound cans, which proved to be in reality of less than that weight. This case was one of mislabeling that obviously was not intended as deliberate deception, but showed carelessness of the manufacurer in not having his labels read No. 2½, instead of 2½ pounds. That means, we suppose, that to escape a charge of short weight you must not give any weight at all—just a grade number—and let the buyer beware. That is all right; but come to think of it, it would not work on butter because all of that has to be No. 1. Who would buy No. 2 butter?

In the foregoing instance we must admit that the pure food regulations were rather kind to California producers in allowing the canners to fall back on the bright afterthought of a grade number. We need a little encouragement of that kind to relieve the sulphur sadness, which, by the way, it is now officially stated will not be reported upon for some time to come. We hope the "referee board" will find it desirable to inspect the actual practice of California curing as they have been so often invited to do. However, that is not the point we began to write about. We simply intended to refer to current sulphur fumes. One is that legislatures in every State in the country are to be memorialized by the Legislature of California, urging that any laws contemplating the restriction of the sale of sulphured dried fruit be held in abeyance until the report of the special national commission appointed by President Roosevelt be made. In Pennsylvania laws have already been proposed to exclude California dried fruits from the market there as a result of the decision against the products of this State. It is feared that other legislatures may enact a law based upon Dr. Wiley's attitude, and they are to be urged to refrain from so doing. It is eminently a wise proceeding.

Another sulphurous item which is wired from Washington is this: "Dr. Wiley has a new plan. If he cannot prevent fruit-growers from using sulphur by law, he will try to have Congress levy such a high duty on sulphur that the fruit men will be unable to afford to purchase it for curing fruit." This is such a silly statement that we again scent the kid reporter. It is, of course, wholly unnecessary to import sulphur. The French sublimed sulphur is used for an entirely different horticultural purpose, and is not at all indispensable even for that. And then, how silly to raise the price of sulphur for a hundred other vastly greater uses, simply to hetchel the fruit

grower on the small amount he requires to kill bugs and fungi. There is sulphur enough on this Coast to last the nation to the end of time—unless it has recently been covered by contracts for Dr. Wiley's future residence. Some of our profaner growers have declared that he shall have a good big retreat of that nature all to himself.

But then, Dr. Wiley seems to have about as much regard for others as such Californians have for him. We have to invoke the kid reporter again on that line. This comes by wire from Washington: "Dr. Wiley is not defeated," said that official today. "The reports from State health officials are coming in, and they sustain my position on benzoate of soda. Perhaps we shall be able to head off the sulphur men yet." It looks to us very much as though the Government of the United States was becoming somewhat divided against itself. Here we have an official impeaching the highest court which can be constituted on a subject, and apparently consorting with the State health officials to accomplish the same ends. If the kid reporter does not mislead us, as we always fear he may, Dr. Wiley's very language is that of war. Why should he wish to have his position sustained by the attitude of State officials who are naturally subordinates of his, in a sense. Why does he rate them as higher than those specially designated to investigate special phenomena because of their particular fitness to do so? But go to: we make ourselves weary with our own questions.

Report comes of an effort to corner the turkey product of the United States—that is, of course, of the birds which have survived the holidays, and than which there can be no more, by natural processes, until next autumn. It is asserted that De Witter & Co. of New York have bought up and placed in storage two-thirds of the turkeys of the United States and are dictating prices. It is asserted that owners intend to raise the price to 40 cents a pound. This is certainly an ingenious scheme, and it is said that Chicago hotels and restaurants have cut the American bird out of their menus and will not cut it in any other way. It is a crisis in turkey which may call for intervention. If the corner succeeds in lifting the price high enough to induce turkey growers to sacrifice their held-over breeding stock, we will be in a bad turkey way for a long time. On the other hand, if the boycott succeeds in ruining the speculators we shall have dullness in turkeys which will itself reduce production. The turkey is in a bad way: it needs the big stick on the corner if we are to have normal Thanksgivings in the future.

Queries and Replies.

First Aid to the Injured.

To the Editor: I have some land in the mountains near Los Gatos that has just been cleared of heavy manzanita, last spring, and I wish to crop it at this time to oat hay, but am told that the first year it will not pay to do so. Soil is loose loam, and land lays to the south slope, sheltered from north winds, and I wish to know if it would be surer of success if I fertilized it? I am willing to experiment without holding your suggestions as against you in any way, as I am determined to crop this land if at all likely to obtain results, as I cannot see why it will not succeed if treated rightly. None of my neighbors has tried any kind of fertilizer, and if likely to succeed I would like to try it. The soil is a rich loose loam.—Farmer, Los Gatos.

We should say that if the land will not give a crop without fertilizing, it was not worth clearing. If it is a question of not getting a crop the first year, it would be a great deal better for you to break up and allow the land to lie fallow for a year than to undertake fertilization, for we know of no application which would correct temporary trouble without more expenditure than the crop would be worth. If we had the case in hand, we should be just obstinate enough to try the crop the first year, to see whether the local prophets were correct or not. Our personal opinion is that if the rains are right you will get a satisfactory growth, and we shall be glad to know afterward how we stand as prophets compared with the local wise men. It is quite possible that the first crop on newly cleared land may fail, not for lack of plant food, but because the land needs settling to hold moisture enough for the crop. It would seem that any kind of land would be sufficiently water-settled this year.

Splitting Oranges.

To the Editor: In regard to the splitting of oranges, I have formed my opinion of the cause, but am not certain if correct. I have six beautiful navels, four years old, with a good crop of fine oranges, large and healthy. We had little water last season until September, when I gave them a good irrigating. They put out a new and wonderful growth all over the tree, about six to eight inches. When the oranges began to ripen, about a third of them split. I came to the conclusion that the late irrigating caused them to split, just when the fruit was ready to swell and ripen.—Orchardist, Tulare County.

Your observation concerning the effect of late irrigation on the splitting of oranges is very interesting, and agrees with observation of some other growers. The conclusion to be drawn, however, is not that late irrigation in itself accomplished the injury, but that irrigation after a long period of drouth was the trouble. That is, if the tree had been adequately supplied with water, so that the growth was regular and progressive, September irrigation would have produced no ill effect, but a good supply of water starting growth after the tree had taken to resting (because of the lack of it), may have caused a sap flow which the tissues were not prepared to respond to by expansion, as they would have done if the growth had been continuous. There are many conjectures involved in this matter, so that we can only advise you to continue your observations and to give us the benefit of whatever conclusions you may reach.

Arabian Alfalfa.

To the Editor: I have about 60 square feet of Arabian alfalfa, raised from a little packet of seed obtained from the Department of Agriculture at Berkeley, two years ago. From what I have seen of the behavior of the plant in a small way, I would like to obtain seed with which to experiment in a larger planting. Can you supply it? At present writing the Arabian alfalfa stands on an average 10 inches high, while the common variety averages 4 inches.—Farmer, Kingsburg.

You are very fortunate in having this variety and such experience with it. Whether you can get more of the seed of this identical variety we are not now sure. There have been several introductions of Arabian alfalfa, and they may not be exactly alike. The one you have was made several years ago, and the grounds of the branch station of the University of California at Tulare was the only place where it is known to have made a stand. The University had the pleasure two years ago of sending seed to the U. S. Department of Agriculture (through which the introduction was made), and thus helped the introducer to a new start of its own introduction. Some seedsmen now offer Arabian seed. It may be the same that you have, it may be different. You ought to get some and grow a patch of it near yours, for comparison. In the meantime, keep your own plot carefully and gather all the seed you can from it, and thus increase your area of a variety which must be considered very promising.

The Sulphuring Question.

To the Editor: I have a piece of land that I intend to plant to peaches, but hesitate to do so because the sulphur question is not settled; or is it? I have not seen or heard anything of it lately. Do you think that the Government will interfere with the sulphuring at all, or in such a degree that it will kill the fruit industry? The sulphur costs money, and the farmers do not desire to use any more than they need to.

Last summer it happened two or three times that all the sulphur did not burn up, but being in a great hurry I did not take time to light the sulphur again, but put the fruit out to dry. It took much longer to dry, and the fruit looked dark and shriveled. We have eight persons in our family, and we use about five to six hundred pounds of dried fruit every year, including raisins and prunes, and we are all in perfect health; have not paid out a cent for doctor's bills or medicine during the past twelve years. If the Government is looking out for the welfare of the people, why don't it prohibit the sale of things which we all know are injurious to the health, such as all intoxicants, tobacco, tea and coffee, and many other things, too numerous to mention.

Instructions as to how to cook sulphured fruit ought to be furnished with every package sold. The fruit should be soaked in warm water with a little baking soda in it for an hour or two, and then washed in cold water and cooked until soft, and it is as good as fresh fruit.—W. L., Fresno County.

The sulphur question is not settled, and until the report of the referee board, appointed by President Roosevelt is made there will be uncertainty as to what the final regulation will be. What you say about sulphuring fruit and how to prepare it for cooking is eminently true, and we are all contending to have such experience recognized, so that the proper regulation may be made.

Some More Dust.

To the Editor: I want to know how often one should spray apple trees with dust spray to be sure of an apple crop clear of worms, or nearly so? Also, can a dust be used that will kill moss on fruit trees?—New Subscriber, Sonoma County.

As stated to another correspondent, we are not the doctor on dust—at least, not yet. You can read what Mr. Judd says about it in our last issue, and go on his authority if you wish, but until the situation is clearer in our mind we should continue to drown the bugs and clean the trees with lye at the rate of one pound to six gallons of water as a winter spray.

The Dust Spray.

To the Editor: Is the dust spray considered sufficiently effective in checking shothole and blight on fruit trees? I ask, as my apricot and peach trees are on adobe soil and hold their leaves until near Christmas. To spray with liquid, with the leaves on the trees, makes the operation somewhat expensive. To wait until the leaves drop finds the land in unsuitable condition to drive onto. The dust spray, if effective, would solve the problem, as I understand it is much the cheaper method as compared with the liquid spray. I read an article in the Pacific Rural Press a few weeks back, which seemed to put the dust spray on a par with the liquid in effectiveness.—Subscriber, Mountain View.

We do not know. The dust spray is now before the bar of horticultural experience in our columns. Those who are favorably impressed with it are writing freely, but we are not yet convinced if its equality with liquid sprays in effectiveness. We shall have to hear more, and if there are those whose experience is adverse, it is desirable that they should give an account of it, that the readers of our journal should be made wise.

Horticulture.

A THOUGHTFUL REVIEW OF THE DUST SPRAY.

To the Editor: Your issue of December 26, 1908, contained an article on "Dust Spray," by Mr. T. P. Dargitz of Acampo, California, which was of great interest to me, as I had, from the time of first hearing of the dust sprays, hoped that before long we fruit growers would by this method soon find a formula that would enable us to successfully combat all fungus diseases, at much less expense and trouble than is now incurred by the use of the wet sprays.

Desirous of additional information, I corresponded with the Agricultural College of our State University, and I have been requested to write an article for the PACIFIC RURAL PRESS which will practically give the result of this correspondence.

In my search for information regarding results obtained from dust spraying, I found that everyone with whom I corresponded referred me to Mr. Dargitz.

As I have stated, I had read this published article with a great deal of interest, and appreciated fully the advantage the publishing of such articles is to the fruit growers. The publishing of our experiences in the use of the many different sprays and the results we have, or believe we have, obtained, cannot help but assist us greatly in finding the best methods by which we may successfully combat the numerous fruit pests with which we have to contend. I shall comment on the article by Mr. Dargitz, and in so doing hope that it will not be considered that I do so in any other spirit than that of endeavoring to ascertain, by the exchange of ideas, and a comparison of the results obtained by our different methods of fighting pests, what may be the most efficient and economical method.

Mr. Dargitz is evidently very favorably impressed with the seeming results from dust spraying. I am, however, somewhat skeptical of his conclusion, as he states that he "had never entirely controlled the curl leaf on our peaches with the lime, sulphur and salt spray." I have never failed to control curl leaf with the lime, sulphur and salt spray, and consequently am a little suspicious as to the thoroughness of Mr. Dargitz' work with any spray. I do not, in consequence, feel warranted in going ahead on a large scale with the dust spray, as Mr. Dargitz will probably do, as I feel doubtful as to the results.

A careful perusal of the article by Mr. Dargitz shows that he obtained no results in 1907 in checking peach and apricot blight, as he did not commence spraying for this disease until November and December of that year. He, however, thinks he benefited his almonds that year, as he had a large acreage affected with blight, which in two weeks after spraying "had a beautiful foliage on the trees, which continued all summer."

Now, a small portion of our almond orchard at Winters was in 1907 affected with blight, was not sprayed at the time, and our trees after three weeks from the appearance of the blight also had a beautiful green foliage which lasted all summer. Climatic conditions during the season of 1908 were such that the orchards which were not sprayed were as free from blight as those which were sprayed, so we cannot figure that Mr. Dargitz demonstrated the efficacy of dust spray during that season. The formula given by Mr. Dargitz is: 40 pounds hydrated lime, 10 pounds sulphur and 2 pounds Sal Bordeaux; this amount to do two acres of bearing trees.

Sal Bordeaux is, as I understand it, nothing more than a mixture of powdered charcoal and bluestone, the charcoal being added to the powdered bluestone simply to prevent the latter from crystalizing. A careful chemical analysis made by our Agricultural College of the State University shows that a one-pound can of Sal Bordeaux, made in Kansas City, Missouri, contained only two ounces of bluestone, the balance being mostly charcoal. As Mr. Dargitz got his Sal Bordeaux from Kansas City, I have no doubt that the one pound analyzed was a sample of that used by him.

It seems to me that this finely powdered bluestone would, with the first heavy dew, go into solution and be similar to the same amount of dissolved bluestone as we use it in our wet sprays. Now, if this is correct, how is it that only two ounces of dry powdered bluestone will bring results which we have found cannot be obtained with less than 20 pounds when used in the wet spray? We use 5 pounds of bluestone to 50 gallons water, and it takes about 200 gallons to spray one acre of average size bearing peach trees. As to the lime, the dry spray calls for 20 pounds of hydrated lime to the acre, while our wet spray calls for the limewater drawn off after having slaked in it 20 pounds of quick lime.

It seems incredible that 2 ounces of dry bluestone can accomplish what has in wet sprays required 20 pounds. It also seems as though 2 ounces of anything scattered over an acre of orchard would be such a small quantity that it could have no appreciable effect. Can it be that the results obtained, if any, are owing to the use of the sulphur which is used in the dry spray, but not in the wet? I do not think so.

Mr. Dargitz reports 40% of his almonds worm-eaten in 1906, 10% in 1907, and none in 1908. I think if he will make investigation he will find about the same percentages to have held good in orchards which had not been sprayed, as I believe conditions at Acampo and vicinity have been much the same as in Solano county during the years mentioned.

I am hoping that we will find some dust spray that will prove efficient in our fight against pear scab, and believe we will eventually do so. I have always endeavored to control this disease by working in accordance with formulas given in Bulletin No. 163, issued by the Agricultural College. The time given in this bulletin in which to do the spraying is very limited, and as we are often prevented from getting on the ground owing to rains, we find it almost impossible to get our spraying for scab done at the times specified, unless we have quite a number of power spraying outfits. We have one outfit of this kind and 80 acres of pears. We hesitate as to buying additional outfits, which are quite expensive, and which we would have no use for at any other time of the year. By using the dust spray we could easily get over the orchard in 1½ days.

I am glad that Mr. Dargitz and others are using the dry sprays, and are kind enough to give us by publication the results of their experiences. I shall be pleased to assist them by experimenting with dust sprays, hoping that we will, before another season, be able to state positively that we can obtain as good or better results by their use than we have obtained with wet sprays, and that we can ascertain definitely that by substituting a certain per cent of dry spray ingredient for each pound of the same, given in the wet spray formulas now in general use, we will produce the desired results.

T. H. BUCKINGHAM.

[We are thankful to Mr. Buckingham for this clear critique of the present dust spray situation and the broad spirit in which it is presented. It is exceedingly important to have these considerations pointed out. They will help all to understand the issues involved and to come to rational conclusions. Everyone should read records of experience with scrutiny, and not with the idea of thoughtless imitation. They are often tentative statements which the writers wisely publish in order to secure the assistance of others to determine whether they are widely true. The PACIFIC RURAL PRESS is the forum for this valuable discussion, as Mr. Buckingham generously states.—ED.]

THE LE CONTE PEAR AND THE BLIGHT.

To the Editor: I notice in the PACIFIC RURAL PRESS of January 30 editorial reference to the use of Le Conte root to get a blight-free bottom, and thought I would give you a few of my observations, though possibly long since discounted by your more extended observations and practical experiments.

For more than 25 years I was a member of the firm of Albertson & Hobbs, nurserymen, Bridgeport, Indiana, and have been a resident of California only a little more than one year, and realize as yet I know but very little practically of the local conditions in California, or their influence on the various kinds of trees.

In my nursery business I always tried to watch carefully the behavior of the different kinds of trees and plants, in both nursery and orchard, and I annually or oftener traveled over the eastern half of the United States, and thought some of these might be applicable to California.

In our section, as well as in many others, the Le Conte pear was one of the worst to blight, seldom living to be more than eight or ten years of age; Garber not quite so bad; in some sections Kieffer was but very slightly affected, if at all, while in other locations, where soil conditions were different, it also blighted badly.

As to the Bartlett, on a standard it seemed subject to blight in almost all sections. I remember particularly, on one fine fruit farm in southern Indiana, where there had been a fine orchard of several hundred standard trees of Bartlett, after bearing for a few years they finally all succumbed to the blight and had to be taken out, though having had the best of care. Alongside of where the orchard had stood were two Bartlett dwarf trees that were more than 25 years old, and nearly 20 feet high, which were apparently in perfect health and loaded with fine fruit.

In an orchard planted by my father in 1875 were some Duchess dwarf trees that lived and bore fruit for more than 25 years, while of several hundred standard trees of other varieties only a few cripples were left, except three Tyson standard trees, which were apparently perfectly healthy and very large. This is one variety I have never known to blight.

In December, 1907, when visiting the nursery at Niles, California, my attention was called to a row of Bartlett dwarf trees along the drive, and figures were given of that year's crop, as well as of previous years, showing that it had been very profitable, and the nurserymen expressed themselves as convinced that Bartlett as a dwarf was far less subject to blight than as a standard; but this may not apply to all other varieties or an all soils. I remember seeing at Geneva, N. Y., where orchards of Beurre Clairgeau dwarf had dropped out after a few years of heavy bearing, but I believe this is worthy of careful investigation and trial.

I do not remember of any trouble from roots blighting where good French stocks were used and foliage properly sprayed in nursery, but the blight was always in tops. I have been surprised to see the Le Conte doing so well here.

I have been very much interested in reading the PACIFIC RURAL PRESS, as well as "California Fruits and How to Grow Them," and to note the advanced ideas and methods which you have recommended in cultivating, pruning, etc. I hope you will not think me presumptuous in addressing you thus. I will feel glad if I have given any idea or suggestion that may be turned to the benefit of anyone.

EMERY ALBERTSON.

Long Beach, Cal.

[The statement of such wide observation is very acceptable and interesting. The fuller claim for the Le Conte as a sound foundation (to which the item in the issue of January 30 was only a side reference) was published on page 44 of the issue of January 16, being Professor Smith's account of the experience of Mr. Richard Burton of Vacaville. What Mr. Albertson says of the resistance of the dwarf pear trees (they being on quince roots), is very suggestive.—EDITOR.]

The Field.

POTATO DISEASES ON TULE LANDS.

There has just appeared as Circular 23 of the Bureau of Plant Industry of the United States Department of Agriculture an account of a potato study recently made in California by Mr. W. A. Orton, who has charge of the study of diseases affecting truck crops. The title of the circular is, "Potato Diseases in San Joaquin County, California," but we change the title for our purposes, because the study was of conditions on tule lands, which are only part of the area of San Joaquin county, but do form parts also of other adjacent counties. The discussion is therefore not of a po-

litical division, like a county, but of a natural division of our productive area, as our modified title indicates. Mr. Orton's review of the situation will interest many of our readers. We have taken the liberty of inserting a word or two in brackets, occasionally, to insure greater local accuracy.

The Land and the Crop.—During recent years an important vegetable growing industry has developed through the reclamation of the tule or peat land in the deltas of the San Joaquin and Sacramento rivers. The potato is the principal crop, about 25,000 acres being planted. It is also one of the most profitable crops under normal conditions.

The agriculture of the region is remarkable for the large areas under one management, reaching several thousand acres in some cases. Most of the land is cultivated by renters who are not permanent residents. The tule lands lie for the most part near or below the high-tide level of the river. They were originally partly overflowed and covered with a dense growth of marsh plants, but are now reclaimed by the construction of levees along the river bank and the installation of pumping plants to remove the water. The soil consists of a deposit of several feet of the peat formation locally known as tule, which contains a large quantity or organic matter only partly decomposed, formed by the decay of rushes, sedges, and other plants native to those warm valley marshes. Under cultivation and irrigation this soil works down to a very fine and uniform texture, but is at first quite rough and lumpy.

Since the rainfall is only about 15 inches, irrigation is [often] essential for crop production on these peat soils. Water for this purpose is admitted from the river and distributed over the level fields in small ditches 60 to 80 feet apart. The water passes quickly through the loose peat soil until the water table is raised nearly to the surface, making in effect a system of subirrigation. As the land lies too low for [surplus] water to run off, a system of drainage is essential. This is accomplished by means of large pumps, which discharge the water into the river.

Potatoes are planted in March and April, as a rule, and are harvested as the market requires them, from the last of September through October and November. While several other crops are grown on the peat lands, including barley, beans, onions and asparagus, no fixed system of rotation of crops is practiced. It is customary to plant potatoes when the lands are first cleared, and usually for two or three years, after which the diminished yield and inferior quality of the potato crop cause the land to be put into barley or beans. After an interval of one or more years potatoes are again planted, since, as this crop returns the largest profits, the growers desire to plant it as continuously as possible. This, of course, it not good agricultural practice.

It has been found impossible to grow potatoes continuously on these peat lands, in spite of their apparently inexhaustible fertility. The first crops grown after the land is reclaimed are phenomenally large, 300 to 800 buhels per acre, and of good appearance. After the first or second year, however, the yield diminishes rapidly and the tubers become rough and scabby to such an extent as to wipe out all profits.

In the summer of 1908 the Bureau of Plant Industry was called on to determine the causes of this condition. An inspection of the fields brought out the fact that several plant diseases appear to constitute the principal limiting factors in this industry. A diagnosis of the troubles, with some suggestions for their treatment, is given herewith. Entirely adequate measures for their control are not yet available, but may perhaps be worked out by further experimentation.

The Cause of "Potato-Sick" Lands.—The principal cause of the marked decrease in the yield of old potato land is the presence of a fungous disease, the wilt, or dry-rot (Fusarium oxysporum, Schlecht). The connection of such a parasite with the troubles experienced had not been realized by the growers, nor had the fungus been reported from the Pacific Coast, but a careful study of it had been made in the East by Dr. Erwin F. Smith and Mr. Deane B. Swingle, of the Bureau of Plant Industry, who worked out quite fully the nature and cause of the disease and the character and life history of the fungus causing it. The wilt is apparently not as prevalent or as injurious in the Eastern States as on the Pacific Coast, and but little work has yet been done on methods for controlling it.

Description of the Wilt.—The effects of the wilt as observed in California are exactly as described by Smith and Swingle from plants grown in the District of Columbia. The disease first becomes noticeable when the plants are about a foot high, though in mild cases it may not appear till near maturity. The leaves have a lighter green color and slowly assume a dull, unhealthy appearance, with a rolling or curling of the margins. The progress of the disease is slow. Gradually the tops wither or fall over, and the general effect is of premature ripening.

The diseased plants are easily pulled up; the roots are partly dead and brittle. The wilt fungus frequently appears on them as a white or pink mould, and when the underground portion of the stem is cut across a pronounced brown discoloration is visible. This brown stain is also found in the branches leading to the tubers, and a thin slice across the stem end of the tuber will often reveal its presence there as well.

Examination of thin sections of these browned stems under the microscope shows the fungus to be abundant in the water-carrying vessels of both underground stems and roots; where it appears as delicate, colorless threads, bearing tiny elliptical spores.

The yield from diseased hills is greatly diminished, particularly if the attack begins early in the season.

The Dry-Rot of the Tubers.—When the potatoes are dug there is rarely any external evidence of the disease on them. The major portion of the crop produced from wilted plants is nevertheless infected, the fungus having entered the tubers through their stems. If these potatoes are stored in a cold place, but little change occurs, as the fungus requires warmth for its development. When infected potatoes are kept in a heated room or left outdoors in a warm climate, a dry rot soon develops.

As the fungus spreads through the potato the tuber shrivels, beginning at the stem end; the inside becomes brown and light in weight. Occasionally bacteria cause a secondary soft-rot, which proceeds more rapidly. An early form of this Fusarium dry end-rot is frequently met with shortly after digging, and potatoes thus affected are known to buyers as "jelly ends."

The presence of the dry-rot fungus can be detected in otherwise normal tubers only by making a thin slice across the stem end and searching for the brown discoloration. Such potatoes are not desirable for seed, but are not objectionable for cooking, provided they are consumed promptly or kept in cold storage.

Relationship of Potato Wilt to Similar Diseases in Other Crops.— Potato wilt belongs to a group of diseases which play a prominent role in American agriculture. It is related to the wilt diseases of cotton, watermelon, cow pea, tomato, etc., which are common in the warmer sections of our country. The watermelon growers of San Joaquin county [and elsewhere in the State] have had experiences similar to those of the potato growers. Their soils become "melon sick" after a few crops, the reason being the presence of the watermelon wilt fungus. The cotton and cow pea wilts of the Southern States behave in the same way. The Bureau of Plant Industry has, however, succeeded in combating them by developing wilt-resistant varieties that will grow on infected land. The Fusarium wilt of the tomato, prevalent in Florida and the Gulf States and in California and the Southwest, is probably even more closely related to the potato wilt.

Soil Fertility Not a Factor Affecting Wilt.—The current explanation given by the growers for the decreased productiveness of old potato fields is that the potato crop has exhausted some particular element of plant food that it requires. There is no evidence, scientific or otherwise, to support this view. The peat lands are extremely fertile. Other crops planted after potatoes produce a full harvest. If any substances injurious to the potato were given off during its growth they would be neutralized by the superabundant organic matter present. Fertilizers applied to peat soils subject to the potato disease appear to have no effect. Finally, there is enough of this Fusarium wilt present to fully explain the lessened yields.

Manner of Infection and Spread.—The wilt fungus enters the plant from the soil through the roots or underground stems. The tubers are infected through their stem ends or, rarely, through wounds.

How the fungus spreads from field to field is not fully demonstrated. It may be present in nature in some of these alluvial soils. It is noteworthy that soils of this type appear to be predisposed to infection. One of the principal means by which the wilt has been disseminated is clearly by the use of infected seed tubers. Not only is the local crop infected, but the same wilt is very prevalent in Oregon, whence most of the outside seed potatoes are obtained. Unfortunately, nearly all of the area under discussion has become infected. The problem for the future is not so much to check the spread of the disease as to control it where it occurs.

Remedial Measures for Wilt.—Diseases of the type of potato wilt are very difficult to control. The source of infection and the seat of the disease are underground; hence, spraying with fungicides would be ineffective. There is no likelihood that applications of fungicides to the soil would do any good, and Dr. Erwin's F. Smith's experiments indicated that fertilizers had little or no restrictive effect on the disease.

Rotation of Crops.—Experience has shown that the amount of infection diminishes when barley, beans, or other crops are grown. Potatoes planted after a short rotation show much less wilt, and while it is doubtful whether the disease can be gotten rid of entirely by any rotation that would be adopted by San Joaquin county growers, there is no question that rotation of crops will continue to be the principal preventive measures in this district until resistant varieties are developed. The most profitable length of rotation remains to be determined by further trials. Comparisons should be made of plots or fields that have been one, two, three, and four years in other crops than potatoes.

The relative value of the various crops in reducing the amount of potato wilt is unknown. The fungus is thought not to attack barley, beans, or other vegetables likely to be grown, with the possible exception of tomatoes, which would better be avoided. For the present, the principal consideration in selecting rotation crops will be their profitableness.

Wilt Resistant Varieties of Potatoes.—Dr. Erwin F. Smith advises that an effort be made to secure resistant strains, as he saw indications that some plants in the fields he studied were resistant. We have as yet no information concerning the relative resistance of American varieties, but such tests should be made at once, as well as attempts to produce better strains by hill selection and to breed new resistant seedlings. The fact that wilt resistant varieties of cotton, cow peas, and watermelons have been secured is an encouragement to enter the more difficult field of potato breeding.

Sanitary Measures.—Under present conditions the entire quantity of potato tops is left in the field, together with thousands of bushels of small and scabby potatoes unfit for marketing. All this refuse affords a breeding place for the wilt fungus. In consideration of the fact that the next move of the farmer must be to rotate crops to get rid of fungus infection, it would seem a logical precaution to carry off and destroy all vines and culls at once after digging. It must be admitted that there is as yet no evidence that this would be profitable, but the experiment should be undertaken.

A Healthy Seed Supply.—The indications are that most of the potatoes in the district referred to are infected with Fusarium when planted. It is reasonable to suppose that better results would follow the use of healthy seed, and trials should be made at once to demonstrate this. Search should also be made for a satisfactory source of disease-free seed. The Puget Sound country appears to be the most promising in this respect. If local seed or Oregon seed is to be used, an effort should be made to restrict the development of the Fusarium by storing the seed potatoes in a well-ventilated house at atemperature of about 40° F.

"Jock, when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping."
—Sir Walter Scott, in The Heart of Midlothian.

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THE PACIFIC GUANO & FERTILIZER COMPANY

268E Market St., San Francisco, Cal.

Citrus Fruits.

THE IRRIGATION VALUE OF AN INCH OF RAIN.

Written for the PACIFIC RURAL PRESS
By Mr. T. C. WALLACE.

A subscriber of the PACIFIC RURAL PRESS has brought to my attention the value of an inch of rain on an orchard, as measured by the rain gauge. Incidentally, it seems worth while discussing the amount of water advisable for irrigation. Soils vary in the amount of water necessary to properly wet them down to a depth in keeping with the class of crop grown on them. If six feet is a sufficient depth for the tree roots, an irrigation should put into the soil for that depth the amount of water such a soil will naturally hold without exhausting its air. Six feet is taken as a standard because it has been found to be about the practical depth that water can be raised by capillarity to nourish crops on average soils of even texture. Some classes of trees and plants send their roots very deep into the soils to get the water that capillarity fails to bring up to them, but the orange tree has not been shown to be in this class. If a soil at a given depth, say five feet, shows a stratum that is so open or gravelly that it will not form capillaries with the strata above and below it, there is no advantage in putting more water into the soil than the five feet should carry, as it cannot be recovered by capillary rise. If a soil has an impervious stratum at a given depth it were idle and harmful to flood it with sufficient water to serve a deeper soil, as the air would thus be driven out and the soil and plant roots literally smothered. This is what happens when the trees throw their crop as a result of an irrigation. An average weight between medium and heavy soils is about 80 pounds per cubic foot, and the amount of water they can hold is about 40 to 50%. A safe irrigation on such soils would be 30% of the soil air-dried weight. or say 3 gallons per foot. For best conditions, 1½ to 2 gallons of this water should be conserved for the trees, and when the amount is reduced to one gallon per foot the danger point is being reached. One inch of rain on an acre being 27,225 gallons, equals a little over two miner's inches, 26,880 gallons. Supposing, then, that at the time of irrigation such a soil had been reduced to the requisite amount of water to just sustain the life of the trees, it should require two inches of rain, or four miner's inches of water, to supply the capacity of one foot in depth of the soil.

It would seem by this that on such a soil a winter rainfall of 12 inches, all conserved (which is of course unreasonable), would just saturate it properly for six feet deep to begin the season of fruit production, if the soil in the fall had been reduced to about the minimum of moisture to sustain life. While there are many soils that do not require so much water, their water-bearing capacity being less than the soil here used for illustration (which is the actual soil tested for that purpose), this study brings forcibly to mind the importance of storing deep water in the orchard soils during the winter up to the natural holding capacity of the soil under our care. If we do this, and follow it up with efficient methods of cultivation, we can not only save several summer irrigations, but as well we can save fruit which may otherwise perish of thirst in its infancy and go to an untimely grave through our neglect of the simplest principles of irrigation.

AGRICULTURAL REVIEW.

A big chicken farm is being established near Willows. The place is to be stocked with 2500 chickens.

Ranchers around Orange are putting down wells and installing pumping plants for irrigation purposes.

The Sebastopol, Sonoma county, berry growers have organized and formed an incorporation with $5000 capital.

A carload of pumps and motors has just been received at Willows, and will be at once installed in irrigating plants.

The Farmers' Mutual Fire Insurance Co., Turlock, is reported to have written $79,850 worth of insurance during last year.

Owing to abundant rainfall in the foothills, the bee men in southern California are anticipating a good crop of sage honey this season.

A dispatch from Lassen county states that the Government has decided to use 3000 Angora goats to help clear out the brush in the mountains there to make fire lines in Lassen Forest Reserve.

The famous Sparks orange ranch, in the La Verne district, near Pomona, was sold last week for the record price of $36,000 for 18 acres.

A shipment of pecan and persimmon trees from Florida was recently burned, by direction of the horticultural commissioner, at Lindsay.

Farmers and fruit growers of the southern part of Placer county have petitioned the supervisors to lower the rate of the South Yuba Water Co.

The new Santa Clara creamery was opened last week, with a splendid equipment. The company expects to install an ice plant in connection shortly.

The Pacific Coast Eucalyptus Timber Co. has recently been incorporated at San Jose, for the purpose of growing and manufacturing eucalyptus timber.

A largely attended meeting of apple growers was held at Healdsburg recently, and it was the general agreement that all would spray their trees this spring.

The work of building a boulevard from Imperial county through San Diego county to the coast is being planned by committees from the two counties.

During January Healdsburg had 33.68 inches of rain, which is not so much when you think of Shasta county, where 47 inches during that time is reported.

The Pajaro Valley Orchardists Association has invited the California Fruit Growers' Convention to hold its next annual session at Watsonville next December.

A bill is before the State legislature appropriating $10,000 to defray the expense of moving all the exhibits shown at the Sacramento fair this fall, to Oakland for a second exhibition.

The first State meeting of the Farmers' Educational and Co-operative Union was held at Fresno this week. This society has recently been gaining rapidly in membership in the central counties.

New York market reports show that dried fruits are coming into better demand. Prunes, peaches, and apricots all show some activity, and prices are somewhat stronger than in the past.

The walnut crop in southern California is very nearly sold out. Only about 70 cars are left, and these will soon find a market. Most of the crop sold at the 12½ cent price first set by the growers.

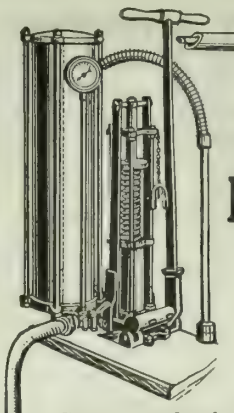
The farmers around Cedarville, Modoc county, have assessed themselves five cents per acre on their land to raise a fund to carry on a war of extermination of the squirrels, which are a great pest there.

The Kirkman nurseries, of Merced and Fresno, shipped 36,000 peach trees to Atwater last week. The claim is made that 150,000 fruit trees will be planted in Merced county this spring, of which fully 100,000 will be peach.

A big irrigation project was launched by San Francisco men last week when the California Irrigated Land Co. was chartered. The new company proposes to irrigate 200,000 acres of land in Butte county from the canal system of the Sacramento Valley Canal Co.

J. B. Neff of Anaheim was a PACIFIC RURAL PRESS caller this week, and while here stated that he would this spring top-graft 100 sixteen-year-old walnut trees. Last year Mr. Neff top-grafted 90 trees, and is so well satisfied that the work will prove successful that he will continue it.

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Elementary Agriculture.

PLANT DISEASES AND WHAT CAUSES THEM.

Written for the PACIFIC RURAL PRESS by W. B. PARKER, Agricultural Students' Club, University of California.

We often find in our orchards, trees which do not look healthy, the leaves have a yellow tinge, the tips of the branches have died back, or the fruit is covered with dark spots or blotches. These trees are afflicted either with some plant disease or the condition of the soil or climate has been unfavorable to their growth.

When we study into the causes of these diseases we find that they may be due to one of several different organisms striving for an existence on our trees. These organisms are usually classified under four main leads: The fungi, the bacteria, the parasitic flowering plants, and last, but not least, the insects.

The fungi are one of the most common causes of the diseases of plants, and may be found infesting nearly every species and variety of fruit tree. Although the fungus is a plant, it is devoid of green leaves, and is incapable of building up food as the higher plants do. This organism obtains its food either by living as a parasite on some higher plant, or as a saprophite on dead tissue, such as a dead tree or fallen fruit. The part of the fungus plant which corresponds to the roots of a tree is composed of innumerable microscopic thread-like cells, called the mycelium. These threads are so numerous that they often completely cover the host on which they grow, appearing like white wool.

When the mycelium is well developed, it sends up single threads, like the molds, or masses of threads, like mushrooms, and on these upright growths the spores or reproductive bodies are borne. The spores are usually round or oval, but some are long and slender. In the spring or summer, when the conditions for fungal growth appear, these spores germinate, sending out single shoots, which enter the host plant. This hyphal shoot branches and re-branches, and forms a network within the host plant.

A spore of the peach blight cannot send a shoot through the hard bark of a tree, but must attack the soft bark or new shoots, or wait until the buds begin to swell and new leaves appear, before attacking this sort of host. Fortunately for the fungus, the conditions which favor the opening of the buds also favor the germination of the spores, and if they are not destroyed before the buds swell in the spring, they will enter the plant, and sprays cannot touch them. Different fungus diseases vary greatly in their life histories, and must be treated accordingly; but in all cases the disease must be fought at the proper time or the fungus will flourish in spite of the treatment.

Among the most important fungus diseases of the State are the pear and apple scab, the blue mould and brown rot of citrus fruits, the powdery mildews, the peach leaf-curl, and the peach blight. These are well known and widely distributed diseases, and are due to fungi living upon the limbs or fruit of various trees.

The pear blight, the walnut blight and the olive knot are caused by the smallest of organisms, the bacteria. They are microscopic bodies, not over twenty-five one-thousandths of an inch in width, and about twice as long as broad. These organisms produce disease first by multiplying and filling the cells and secondly by producing a toxin or poison which injures the cells. What they lack in size they make up in numbers and activity, and are responsible for some of our worst diseases.

Since the bacteria live within the tissues of the plant, they cannot be controlled by sprays. The best method of controlling pear blight is to cut off the infected parts well below the point of infection, using a sterilized knife or saw. It is also desirable to paint the exposed surface with an anticeptic paint which will prevent the entrance of other diseases.

The parasites among the flowering plants are of little importance compared to the fungi and bacteria. The principal ones are the mistletoe, which grows on many trees, and the yellow dodder, found in the alfalfa fields. They are, however, destructive to their host plant, and rightly belong among the plant diseases.

Insects infest many plants, and a great amount of damage is done by them. However, they do not exactly belong to the plant diseases, and as their subject is so large, had better be treated under the head of entomology.

The unfavorable conditions of environment against which a plant has to contend are: Physical conditions, chemical conditions, and mechanical injuries.

Under physical conditions we have drought, excess of moisture, and extremes of temperature, such as frost and extreme heat. Among the chemical conditions are insufficient food supply in the soil, injurious substances in the soil, and over-fertilization.

Mechanical injuries are caused by the gnawing of rats or rabbits on the bark of trees or the destruction of the foliage of crops by these rodents. Hail stones often tear the leaves of plants and spoil the appearance of fruit.

From the wide scope of plant troubles mentioned in this article, it is evident that the subject of plant diseases is an extensive one, and is a subject that should be familiar to those who hope to be successful along agricultural lines.

INSECT STORIES.

The wonders of the insect world have found appreciative writers in all times and in all languages, probably, but none more sympathetic in feeling, more acute in observation or more charming in interpretation, than Prof. Vernon L. Kellogg of Stanford University shows himself to be in his "Insect Stories," just published by Henry Holt & Co., of New York, as a volume of their popular "American Nature Stories." The book is delightful in itself, both in the wonders which it describes and in the style in which it is done. There is no nature-faking in it, for Professor Kellogg takes occasion to say in the pre face that the statements are quite true—which is probably advisable for those who do not know him, but to others unnecessary. For Professor Kellogg knows insects so well that he does not need to draw facts from his imagination and only needs to employ his rich possession of that faculty for purposes of association and adornment. These Insect Stories should freely circulate at the fireside, in the school, and in summer rambles. They present forms of life different from those chosen by other insect-story writers, and they have added pertinence in this State because the lives are those of California insects, or of those which have found "California a wonderfully good place to live in," as the author declares, for himself and for them.

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Patrons of Husbandry.

TULARE GRANGE MEETING.

To the Editor: On Saturday, the 16th of January, Tulare Grange convened in regular session. The newly installed officers were in their places, and the annual word was given out. Communications were read, one from Worthy State Lecturer Babb and one from the State Board of Trade having reference to the Cartwright law, which, in practice, prohibits co-operative marketing of farm products.

The subject was discussed very generally; it is one that vitally affects farmers' interests, as co-operative marketing is the only safe way of realizing remunerative prices for farm products. It was stated that Mr. Cartwright, the author of the law, says that under the law co-operative marketing of farm products is prohibited, but that it should not be enforced in such cases; its enforcement should be against other cases of co-operations or combinations. The conclusion of the Grange, however, was that as the law now stands it is a menace to proper business methods of disposing of farmers' products, and should be repealed. A resolution to that effect was passed.

The subject of co-operation was further discussed. It is, by the way, what the Order of Patrons of Husbandry came into being for, and what it is now maintained for: Co-operation in the way it will most benefit farmers, in disposing of their products. This is difficult enough without any legal obstruction. Only in a few instances can a combination of farmers be had, to regulate and maintain remuneratives prices for their property; only where the product is of a limited range can it be done; even then the instances are rare; from the fact, mostly, that many will not affiliate with the co-operators, from selfish motives, under the belief that if the combination is successfully effected it will establish prices which those outside the combination can avail themselves of to sell their products in a single lot at, even, a slightly reduced price, while the liberal co-operator will have to wait for his prorata and "hold the umbrella" over the fellow who refuses to co-operate with him.

INSURANCE.—There are a few instances or ways where co-operation can be effected and maintained for the benefit of the co-operators only. In such instances it is the duty of the Granger to do it; and this subject was discussed at the meeting, and this conclusion arrived at. The incident which brought the subject more directly before the meeting was the bill now before the legislature enabling fraternal orders to insure against loss by fire, for the benefit of their members only. After more than two years of careful study and investigation of the subject, the State Grange employed a man of well known legal ability to formulate a bill which will enable the Order to insure its members, only, against loss by fire.

Copies of the bill were distributed at the State Grange meeting in Sacramento last October, and after a full and thorough discussion of its provisions it was approved and adopted, and the chairman of the committee on fire insurance in the Grange thanked.

The bill was also considered and discussed at a joint meeting and installation of Sacramento Pomona and subordinate Granges on the 9th of last month, and on a vote taken after full discussion it was unanimously approved, and a committee of three appointed to promote its enactment. No doubt the committee will perform its duty. The bill has been introduced in the Senate by the Hon. Marshall Black of Santa Clara, and in the Assembly by the Hon. W. W. Greer of Sacramento, Past Master of the State Grange. The bill

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enables fraternal orders to maintain, for t..e benefit of their members only, fire insurance on provisions similar to those now permitting them to have life insurance. The bill is enabling only; it leaves all details to the order availing itself of its provisions, except as to the greatest risk permissible, $7500, and the least amount of risks written, $75,000, before insurance avails. No risk shall be written for more than three-fourths of its then cash value, and no concurrent insurance allowed.

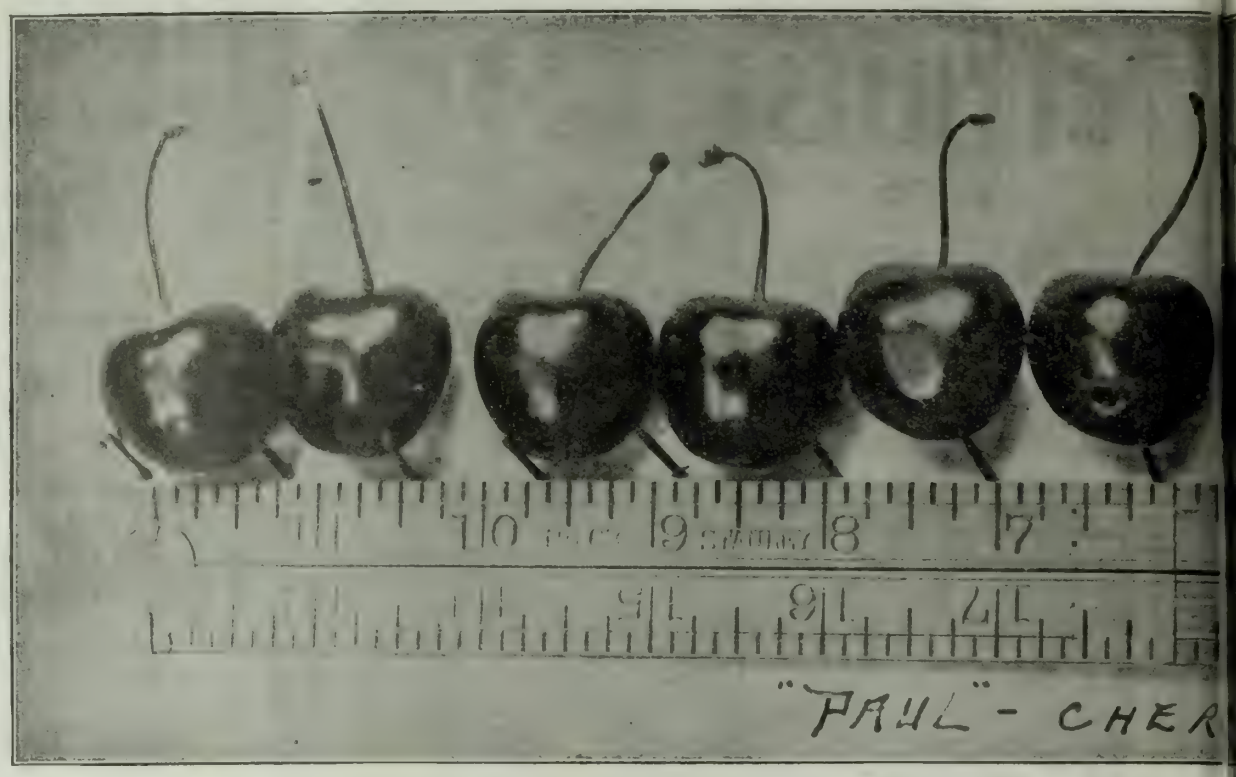
The Proceedings of the National Grange, P. of H., shows that in at least 16 States having Grange organizations, Grange fire insurance is safely, successfully and economically maintained, and has added greatly to the membership. It will do it in California.

The reports of the Masters of Kansas and Michigan State Granges to the National Grange show an unexpected opposition in those States. The safety and security of this Grange fire insurance has given a much greater and a much more interested membership to the order, but the opposition to it has not come from the joint stock incorporated companies, where it was charged it would come from, but from the county co-operative companies, strange to say.

There are twelve or more county co-operative fire insurance companies in California. They are doing a safer insurance, at less than one-third of the rates of the joint stock companies. The enactment of the law under which those county co-operative companies are organized is the wark of the Grange, as is the organization and support of more than a majority of them. The Grange fire insurance may not be at a lower rate than that of the county companies. It will not be in opposition or compete for business with other fire insurance companies, but its rates will be as low as efficiency and safety will permit, and for safety it will take good risks only, and for efficiency employ only competent agents, and may take those agents from the county or stock companies. We hope in California county fire insurance companies will deem it unbecoming, if not dishonorable, to obstruct the passage of a bill providing for fraternal insurance. True co-operation is, honorably, bound to assist the bill.

The Grange passed strong resolutions asking our representatives in the legislature to give the bill their full support.

Tulare. J. T.



(SEE

The Vineyard.

PRUNING THE SULTANINA AND EMPEROR.

Written for the Pacific Rural Press
By F. T. Bioletti.

In answer to a correspondent who asks regarding the methods of pruning Sultanina and Emperor vines, I cannot do better with reference to the pruning of the former than to refer him to Bulletin No. 193 of the Agricultural Experiment Station at Berkeley, where on pages 155-160 he will find a description of several methods of pruning the Sultanina, together with the method which we think the best. This method consists essentially in crowning the vine at 12 to 18 inches from the ground; and each year leaving from two to six long fruit canes (about 4 to 5 feet each), which are tied to one or two horizontal wires. These fruit canes are removed each year after they have borne, and are replaced by new canes grown from short spurs which had been left the year before. As explained in that Bulletin, the old methods of pruning short and of tying long canes up to a stake have proved unsatisfactory in most cases. The method recommended and illustrated in Fig. 10, of the above mentioned Bulletin, has proved very satisfactory in most of the cases where it has been properly tried.

There is a tendency at present among growers who have tried this method, to carry it to extreme. Vineyards of Sultanina are being pruned this year in a way which appears to me to be extremely dangerous to the life of the vine. Instead of leaving the two to six fruit canes recommended in the Bulletin, from ten to fifteen canes are being left, usually of full length, and even without removing the laterals. This is practically leaving all the wood on the vines, and amounts to no pruning at all. The result will be, in most cases, no more grapes than if a more moderate amount of wood was left, and these grapes are liable to be small and of poor quality. If, however, the season should be extremely favorable for the setting of the fruit, there is the possibility of obtaining an exceptionally large crop, so large indeed that the vines may be seriously weakened, or even killed by it.

With regard to the pruning of the Emperor, the practice of the best grape growers varies. Short pruning to a low stump, however, such as is used with Zinfandel and similar grapes, has proved everywhere unsatisfactory. The best methods are those which allow the trunk to become fairly extended, and which give long spurs of four to six buds. There are two general methods used with these ideas in view. The first is to use a very tall stake, give the vine a trunk 3 to 5 feet high, provided with spurs from the top to near the bottom. The second is the so-called Cordon system, which consists essentially in giving the vine a long horizontal trunk; that is to say, the trunk of one vine is carried horizontally on a wire trellis until it reaches the next vine in the same row. On this horizontal trunk are left spurs at intervals of 6 to 8 inches. The latter seems the preferable way; at all events, in rich moist soil. Some growers of Emperor vines have been successful by using the method recommended above for the Sultanina, with the exception that the fruit canes are left only from one-half to one-third as long.

University Experiment Station,
Berkeley.

TO MAKE A PRUNE MARKET.

To the Editor: Markets, markets, markets; the problem of the world is markets. California in agony to sell her dried fruits, and Oregon and Washington in agony to buy. And these States in agony to sell us lumber, and California in agony to buy. This may seem like lots of agony, but it is an actual condition.

Every interest of the State is suffering because the exchange of goods cannot be made. And why can't it be done, and have prosperity, and everybody be happy? Why, simply because we do not own the means of transportation, and the private or corporate means are so high we can't afford it. The courts do not seem likely to compel them to haul goods for their health. So the people will have to buy or build, and should have thought of that before the election. But it is not too late yet to petition the legislature to get busy on that line.

Are we able to build a railroad? Let's see. A State or Nation ought to be as strong as any man in the State, had it not? Looks as though, if a man could build a road, the whole people, including that man, also could build one. Yes, and lots of them. And where this man has a road where the people need one, the thing to do is to start to build, and keep at it until he offers to sell.

"Man cannot live by bread alone," nor on prunes alone. Panics and poverty are unnecessary if we have brains and plan for exchange of goods. It makes one feel sarcastic over the enormous patience of those who for 25 years have been hammering for lower freights. Is not life too short, and are you not afraid some of us will not live to see it, if you do not do something rational? Older countries are an example to us that it works all right to own the railroads. H. E. Dye.

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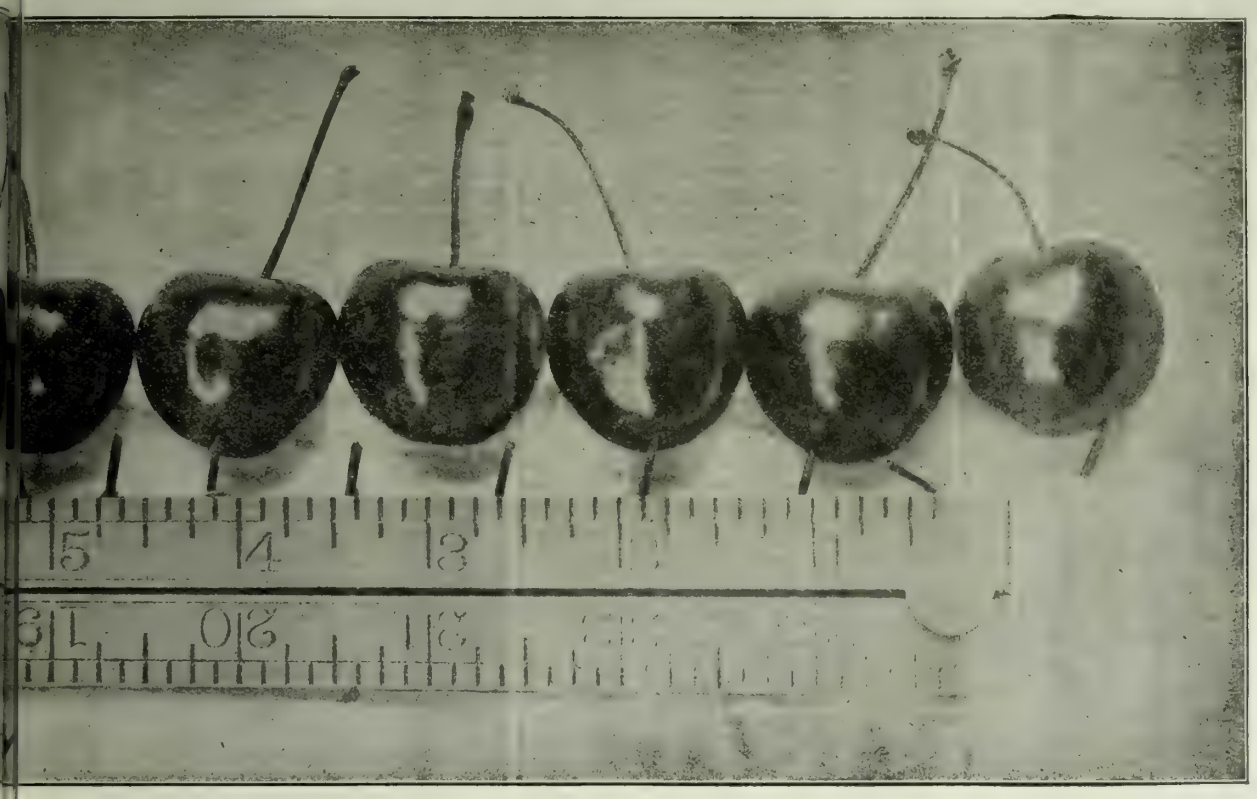
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121.)

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Perhaps the way tents are rendered waterproof may help some of our propagators who desire to use cloth covers on hotbeds or cold frames. It is given by the Denver Field and Farm as follows:

Put one pound of paraffine in a pan and melt it on the stove. When melted carry it outside and pour it into one gallon of gasoline. Apply the mixture to the tent with some kind of sprinkler until the tent looks wet. An old fruit can with a few small holes in the bottom could be used for a sprinkler by attaching a wooden handle three or four feet long, so as to reach the top of the tent. The tent must be stretched, or set up, and the application must be made on a warm sunny day or the paraffine will congeal before entering the fiber of the goods. Of course the gasoline will evaporate in a short time, but it will leave the paraffine in the canvas, and if the work is done right the tent will not leak a drop.

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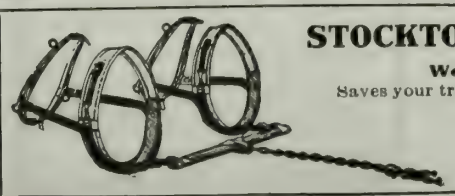
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SEND IN YOUR ORDER TODAY TO
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Live Stock and Dairy.

DIGGING POST HOLES.

METHODS AND COSTS.

Written for the PACIFIC RURAL PRESS
By MR. LESLIE W. SYMMES.

In nearly every line of work today, particularly in the manufacturing business, we are called upon for the detailed cost of construction or manufacture. This knowledge of the exact cost of each part or division of the work in construction or manufacturing has led to improved methods, tools and machinery. The farmer and stockman are generally quite willing to reduce the cost of construction if they know how such work may be accomplished. In the construction of several miles of fencing the cost of material is easily figured, but to know the exact labor cost is not so simple to the average farmer. To the contractor a knowledge of the cost of each particular branch of the work is an absolute necessity for him to figure correctly the possibility of making a financial success of the job. I am a great believer in the detail costs records, and while it is often too much work for the average farmer, there are many points that he will do well to know and keep a record of for future use. Believing this to be of possible use to the readers of the PACIFIC RURAL PRESS, I give below some detailed costs of digging post holes with common tools.

In building fences, holes are dug at frequent intervals for posts. Formerly these holes were dug entirely with bars and shovels. Today there are on the market a number of patent post-hole diggers and augers designed to do this work quicker and more economically than by bar and shovel. A post-hole digger may be termed a tool that does its digging by being driven into the ground, and as it loosens the earth, picks it up, to be taken out of the hole. An auger is not driven into the ground like a digger, but is forced down into the ground by the pressure of the man using it, while at the same time he turns it like a carpenter does an auger in boring a hole through wood. Hence the auger bores a hole rather than digs it, and for this reason the hole is the same diameter as the auger. The hole that the digger makes is generally a little larger than the width or diameter of the tool, due to the fact that the tool is lifted up and down as it is driven into the ground.

When digging a hole with a bar and shovel it is seldom less than 12 inches wide at the top, but it loses about one-third of its diameter as it is taken down, when the holes are not of three feet depth. This is due to the fact that the shovel used for this purpose cannot be worked in a smaller hole. Time is lost in hard ground by having to change from shovel to bar, as it is necessary to use the latter to loosen the earth. On the other hand, both operations are done by the digger and auger. Let us consider it in detail, where the ordinary long handled shovel and bar are used. With a 7½-foot post and 6 inches in diameter, 2½ feet would be put in the ground. A laborer dug 40 holes in red clay in a ten-hour day, the holes being 2½ feet deep, were 12 inches in diameter on top, but averaged 10 inches. This made 1¾ cubic feet of excavation for each hole. As a man dug 40 of these holes per day he excavated about 2 cubic yards of earth each day. The wages paid were $1.50 per day. This makes a cost of 3¾ cents per post hole dug and a cost of 75 cents per cubic yard of excavation. With posts set 12 feet centers, there would be 440 to the mile, or a cost of $16.50 per mile.

Compare this with the cost of similar work done with an auger. On this work 5-inch posts were use, and the holes were dug with a 6-inch auger, 2½ feet deep. Only one-half cubic foot of earth was thus excavated from the hole, as compared to 1¾ cubic feet. One man in a 10-hour day dug 84 holes, as compared to 40 holes, which figuring the wages at $1.75, made the cost per hole 1.8 cents. With 440 holes to the mile the cost was $7.92. Thus it is seen that with the higher wage the cost was more than 50 per cent less. These are actual records and should certainly be useful to any farmer having much fencing to do, and particularly the cattleman, who often has many miles of fencing to construct, and the saving of about one-half the cost of digging the holes would mean a number of dollars in his pocket.

Patent post-hole diggers and augers are in general use, but their value is not properly appreciated. My own experience in this kind of work leads me to believe that this apparently little detail of construction work on the ranch is of some consequence and is well worth looking into. Of course the farmer is not concerned with this work if he has his fences built by contract, a method often pursued where a large amount of fencing is to be built at one time. Even where he does his own work, however, his time is worth more than he generally reckons, and this time saved is really money saved.

THE BREEDERS' TYPE.

Written for the PACIFIC RURAL PRESS
By W. H. HOWARD, Director of the State Agricultural Society of California.

I have been frequently asked, what do you consider the most profitable type of Short-horns? I would answer this question by saying the breeders' type. Of the many qualities which go to make the "breeders' type" of first importance is the milking ability. In my opinion this most valuable characteristic of the Short-horn breed is being overlooked—I might better say sacrificed—by too many breeders in the scramble for early maturity and an over abundance of flesh-carrying ability. There are far too many nurse cows in evidence at our shows and around the barns of many of our leading breeders.

The custom of showing breeding cattle in a condition of flesh that would be characterized as too fat by many a good butcher because of excessive waste, certainly does not tend to develop a useful and profitable lot of matrons in the breeding herd.

I believe that a radical departure from the present show yard methods of judging should be taken. Due importance should be given in the breeding classes for beef breeds to the udders, and other evidence of the ability to raise a calf as well as the general conformation, quality and thickness of flesh.

Before all others the breeders' type is the cow that does not take such good care of herself as to stint her calf. Often she is not the cow that will first attract your attention in the breeding herd, unless you take the calf by her side into the count, for in giving the best she has to her calf she is bound in time to look a little care-worn. These are nevertheless the cows that will give you returns; you will learn to know them by their works. To get the best results from such a herd of breeding cows, the sire should have scale, an abundance of smooth flesh, constitution and that masculine character which denotes prepotency, that rare ability to breed uniformly to type.

Too much importance cannot be given to the selection of a sire, as he is actually half the herd from the breeders' viewpoint. No breeder should be satisfied until he has at the head of his herd a sire capable of improving the best he has, for then it is safe to say that the general average will take care of itself.

CONCENTRATED FOODS.

Written for the PACIFIC RURAL PRESS
By H. B. M.

A few days ago, a representative of the PACIFIC RURAL PRESS had the pleasure of seeing how linseed oil and cocoanut oil were extracted respectively from flax seed and the dried meat of the cocoanut at the factory of the Pacific Oil and Lead Works of San Francisco.

The meat of the cocoanut is dried by South Sea Islanders and brought by sailing vessels in sacks and in bulk, about 13,000 tons annually. Here it is ground up and submitted for three minutes to superheated steam, after which the oil is pressed out of it by hydraulic pressure, 4,000 pounds to the square inch.

After the oil is refined and cooled it has the appearance of white wax. That which is left from the pressing is known as cocoanut oil meal; this is pressed into cakes about thirty inches long, fifteen inches wide and about three-quarters of an inch thick. These cakes are of a light-brown appearance, are very hard and have much the look of a door mat. They are put up in ordinary grain sacks and sent to the stock feeder in that form, or ground as meal.

The linseed oil is extracted in a similar way from the flax seed and comes out as a heavy yellow oil. The linseed meal which is left is pressed into cakes and sacked like the cocoanut oil meal.

The cocoanut oil is sold for confectionery and bakery uses, besides much for the manufacture of soap. The linseed oil is used mostly in paints. The cocoanut oil meal and the linseed oil meal are sold for live-stock and poultry food. They still contain from 6 to 8 per cent of their oil.

The amount of protein or the nitrogenous matter in each oil cake meal gives it its value as a food. Hence since grain and other millstuffs on the market are bringing a high price, the following facts well be of much interest to the saving and careful farmer. When wheat bran is worth $21 per ton, containing 224 pounds of protein to the ton, which is worth .093 of a cent per pound; wheat middling $27 per ton, containing 244 pounds of protein worth .11 of a cent per pound, the linseed oilcake is worth $30 per ton, contains 488 pounds of protein costing .061 of a cent per pound and cocoanut oil cake meal is worth $20 per ton, contains 328 pounds of protein, which costs .061 of a cent per pound.

The oil cake meals supply fat to the beef stock, help to increase the amount of milk in dairy stock and gives the hen

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Pedigree:

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This fine Belgian Stallion was bred by Mr Martin Tirtiaux of Graux St. Gerard, France foaled February 12, 1902, and was imported by Dunham & Fletcher of Wayne, Illinois, July 10, 1905. He is a magnificent animal, deep bay in color, with star in forehead. His weight is 2200 pounds.

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a greater laying capacity. They act as a laxative, sufficiently so that the animal is kept in a healthy state and enjoys life.

For cattle a prominent stock raiser recommends that a heaping handful of the linseed meal or two fair-sized handfuls of the cocoanut meal be mixed each day into the bran that is given the animal; he says that the animal will be kept in fine trim.

Upon the Pacific coast there are produced annually from 10,000 tons to 12,000 tons of linseed cake meal and from 6000 to 8000 tons of cocoanut oil cake meal.

Present market quotations in San Francisco are: Bran, $29 to $30 per ton; middling, $27.50 per ton; cocoanut oil cake meal, $26.50 and linseed oil cake meal, $40 per ton.

MIXING UP SHEEP AND GOATS.

This heading does not pertain to arrangements for a future state, but is strictly mundane in its bearings, and it has to do with the claimed doings of one C. J. (Buffalo) Jones of Garden City, Kansas. The account which we read of it in the Sheep Breeder is so breezy that we cannot tell just how much wind or wisdom there may really be in it. Mr. Jones is hailed as a creator of the Persiarino, a cross of Persian fat-tail and Merino sheep, but we dispute that claim, because that cross was made in this State by the University Experiment Station and by Mr. C. P. Bailey, more than a decade ago, and considerably by the latter since that time However, Mr. Jones gave a dinner to the press in Chicago, and the press responded by exalting him. They made him respond to this toast:

"Luther Burbank made the American Beauty rose, and I had the honor to make a new sheep and a new buffalo."

Now, as a matter of fact, Mr. Burbank did not make the American Beauty rose, and if Mr. Jones did no more with sheep and buffalos than Mr. Burbank did with the American Beauty, his claims become pretty thin. However, we pass that point. The account proceeds with Mr. Jones' speech, as follows:

The lamb you have tasted has none of the objectionable "sheepy" or "woolly" taste so much criticised by many Americans, and does not inhere to the Persiarino or any other sheep with even a slight infusion of Persian fat-tail blood in it.

Here is another course of broiled lamb from our Pershire—a Persian-Shropshire hybrid, just as sweet and nearly as tender and fragrant as the Persiarino, only a few months older; not a taint of the sheepy taste in it. It is nine months old lamb, fresh from its winter range at Garden City, and without the taste of grain. The Persiarino, five months younger, with a Western Merino for a dam—three-quarters despised Merino—was fit for the gods. No black-faced Highland, Herdwick or Welsh Mountain lamb ever gave to banqueters the gamy flavor, the tenderness and delicious aroma of this three-quarter blood Merino lamb. The other quarter comes from the Persian fat-tail, and that accounts for the quality. God made the fatty tail, or pendulous rump of 10 to 15 pounds weight, to circumvent Turkish and Arabian laziness by making the fat-tail sheep independent of its worthless Mohammedan masters, and in doing so He gave to the world the leaven that is destined to dominate and refine all the mutton tribes of the earth.

The fat tail is the lamp of life to the Persian sheep as well as to the native African sheep. It gives them hardihood, endurance, longevity and vigor known to none other of the mutton tribes. It sustains life through the periods of hunger, starvation and bitter storm, and imparts a wealth of flavor and nutrition known to no other tribe. My Persiarino lambs come in fields of snow, and in three minutes are up and pulling at their dam's udder and trailing them into deeper fields of snow.

The Persiarino lamb never gives up the ship. I could trail my flock of 1500 sheep, lambs and all, from Garden City to their old range in Arizona, in this mid-winter season, and not lose 3% from exposure to cold and storm.

And now, my good friends, I am going to serve one of those 10-pound fat tails, that you may be as wise as the Bedouin of the desert, whose tenure of life has many a time hung upon the life tenure of the Persian fat-tail. It is rather fat for the palate of an American, but among Orientals is a dainty morsel with rich and poor.

I had slaughtered 20 of the Persiarino lambs, five of the Pershire lambs, and a magnificent Buffalo-Galloway hybrid that dressed 1200 pounds, and I am giving Chicago the gamiest time of feasting that has fallen to the lot of a big city since the last wanton slaughter among the roving bands of bison, when I intervened to rescue this kingly denizen of the plains from extinction. I have about 70 head of "Cattalo," as we call the hybrid, and some 20 head of pure buffalo, and the Cattalo steak which I am serving tonight, which is from a three-quarter blood animal, has the distinctive buffalo flavor with the added juiciness and tenderness of the Galloway.

I give this dinner to catch a millionaire to join me in spreading my Persiarino and Pershide and Cattalo over every acre of treeless plains and mountains and making them the food of the happy millions now denied these luxuries.

I have pleasure in telling you of my latest and rather startling achievement in hybridizing domestic animals. I have produced a perfect union of the Persian and Merino sheep with the Angora goat. I call this hybridization "Gorisian." It is perfect because the animal is a harmonious blending of the three types or species with a beautiful kinky, fluffy fleece, as soft, refined and delicate as down, which, with black coloring is bound to become popular for ladies' wear. Of course you will want to know about the flesh. Well, it is even more gamy in flavor than the Persiarino, and just as tender, juicy and delicately flavored as that superlative mutton. I had one of the lambs slaughtered and no meat of wild or domestic animal ever approached it.

It does not appear that the millionaire Mr. Jones was after was caught at the dinner. If he lives in California he can deliver himself to Mr. Jones at Garden City, Kan., by parcels post.

IS BLOWING-IN ALFAFA HAY SAFE?

To the Editor: Is it practical and safe under California conditions to fill a large barn with cut alfalfa hay (cured to the usual state of dryness) by means of a blower? Is it apt to mould, or should it be cured additionally dry for the purpose? I know it has been done in one or more instances, but does it call for additional precaution, and is it open to other serious objections? Is the practice tried and proved safe?—Subscriber, Napa valley.

These questions are interesting, but we have not the data for answering them. Who is handling alfalfa hay in this way and with what success? Those who have machinery for it should make it better known and the advantages of it. We shall be glad to have information from growers also.

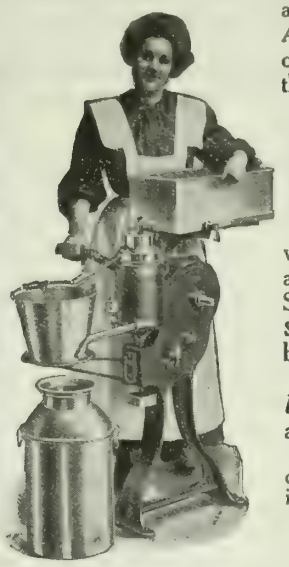
U.S.

IN THE LEAD

For **1909**

The 1909 Model U. S. Cream Separators

retain *all* features that have given them their great reputation for durability and efficiency, and have several improvements that make them even to a greater extent than ever before, the ideal machine for dairymen who are posted and who **demand the best.** And by intensifying the circuitous and tortuous currents of the milk in its passage through the separator bowl, we have been able to



Greatly Reduce the Diameter of the Bowls

which makes them operate easier than ever and still retain their great milk capacity.

Notwithstanding most manufacturers were complaining all last year of dull times and small sales the UNITED STATES SEPARATOR had one of the **largest sales** in its history and since this fall season began, sales are larger than last year.

Do not forget that the *United States* has *beaten* every separator in *endurance tests* and holds the WORLD'S RECORD.

No dairyman can afford to purchase a cream separator until he has first examined the construction and operation of the

1909 Model

Sales agents in nearly every dairy section. If no agent in your town, **write direct to us for Catalog No. 118** and we will also quote prices.
We have distributing warehouses in every dairy section in the United States and Canada.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

BULLS BULLS BULLS

SHORT-HORN BULLS

75 head of high grade yearlings on hand.
Prices Attractive.

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Mention this paper.

COMPARE PRICES AND RESULTS

Analysis (from Bulletin 164, Jan. 1905—University of California.)

DIGESTIBLE PROTEIN IN

Linseed Oil Cake Meal	24.4 per cent	Shorts	12.2 per cent
Cocoa Cake or Meal	16.4 "	Mixed Feed	9.6 "
Wheat Middlings	12.2 "	Corn Meal	6.4 "
Wheat Bran	11.2 "	Wheat Hay	3.6 "

If you feed for Protein you get Results.
Ask your jobber for prices or write

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BUY YOUR HERD HEADERS

from my herd of Prize Winning
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A large herd of all ages to select from. Prices right. Stock guaranteed. Let me know your wants.

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Glide Grade seven-eighths French and one-eighth Spanish Merino. Thoroughbred Shropshire Rams
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FOUR THOROUGHBRED AYRSHIRE BULLS, Aged 12 to 20 Months.

If you don't want tuberculosis, breed the Ayrshires.

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CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

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BERKSHIRE AND POLAND CHINA HOGS C. A. STOWE, Stockton, Cal.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

SORGHUM IN ARIZONA.

An Arizona stockman sent the following questions to the Breeders' Gazette:

"It is commonly believed around here that sorghum as a steady diet for cattle and horses renders them less vigorous and prolific, especially in case of cows and mares. It is also thought that young stock fed on sorghum are often entirely barren. Is there any foundation for the belief that this is the result of feeding sorghum, or that feeding sorghum gives such results, and, if so, what would be the proper method of feeding it to obtain good results, with native grass as the only change in diet? The method easiest handled here would be to allow the stock to graze during the day and feed sorghum night and morning. What is the average daily ration for an animal?"

Mr. F. O. Wilson of the Arizona Experiment Station makes the following response:

"Sorghum will not cause an animal to become barren if fed judiciously. A record of 130 head of breeding ewes fed on sorghum while the rams were in service on the station farm shows that at least 90% are in lamb. The common method in southern Arizona of pasturing sorghum after it is cured necessitates in most cases a combined ration with either native grass, grain or alfalfa pasture. This seems to be a practical method of handling sorghum. Most animals prefer mature sorghum, and gain more flesh on this feed. At the present time our breeding flock of 200 sheep is pastured during the day and fed sorghum at night. With this combined ration the flock is in excellent condition. Under southern Arizona conditions sorghum is available for a few months during the year, so that in sections where rainfall and irrigating water are scarce this forage can be utilized as a feed to good advantage to tide over a shortage of feed. This period is usually during the late fall and early winter months.

OF INTEREST TO DAIRYMEN.

Perhaps no part of the exhibits carried by the Southern Pacific "Demonstration Train" has been of more interest to livestock men and dairymen in particular than the specimens of infected organs from tubercular dairy cows and the certified milk exhibit. We have had the pleasure of traveling with this train, which started from Tracy on February 1 and visited nearly all points in the San Joaquin valley. At every stop we have been besieged with questions on this important subject—tuberculosis of animals. We would particularly call our readers' attention to the very full and excellent article which appeared a short time ago in this paper. It is a subject which every stockman and dairymen in particular should be vitally interested in. The time is not far distant when laws will be passed requiring the testing of all dairy animals, so that it is important that we look the subject square in the face and test our herds so that we may know that our herds are composed of healthy animals, and hence we are getting healthy milk, which is impossible with diseased dairy cows. The interest shown by dairymen and owners of dairy cows in this exhibit of tubercular infections of animals prompts us to recall this to our readers.—L. W. S.

RESERVES AND GRAZING.

The beneficial results of regulated grazing were shown in a decided betterment of much of the National Forest range, during the fiscal year 1908. At the same time, investigations in range improvements through reseeding, new methods of handling stock, the eradication of poisonous plants, and the destruction of the prairie dogs, brought important progress toward still better future use of the Forests by stockmen.

The development of watering places is another means that is being pursued to the same end, while killing the predatory wild animals by United States Forest Service hunters saved the stockmen losses probably greater than the entire amount paid in grazing fees. This amount was over $960,000. Through the enforcement of quarantine regulations and the distribution of black leg vaccine other losses from disease were prevented.

WILL HE GET DIAMONDS FROM SHORT-HORNS.

To the Editor: Can you tell me what is the best breed of cow to keep for the best advantage on my ranch? It contains 4000 acres, and of this I can only use half for dairy and the other half for stock. I raise all the calves, and pick out the best for the dairy and the rest for beef. I had for many years a mixed stock. About four years ago I imported a full-blood Short-horn bull, and that changed the condition a great deal, so last year I got another full-blood bull and twenty yearling milk strain heifers, also Short-horn, with the intention to have a good dairy, and good beef also.

I have talked the matter over with a neighbor who keeps nothing but Jerseys. He wears a diamond ring, and he told me that I would never get a good dairy and I would never wear a diamond ring until I quit raising Short-horn stock.

I'll be pleased to get your advice as to whether I am on the right road or not, and whether I will ever have a good dairy or not the way I am started? I know that the Jersey don't make good beef, and that is half my business. I spent quite a little money in making the change, and I would give it a fair trial, providing I would be sure to get there. Your advice will be greatly appreciated.—SUBSCRIBER.

[You are on the right track for the business you have the land for, and you are doing it right, so far as we can judge from your description. If you work the line right you can have diamonds or anything you want later.—EDITOR.]

COYOTE BOUNTY DEMANDED.

The board of supervisors of Mono county have adopted the following resolutions and sent copies thereof to the legislature now in session. If anything is to be done toward the reduction of this fearful pest, other stock counties should support Mono without delay:

Whereas, This board of supervisors, mindful of the needs of the people of the entire county, have, after investigation, found that great damage is yearly done to the stock interests of Mono county on account of the great number of coyotes and other pests throughout the county.

Whereas, The industry of raising stock, cattle and sheep, is a most important factor in the development and prosperity of our county.

Whereas, Large sums are yearly derived by the county from this industry, and every damage thereto not only injures the industry but also the general revenues of this county. Therefore, be it

Resolved, That this board do petition the legislature of the State of California, through our duly elected representatives thereto, to enact legislation looking toward the extermination of coyotes, and we particularly recommend that a bounty of one dollar per scalp be placed upon coyotes killed within the State of California.

Mindful of past frauds, we recommend that any legislation along these lines be particularly strong and with a view of assuring that all bounties paid thereunder shall be upon animals actually destroyed within this State.



HOW A CARLOAD OF CHAMPIONS WAS MADE.

Mr. Deane Funk of Illinois who took the prize for the best carload of bullocks at the Fat Stock Show of 1908 gives the Breeders' Gazette the data for which the following sketch was made:

The cattle were practically pure-bred Angus and with the exception of a few head were bred on the Funk farms. Last winter they had the run of a stalk field receiving no treatment superior to that of other cattle in preparation for the Chicago market. About the first of February the finishing process was commenced a ration of straight corn, fed once each day, being furnished. Only what they were able to clean up readily was supplied. With the appearance of vegetation in the spring they were turned on a good blue grass pasture and about the middle of August the corn ration was supplemented with a small quantity of oil meal, increased gradually until each steer was consuming about five pounds daily, this being continued until shipping time. October 1 the drove was taken from pasture and put on dry feed in a close lot whence they were shipped to market.

Briefly this is the story of how the grand champion carload of fat steers at the 1908 International was made. If not intended for show purposes they would have been handled exactly in the same manner save that the butcher would have got them earlier in the s ason. The man who fed them attributes their prize winning quality to two factors, both necessary to the result. One is good breeding the other good corn. If marketed in the usual way they would have consumed a little less oil meal and instead of being held on corn ten months the market would have been graced by their presence some time in August. Until two months before show time they ran in stalk fields and pastures unrestrained and unaccustomed to human hands. While no accurate account of gains was kept the increase in weight during the entire feeding period was approximately two pounds per day. They were carried along for the show and the Christmas market despite competent advice to cash them in earlier in view of the high price of feed and the uncertainty of a December market sufficiently high to make a long feeding period remunerative.

Naturally the practical feeder will evince curiosity as to the cost of producing such a drove of bullocks. Mr. Funk candidly admits that he does not know to a certainty just what the proportion of net to the gross returns of the sale is, no records having been kept this year. In 1906 when the Funk exhibit was made the grand champion load a close tab was kept on a number of loads with the object of determining the relative cost of finishing native and range-bred steers and also cat-

tle of various ages from calves to two-year-olds. Statistics then secured demonstrated that the expense of putting on a pound of gain during a long feeding period ranged from nine to thirteen cents and at that time the feed bill was not as onerous as now. In 1906 the record price was paid when the first Funk load of grand champions was knocked down by the auctioneer at $17 per cwt. This year the sale price $11 per cwt.

The fifteen head of cattle comprising the year's load of grand champions cost the buyer $2,319.90. In addition they won $625 in premiums. The average per steer was $154.66. "But for the premium money we would have been barely reimbursed for our feed," said Mr. Funk commenting on results.

HOLD UP TO THE TYPE.

Mr. Guy MacL. Richard, of Seattle, Wash., gave at the Washington State Dairymens' Association at Chehalis some good advice from which we take the following:

Breed type has been the result of feeding, environment and selection for a definite purpose; thus, by the selection of the best milkers and by proper feeding with suitable surroundings, it has been possible to bring to their present high state of development the different breeds of dairy cattle; and, while they are apparently fixed in type and characteristics, there is nothing stable without the ever-guiding hand of man. The power of atavism, that ever present tendency to revert to some remote ancestral trait is liable to crop out at any time; and, if animals are left to themselves, retrogression would be fast and furious and the good work of generations of progressive breeders would soon be lost sight of.

There is no breed of animals that will go on improving without the constant assistance and directing mind of man. Thus, admitting that all improvement and productiveness is an artificial condition of the cow, brought about by years of patient work and study, does it not stand to reason that, in a breed where these traits have been the sole objects of the originators, whose work has been handed down or rather carried on for centuries, by generation after generation of successful breeders, that the tendency to produce animals of a profitable type is much more firmly fixed, and the power to transmit these qualities is greater in the pure bred than in the common or grade?

Also, after all these years of breeding for a purpose, are not animals less liable to reversion? And are not the possibilities for a larger per cent of productive animals much greater than among the grades? Therefore, in choosing a sire for your dairy herd, select one with the longest list of producing ancestry in his pedigree. Because an animal is pure-bred and registered does not qualify him as a sire; see that he comes of a family that has accomplished things as producers.

A pure bred bull of the strongest breeding will only beget a certain proportion of his offspring good; while a grade or common bull will beget offspring, a large proportion of which will be bad and utterly worthless for the purpose for which they were intended. Johnstone puts it in his chapter on "Heredity as a Force:" "It is the intensified inheritance of the pure bred which triumphs over the diversified inheritance of the scrub, and thus enables us to grade up our stock. Similarily it in the diversified inheritance of the grade which precludes his success as a sire, even though he apparently possesses the characteristics of the pure bred."

In conclusion, let me advise that, in selecting a sire for your dairy herd, you procure the best possible; strong in ancestry—producing ancestry, strong in individuality—such individuality as you want to see transmitted to his offspring. Get a tried sire if possible; take an old tried one if he is your only choice; you will find him more valuable than a young experiment; and when you get a sire that has proved his worth do not be too anxious to get rid of him for fear he may die on your hands, but retain him in service in your herd as long as prudence will permit.

BUFFALO TO HAVE A CHANCE TO SURVIVE.

The bison range in the Flathead Indian reservation in Montana, to establish which Congress at its last session appropriated $40,000, has been selected. Harper's Weekly says:

The location of the range is the one recommended by Professor Morton U. Elrod of the University of Montana, after he had carefully examined several parts of the country. It lies directly north of the Jocko river, near the towns of Ravalli and Jocko. Approximately 12,800 acres are embraced in the tract, which will be fenced in a substantial manner under the direction of the engineering department of the United States Forest Service.

Of the $40,000 appropriated only $10,000 will be available for fencing the range and constructing the shelter sheds and other buildings necessary for the proper maintenance and care of the bison. The remaining $30,000 will be paid to the owners of the land, many of whom are Indians. Funds for the purchase of bison are being raised under the auspices of the American Bison Society, which was largely instrumental in securing the appropriation.

The first person to spend actual money in the effort to preserve the American bison from total extinction was the late Austin Corbin, who, many years ago, fenced some 6000 acres at Blue Mountain Park, N. H., and secured a herd of bison. The Corbin herd became in course of time the inspiration of the national movement which is now furthered by the American Bison Society, founded in 1904, and the Montana bison range is directly the result of its efforts.

AMERICAN BREEDING INTERESTS LOOKING UP.

The British judge at the Chicago International Live Stock Show, Mr. Geo. Sinclair, has returned to his home at Dalmeny greatly pleased with his visit to Chicago, says the London Live Stock Journal. He was impressed with the magnitude of the International Show, and the vast scale on which the live stock and dead meat trade is carried on by the Union Stock yards. Mr. Sinclair expresses the opinion that the champion Aberdeen-Angus steer would have taken a high place at any show in this country: he was wonderfully thick and near the ground, and carried an immense cover of flesh. His head only was slightly on the plain side the animal having been late in being castrated. The Short-horn which was reserve champion was also a very good animal; indeed, one of the best-backed Short-horns that he had ever seen. But it was a trifle wedgy in front as compared with the back, and this was the turning point at the finish between them.

On his first visit to America the Scottish judge was agreeably surprised by the high quality of animals shown in the breeding classes. Short-horns, Aberdeen-Angus and Herefords were all strongly represented, some of the classes, notably of females, being almost as good as could be seen at home. Herefords were not so much in evidence in fat classes, but one particularly good animal kept in amongst the select company very nearly to the finish.

Breed rivalries are very strong in America, and when the champion award was made the patrons of the successful breed fairly rushed the huge ring and almost carried the champion shoulder high. The judge had to beat a hasty retreat in order to avoid the over-exuberance of the enthusiastic crowd. Mr. Sinclair reports improving prospects for cattle in America, and should the present range of values for both Short-horns and Aberdeen-Angus continue, he anticipates a good demand for United States account by the time that the spring comes round.

HONEST CAPACITY CREAM SEPARATORS

Capacity is an important consideration in the purchase of a cream separator. It enters largely into the cost and value of the machine, and there is no way of properly gauging either without reference to it.

A large capacity machine separates the same amount of milk in just so much less time. This saving of time means something in dollars-and-cents every time the machine is used. It means a great deal in the course of a month or a year. Moreover the wear of the machine is just so much less and it lasts that much longer.

But capacity must always be determined with CLEAN SKIMMING under the PRACTICAL, EVERY-DAY USE CONDITIONS,—with ordinary separator speed, cows old as well as fresh in lactation, milk cool as well as warm, and thick as well as thin cream. Capacity means nothing if any of these conditions have to be sacrificed to obtain it.

Hence capacity marks one of the BIG DIFFERENCES between the "ALPHA-DISC" DE LAVAL and other cream separators. The DE LAVAL machines fully meet these conditions. All other machines either lack the capacity "claimed" for them or can only reach it through sacrifice of one or other of the important practical use considerations named.

A DE LAVAL catalogue makes plain the reasons for this difference and is to be had for the asking.

DE LAVAL DAIRY SUPPLY CO.

108 So. Los Angeles St. LOS ANGELES
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THE QUALITY LINE

It is an acknowledged fact the world over that the Easy Running Empire is the leader of hand-power cream separators.

There are good reasons for it! A catalogue, or an examination of the machine will show you why! Fourteen styles and sizes to choose from. Send for catalogue today.

EMPIRE CREAM SEPARATOR CO., LTD.
95 NORTH SIXTH STREET, PORTLAND, ORE.

HORSES
AT AUCTION
FEBRUARY 16th

20 handsome blacks, from 1150 to 1500.
20 handsome bays, from 1150 to 1400.
50 broke wagon horses, from 1050 to 1250
All Double Square Brand; finest ever landed here; now on exhibition.

Also we shall sell 100 all purpose city broke mares and geldings, from 1000 to 1600 lbs. in weight.

If you miss this sale you miss the best opportunity of this season to get what you want at your price.

WESTERN HORSE MARKET
E. STEWART & CO.,
Auctioneers and Live Stock Dealers.
Remember the date, rain or shine, February 16, at 1 p. m. and 8 p. m.
527 10th St., at Bryant, San Francisco, Cal.
All consigned horses must arrive not later than Saturday, February 13.

TWO PERCHERONS
FOR SALE

One Percheron stallion, three years old, weight 1660 lbs., and one Percheron stallion, two years old, weight 1560 lbs. Sire the famous stallion **Vanquisher** that took first premium at State Fair and county fairs whenever shown. These colts are as near perfect as colts can be. Will make ton horses. Will be sold on terms that they will pay for themselves. Horse dealers come and see these colts.

L. W. LEAK, Auburn.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg

THE CUTTER LABORATORY
Temporary Address
Grayson and Sixth Streets, BERKELEY, CAL.
West of San Pablo Ave.

DEEP WELL PUMPS
AND CYLINDERS

Water gates for pipe lines. Send for catalog.

POMONA MANUFACTURING CO.,
Pomona, Cal.

The Poultry Yard.

A PSALM OF FARM LIFE.

Tell me not in broken measures,
Modern farming does not pay,
For a farm produces chickens,
And the hens—do they not lay?

Eggs are high and going higher,
And the price is soaring fast;
Every time we get to market
It is higher than the last.

Not a coop but it produces
Every day an egg or two;
So each farmer gains his millions,
Even though his hens be few.

Every egg is very precious,
And the hens are held in awe;
When the hen begins to cackle,
Then the farmer goes, "Haw, haw!"

In a broad and busy farmyard
Struts a rooster now and then,
But the shrewd, bewhiskered farmer
Only notices the hen.

Trust no rooster, howe'er showy
By the feathers in his tail;
Pay attention to the biddies,
And your wealth will never fail.

Lives of farmers all remind us
We may roll in wealth some day,
If we hustle to the market
With the eggs our pullets lay.

—Chicago Chronicle.

THE HEN ON THE TOWN LOT.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

As has been stated in these columns, the town lot hen may easily become a record breaker in profits—if you don't get too many of her. The reason is plain: she utilizes the waste material from the kitchen and the waste time of her owners. There is the expenditure for a small amount of building material, fencing, grain, etc., and the balance is net profit. She not only supplies her keepers with fresh eggs and plump healthy broilers—things which may not always be had in the markets at even the highest prices—but she affords them much satisfaction and pride; for a yard of pure-bred birds in the pink of condition is always a sight to be proud of. Again, any surplus product may be sold to the neighbors at highest retail figures.

But as many people are more impressed with what has been and is being done than with what may be done, we give the following letter, just received from a friend who may be considered a pupil of the teachings as set forth in the columns of the PACIFIC RURAL PRESS, and who is quite willing to subscribe his name and to show the goods to any doubter. Being a young man, bred to office work and doing business in the city, the hen and her requirements were strangers to him; but he heard her call and decided to have a few of her kind, even though the portion of his lot which he could devote to them was only some 18 by 25 feet. We give his figures of the monthly output as a sample of what may be expected from ordinary Leghorns, well kept but not forced for egg production. Until into September last, when the pullets began to lay, the number of eggs is from the original 12 hens, three of which set in the meantime and raised their broods:

"I must tell you about our chickens and give you my figures. I started my account October 1, 1907, and end my report the last day of this October, just thirteen months. I have kept the account very accurately, and am sure there has not been 25 cents expended in any way that has not gone into the expense account; in fact, I have added to it every month an arbitrary amount for plucks, cabbages, etc.; also for repairing, lumber, wire, two barrels of lime for general whitewashing, etc. Have included likewise cost of eggs for setting, and, as stated above, the profits are not in the least imaginary.

"You will remember that we started with 12 pullets in the fall of last year; in March and April last hatched 30 chicks from 3 sittings; lost 2 chicks, 1 committed suicide by drowning, the other died a natural death from unnatural causes. In the 28 chicks left there were 11 pullets. Today we have the 11 pullets, 12 lady hens, and 1 man rooster. About 6 of the pullets started to lay before they were 5 months old; the hens are about through the moult, and two or more of them have been contributing right along. The cockerels which we killed I credited at regular market prices, also the eggs.

While such eggs are now (Oct. 31) selling in the city of Berkeley at 60 cents per dozen, I have credited them in the account at 55 cents, so as not to force the profits.

Month.	No. Eggs.
October, 1907	63
November	140
December	207
January, 1908	153
February	263
March	259
April	210
May	218
June	233
July	204
August	189
September	173
October	187
Total expenditures for 13 months	$34.10
Total receipts for 13 months	87.05
Net profits	$52.95

And we have had lots of fun besides; and now both wife and myself say we wouldn't be without a few chicks for a good deal. Yours truly,

J. C. GLASSON.

Berkeley, Cal., Oct. 31, 1908.

Questions and Answers.

NOTHING DOING.—Mrs. S. K. of Alameda asks: "Isn't it legitimate to stimulate the fowls when they persist in doing nothing? My pullets don't seem to mature; they are six months old, but show no signs of laying; many of my hens are all through the moult but are not doing anything. It seems there ought to be something to start them going."

This subject is discussed in the PACIFIC RURAL PRESS of November 7, under "Winter Eggs." The only stimulation that is legitimate for fowls is good care, plenty of fresh greens and meat and a little red pepper (the pods) chopped with the mash, which should be fed warm, but not hot. These will start the moulted hens laying and force the slow-maturing pullets. Possibly your pullets belong to the breeds which do not mature until 7 or 8 months old, or they may have had a setback as chicks. To mature properly, the chicks must be kept growing from the time they leave the shell; there must be no stand-stills. To ensure this they must have room, cleanliness, and an abundance of food of the right sort. While they should always have a keen appetite, they should never be very hungry. One sees no end of young chickens running to wings and legs, a sign of ill-nourishment. Yapping chicks or half-grown ones, hanging by the fence most of the time with a mute appeal for food in their hungry eyes are not going to mature quickly or lay the nickle egg. Hatch the chicks at the right time, according to breed, for winter laying, house and care for them properly, and they will lay—they can't help it.

AN ELABORATE EGG-PRESERVING METHOD.

Consul Joseph G. Stephens of Plymouth reports that a North of England firm of importers has adopted the following new method of preserving eggs, whereby it is claimed that eggs six months old are made to retain their new-laid freshness:

Acting on the theory that an egg decomposes owing to the entrance of bacteria through the shell, the eggs by the new process of preservation are first disinfected and then immersed in a vessel of hot paraffin wax in a vacuum. The air in the shell is extracted by the vacuum, and atmospheric pressure is then allowed to enter the vessel, when the hot wax is pressed into the pores of the shell, which thus hermetically seals it. Evaporation of the contents of the egg, which has a harmful effect, is thereby prevented, and the egg is practically sterile. The yolk of pickled eggs and others artificially preserved will frequently break on being poached, but the eggs preserved by this novel process are quite free from such fault.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

PIT AND CORNISH INDIAN GAMES. O. L. Crane, R. F. D. No. 3, Santa Rosa, Cal.

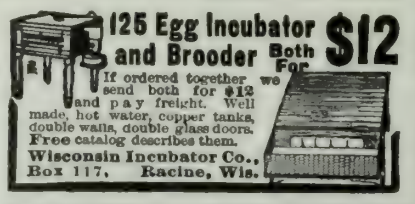
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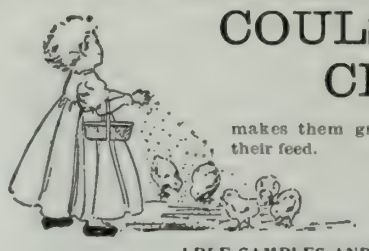
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Large Land Sale
The John Crouch Lands
Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.
That corporation now offers for sale these extensive holdings.
The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.
The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.
This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.
The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.
It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.
It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.
The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.
The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.
The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.
Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.
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President John Crouch Land Company.

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PETALUMA, CALIFORNIA.

The Home Circle.

My Valentine.

A carrier dove, dear maiden,
I send this day to you,
With silken cords and words of love,
And heart as warm as true.
I would not trust the butterfly
These tokens, love, to bring,
Lest some sweet flower should tempt the knight
To fold his gaudy wing.

But in the constant dove confide,
So gentle, loving, true.
Not 'mid the gay bright garden's bloom
Comes this sweet friend to you;
Not in the bower where clustering hang
The treasures of the vine;
But where the golden beams of day
'Mid quiet groves decline.

Dear maiden! let the emblems
That now to you I send,
Their lesson on your thoughts impress
And with your feelings blend:
Be true and constant, like the dove,
And let Love's fetters bind
Your heart in generous sympathy
With all of human kind.

—T. S. Arthur.

A Pair of Jokers.

Written for the Pacific Rural Press
By Mary Russell James.

"Looks mightily like a valentine, Mr. Merrick," facetiously remarked the country postmaster as he handed out a square, tinted missive.

A group of farmers and fruit-growers were waiting in the postoffice, which was also the village store, for the evening mail. There was a moment's pause in the discussion of the threatened tariff reduction on fruits while all eyes were focussed on the big pink envelope which Mr. Merrick was hastily cramming into his pocket. A general "Haw, haw!" and a sally of pleasantries came from the group, for Homer Merrick was a bachelor bordering on middle age, and a jolly good fellow and a favorite besides.

A decided flush showed through the bronze on his cheek as he hurried out of the store and jumped into his pony cart, and he was half way home before he investigated the contents of the pink envelope. Just a cheap affair of lace paper and rosebuds, with some ridiculous rhymes about the rose being red and the violet blue, etc.

"Pish!" he said contemptuously, and was cramming the card back into the envelope when a line written in ink on the back attracted his attention. It read:

"Be neighborly. R. F."

On the instant Homer Merrick's brow darkened. "That's carrying a joke too far," he exclaimed angrily. "Nell and Dell are getting too fresh!"

He recognized it as the work of his mischievous nieces, the twelve-year-old twins, who dearly loved to play jokes on their bachelor uncle, which he was prepared to take good-naturedly; but when they went to the length of signing the initials of a neighbor, a stranger, too, and a maiden lady—Heavens! a dreadful thought struck him. He knew his nieces, and he suddenly became as certain as if the missive were before his eyes that Miss Rachel French, the neighbor in question, had received a companion joker signed with his initials!

The very thought gave him a chill. He knew from report that Miss French was an ex-teacher from the East who had leased the orchard adjoining his own and, with her young brother, was taking a turn at fruit growing and farming. She would feel insulted—indignant! But what was he to do about it? This query drove hours of sleep from his pillow that night as he turned it over and over in his mind. At last he decided to "take the bull by the horns" and himself explain the matter to Miss French and crave pardon for his nieces. This would prevent any danger of talk which might result from delegating his sister or nieces, as he had at first thought of doing.

The next day was Sunday, and in the afternoon he set out on his errand, which had seemed simple and easy enough until he stood on Miss French's doorstep; then it assumed formidable proportions, and by the time the door was opened, everything he had intended saying took wing, and he was literally dumbfounded.

It was a very pleasant-faced women who stood before him, and her invitation for him to enter was most cordial. He had had no intention of doing so, but to gain time and courage he walked in and was seated. The instant that he met the clear, direct glance of his hostess he knew that his pains had been entirely unnecessary—that she was too bright a woman to need a joke explained to her or to be offended at trifles. But now that he had "put his foot into it" he must wade through somehow.

"I—I—er—came to explain about that," and he precipitately dropped the pink envelope on the table.

The lady laughed merrily as she saw it, and turning to her writing desk, she took another missive, an exact counterpart, and laid beside it. Then she sat back and laughed until the tears stood in her eyes—in fact, they both laughed till the room resounded with merriment.

"I don't know how to apologize for my madcap nieces," he began.

"Don't try," she put in brightly. "Youth is its own apology."

There is nothing like a hearty laugh to get acquainted on, and these two erstwhile strangers at once felt like old acquaintances.

"I am glad that you came over, Mr. Merrick," said Miss French, after a few moments' general conversation. "I have been wanting to consult some one of you successful fruit growers about my trees and vines. Though I was raised on a farm, I have been training the youthful mind for the last fifteen years, and find myself wofully behind in handling farm work—and then, I find it very different here from farming in the East."

From this opening the subject drifted eastward, and Mr. Merrick was delighted to learn that she had taught for years in the little Wisconsin village where he was born. So interested did he become in news and reminiscences of his old home that not till a level ray from the setting sun struck across the room did he realize that the afternoon had waned. As he raised his hat in parting, he hoped his hostess would pardon such a "visitation." And she laughingly invited him to repeat it.

Homer Merrick walked meditatively along the country road in the sunset. There was a pink glow over the orchards, for the almond trees were in bloom. The air vibrated with the soft notes of mating birds and the gentle cooing of doves. He had lived among these sights and sounds for years, but they had passed him by; now they seemed to enter his heart. An old song came to his lips:

"When all the world is young, lad,
And all the trees are green,
And every goose a swan, lad,
And every lass a queen,
Then hey for boot and horse, lad,
And round the world away!
Young blood must have its course, lad,
And every dog his day.

"When all the world is old, lad,
And all the trees are brown,
And all the sports are stale, lad,
And all the wheels run down;
Creep home and take your place there,
The spent and maimed among;
God grant you find one face there
You loved when all was young."

He had been "round the world away"; now comfortably settled with his widowed sister and her daughters to make up his home; he had given little thought to marriage; but suddenly he realized that he held no life lease on them, and there would come a time of need for "one face you loved when all was young."

He took an hour the next afternoon out of a very busy day to inspect his neighbor's orchard and advise her as to its treatment. He found that the orchard needed a good deal of supervision—so much so that his fellow farmers began to look wise and to predict that Homer Merrick was caught at last. And true enough, the acquaintance ended as all such pleasant beginnings among bachelors and maids should end—in a happy marriage. The nieces took all the credit, and accepted their uncle's handsome present, made in acknowledgement, as their due. But when it came to changing from his handsome cottage to the simple one formerly occupied by their new aunt, they were not sure but the joke was on themselves.

"I suppose you have asked that titled suitor about his pedigree?"

"No," answered Mr. Cumrox. "We were both too tactful to let anything happen. He gave me a book in genealogy that covers his case, and I presented him with a marked copy of a commercial agency's report."—Washington Star.

"I have been taking some moving pictures of life on your farm."

"Did you ketch the hired man in motion?"

"I think so."

"Ah, science kin do anything these days."—Louisville Courier-Journal.

The first farmer was the first man, and all nobility rests on the possession and use of the land.—Emerson.



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Good Pair of Socks	.35	.07
Good Sunday Shirt	1.00	.37
Best Collar	.15	.04
Beautiful Tie	.35	.12
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THE MARKETS.

San Francisco, Feb. 9, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

This market has quieted down somewhat during the week, as the milling interests have taken on fair amounts, and are not buying much for future requirements. There is comparatively little spot grain offering, though moderate supplies are arriving from the North, and there is plenty on hand for current requirements. The Northern market, however, is very closely held, and prices here have advanced in sympathy, showing higher figures for everything but Turkey Red. Futures are also higher.

California White Australian.	$1.87½	@1.92½
California Club	1.75	@1.77½
California Milling	1.77½	@1.80
California lower grades	1.50	@1.62½
Northern Club	1.75	@1.77½
Northern Bluestem	1.85	@1.90
Northern Red	1.70	@1.72½
Turkey Red	1.80	@1.85

BARLEY.

Barley has been quiet, with no particular demand for either shipping or feed grain. Receipts are light, however, and the price has again made a slight advance, quotations being about the same as two weeks ago. There is some interest in future grain, and values are quoted a little higher.

Brewing	$1.45	@1.47½
Shipping	1.45	@1.47½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.40	@1.42½
Common Feed	1.35	@1.38¾

OATS.

This grain is exceedingly scarce in the producing districts, where stocks of feed grades are being rapidly reduced notwithstanding the limited demand. Supplies locally are small, and some grain is arriving from the North. While the demand for seed grades is still retarded by the weather, there is considerable inquiry for white oats, which are very firm at a slight advance. Few gray oats are offering, and the market on this variety is nominal. Red feed are easier, and black are quite weak, showing a sharp break in price.

White, per ctl.	$1.82½	@ 1.95
Gray	Nominal	
Red, seed	1.85	@1.95
Feed	1.65	@1.80
Black, seed	1.65	@2.00

CORN.

The arrivals of Western grades are increasing, two shipments having come in since last report. This market, however, shows little feature, prices remaining firm at about the same range as last week.

Western State Yellow	$1.60	@1.65
Mixed, in bulk		1.52
White, in bulk		1.56
Egyptian, white	1.75	@1.80

RYE.

The market has been practically bare of this grain for some time, but a limited quantity is now offered. The price asked, however, is 10 cents higher than that established by former transactions, and buyers are consequently holding off.

Rye	$1.80

BEANS.

There has been a steady demand for beans for shipment this week, and stocks in this city have decreased materially. The market is very firm, white beans, as before, being in the lead, though an advance is noted in several varieties. Pinks have continued rather dull, but there is no inclination to shade prices, as a better demand is looked for in the near future. Limas are still depressed and dull, with further weakening in price, though the growers are inclined to hold firmly. The local market for blackeyes is firmer, with small stocks, though supplies in other quarters are plentiful. Reds are high and scarce.

Bayos, per ctl.	$3.20	@3.25
Blackeyes	3.00	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.50	@2.00
Small Whites	5.00	@5.25
Large Whites	4.10	@4.25
Limas	3.75	@3.90
Pea	4.75	@5.00
Pink	2.45	@2.60
Red	4.50	@5.00
Red Kidneys	3.25	@3.50

SEEDS.

Prices are steadily held to the figures formerly quoted, as holders expect a large demand for nearly all varieties. So far, however, the market has been rather quiet, owing to the continued rain, though there is more interest than during January. Stock held by local dealers is offered at the following prices:

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.		3¾ c
Canary		4½c
Flaxseed	2¾	@ 3 c
Hemp		4¾c
Millet	2¾	@ 3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

The flour market is featureless at present, as local buyers are purchasing only in small lots, and the export trade is even smaller than usual. Prices are firmly held, however, to cover the advances in wheat.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

Arrivals of hay continue heavy, but so far there has been no appreciable change in prices. While prices have been inclined to weakness at times, the feeling in general is firm, especially on the lower grades. Inquiry for shipment to the interior has been very active, and is expected to continue until the new crop is available. Stocks stored in producing sections are moving off rapidly, and if the shipments continue at the present rate they are not expected to last more than two months. Several local dealers are buying up large quantities in the country at high prices. Arrivals of alfalfa are light, and all offerings are readily disposed of at top prices. Straw continues dull, with little demand and easy prices. The following quotations are asked by local dealers:

Choice Wheat, per ton	$21.00@23.50
Other Grades Wheat	17.00@21.00
Wheat and Oat	16.00@21.50
Tame Oat	16.00@21.50
Wild Oat	15.00@18.50
Alfalfa	16.00@19.00
Stock	11.00@14.00
Straw, per bale	50@ 80c

MILLSTUFFS.

The northern mills are running very light at present, and supplies of millstuffs for shipment are scarce in that quarter. The local demand, however, is gradually falling off and supplies are sufficient for current requirements. Shorts are lower, though bran and middlings remain steady at former prices. Alfalfa meal and mealfalfa are $1 per ton higher, with a good demand.

Alfalfa Meal, or mealfalfa, per ton	$24.00@25.00
Bran, ton—	
White	29.50@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Middlings	33.50@35.50
Mixed Feeds	28.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	28.50@30.00
Shorts	31.00@32.50

VEGETABLES.

Offerings of onions are still very small, as the local stocks have been pretty well cleaned up and only a few lots are coming in from the north. Prices are considerably higher and choice stock brings a premium, but the advance has tended to check the demand, and there is no great movement. Some green onions are appearing on the market. Few fresh southern vegetables are coming in, owing to the interruption of traffic, and some varieties are higher, though there is some easiness in celery and asparagus. Cabbage and cauliflower are higher.

Onions, ctl.	$ 2.00	@ 2.35
Garlic, per lb.	8	@ 10c
String Beans, per lb.	10	@ 15c
Green Peas, per lb.	5	@ 10c
Cabbage, per ctl.		1.50
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, crate	1.00	@ 1.50
Green Peppers, lb.	15	@ 25c
Cauliflower, doz.	65	@ 75c
Celery, doz.	40	@ 50c
Asparagus, lb.	15	@22½c
Rhubarb	8	@ 10c

POULTRY.

Eastern stock continues very plentiful and the oversupply has brought slightly lower quotations for small and medium hens. Good broilers and fryers, however, are firm, and in better demand than anything else. There is comparatively little local stock on the market. Good dressed turkeys are in demand, though only good stock is wanted, birds from 8 to 12 pounds being preferred.

Broilers	$ 5.50	@ 6.50
Small Broilers	4.50	@ 5.00
Fryers	6.50	@ 7.00
Hens, extra	7.00	@ 9.00
Hens, per doz.	5.00	@ 6.00
Small Hens	4.50	@ 5.00
Old Roosters	4.00	@ 5.00
Young Roosters	7.00	@ 7.50
Young Roosters, full grown	8.00	@ 9.00
Pigeons	1.00	@ 1.25
Squabs	2.00	@ 2.50
Ducks	5.00	@ 8.00
Geese	2.00	@ 2.50
Turkeys, live, per lb.	18	@ 21c
Turkeys, dressed, per lb.	22	@ 26c

BUTTER.

The two upper grades of butter have shown rather a firmer tone since last report, supplies of extras being rather light. With a fair demand for the last few days, and no increase in the receipts, prices have been advanced 4 cents, and firsts are quoted ½ cent higher. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	37 c
Firsts	33 c
Seconds	28 c
Storage Ladies, extra	23½c
Cal. Storage, extras	31 c

EGGS.

The egg market has been irregular for the last week, advancing to 43 cent for extras on liberal orders from the north, and declining to 37 cents on the cancellation of these orders. The north is apparently turning to the Eastern market for supplies, owing to the reduction of prices in that quarter. The lower prices, however, brought about a local demand which has prevented the accumulation of any surplus, and the market is firm at the present quotations. Everything on the list is lower. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	38½c
Firsts	36½c
Seconds	36 c
Thirds	35 c
Fresh Cal. Pullets	35 c

CHEESE.

The decline in cheese has been checked this week, though there is no particular feature to the market, and buying continues quiet. Supplies of new California stock, however, are light at the moment, bringing an advance of 1 cent on fancy flats. Other varieties remain unchanged. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	14 c
Firsts	12½c
New Young Americas, fancy	16½c
Oregon Flats	14 c
Oregon Y. A.	16 c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14 c

POTATOES.

Potatoes have been quiet all week, as there is considerable poor stock arriving from the river districts, and larger shipments are expected from Oregon. Most of the local buyers, moreover, have fairly good supplies on hand, and are not disposed to enter the market again until the statistical position is better known. Meanwhile all available supplies are in strong hands, and prices are maintained on all table goods. Early Rose are a little higher. Sweet potatoes are rather plentiful and easy.

River Whites, fancy, ctl.	$ 1.40	@ 1.65
Lompoc, Burbanks, ctl.		2.00
Salinas Burbanks, ctl.	1.65	@ 1.80
Oregon Burbanks, ctl.	1.75	@ 1.85
Early Rose		1.75
Sweet Potatoes, ctl.	1.50	@ 1.75

FRESH FRUITS.

Business in fresh fruits for local account is only moderate, as the weather is unfavorable. Apples show increasing firmness, however, as there is an increasing inquiry for shipment to other points, and while no advance has been made in the top price several of the medium grades are bringing better prices. Ordinary offerings are also a little higher. Pears are unchanged.

Apples, fancy	90c	@ 1.75
Apples, common	60	@ 85c
Pears, box, Winter Nelis	$ 1.25	@ 1.50
Other varieties	50	@ 75c

CITRUS FRUITS.

The only feature worthy of remark is a sharp advance in Mexican limes, which have become very scarce in the last few days. This has induced a more liberal demand for lemons. Oranges are in only moderate demand and with ample supplies the prices are unchanged.

Choice Lemons	$2.00	@ 2.50
Fancy Lemons	2.75	@ 3.00
Standard	1.25	@ 1.50
Limes	6.50	@ 7.00
Oranges—		
Fancy Navels	2.00	@ 2.50
Choice	1.75	@ 2.00
Standard	1.50	@ 1.75
Tangerines	1.25	@ 1.75
Grape Fruit	3.00	@ 3.50

DRIED FRUITS.

The dried fruit market is showing a little more activity, both here and in the East, though the movement is still below normal, and values are inclined to weakness. Peaches continue easy, but the Eastern demand shows a quite perceptible increase, and fair quantities are being taken on by the packers. Apricots are dull, as the stiff figures at which they are held prevent any active movement in the East. The buying of prunes is taking quite a spurt, and considerable quantities are being shipped out, though the purchases are usually in small lots. The packers here report a good movement in assorted carloads, and are showing rather more interest in offerings from growers, though the prices offered by the trade do not warrant any advance in quotations. Outside buyers are showing only moderate interest in raisins, as the coast dealers are now holding for firm prices. There is a fair movement from holders in the country, and packers are quoting the following prices for stock in the sweatbox. Advices from producing districts indicate that very few lots are bringing the top prices quoted, however.

Evaporated Apples	4@	5c

Through Tropic Climes

ATLANTIC STEAMSHIP LINES
New Orleans-New York Service

In connection with the Sunset Route between San Francisco-Los Angeles and New Orleans.

Largest American coastwise steamers—elaborately furnished staterooms—electric lighted throughout—perfect dining service.

Rates from San Francisco:
One way, first class rail, via Sunset Route to New Orleans and first cabin on steamer—$76.80.

Round trip, first class rail and first cabin steamer—$144.40.

Choice of rail route on return trip.

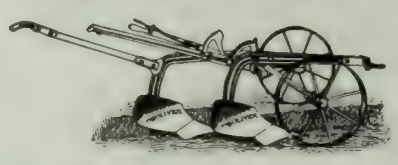
Second class rail and second cabin steamer—$64.55.

Rates include your berth and meals on ship. Just as cheap as an all-rail route.

Ask nearest Agents.

Southern Pacific

OLIVER



"The New Oliver No. 17 Gang for Orchard, Vineyard and Garden

FOR Orchard, Vineyard, Garden or Field—easy on two horses and a joy to the man.

At last, there is a light 2 or 3-bottom gang that will work as a plow should work in the Vineyard, Orchard and Garden. Everybody who sees this Oliver Gang wonders why somebody hasn't built a plow like it before.

A man with a lame back who at the close of a day's work with a heavy gang sees his orchard or vineyard poorly plowed and his pet vines and trees scarred may be pardoned for using big hard words.

But there is no excuse for this condition of things any longer. The No. 17 Oliver Gang will plow your ground the way you want it done.

We want you to see it and examine it. It is now on exhibition at all of our agencies in the Orchard and Vineyard Sections.

WRITE FOR PARTICULARS

OLIVER CHILLED PLOW WORKS
San Francisco, Cal.

Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Growers' holdings of walnuts are said to be pretty well cleaned up, Association prices being unchanged, though growers outside the Association cannot realize those figures. There is plenty of stock on hand locally, and for the present there is little buying, though packers are holding for firm prices. Almonds continue firm, with the market almost bare. There is no pressing demand at the moment for shipment, and the limited amount held by growers makes the movement from first hands light.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

This market shows little feature, as there is little demand, and stocks on hand here are sufficient for all present requirements. Very little is being shipped in, however, and the market is fairly firm for the upper grades.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼@ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

A little movement is taking place in the California hop market, though no great amount is offered, and the weather still interferes with the market. Hops are in strong statistical position and prices for all first-class stock are firm.

Hops, per lb.	6@ 10c

WOOL.

There is little doing in wool at present, as nearly all the fall clip in California has been marketed. As soon as the weather permits, however, there will probably be a movement to clean up the little that remains before the spring clip comes in. Prices show a slight advance and the demand is fair. The spring clip will start about the first of next month in some districts and quotations on the new clip will be out about that time.

Red Bluff (f. o. b. Red Bluff) free	7 @ 9 c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 6 c
Mendocino, free	7 @10½c
Defective	6 @ 8 c

MEAT.

Both dressed meat and live stock continue to bring high prices, though the scarcity is hardly as marked as a few weeks ago. Large dressed veal and pork are a little higher, though mutton is easier. Live hogs are firmer, and sheep show a slight advance.

Beef: Steers, per lb.	8½@ 9 c
Cows	7½@ 8½c
Heifers	7½@ 8½c
Veal: Large	9 @10 c
Small	9½@11 c
Mutton: Wethers	9½@11½c
Ewes	9½@10 c
Lambs	11½@13 c
Hogs, dressed	9½@11 c

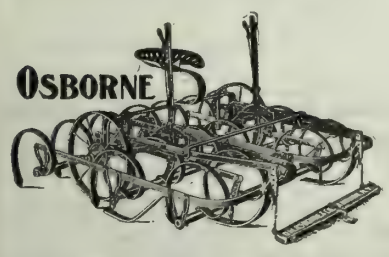
LIVESTOCK.

Steers, No. 1	5 c
No. 2	4½c
Cows and Heifers, No. 1	3¾@ 4 c
No. 2	3½c
Bulls and Stags	2½c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5½@ 6 c
Ewes	5 @ 5½c
Lambs, lb.	6 @ 6½c
Hogs: 100 to 150 lbs.	6¼@ 6½c
150 to 250 lbs.	6 @ 6¼c
250 to 325 lbs.	5¾c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

DON'T WALK AND GROW THIN WHEN

YOU CAN RIDE AND GROW FAT.



Don't use poor harrows when you can have the

OSBORNE

PERFECTLY FLEXIBLE
FITS KNOLL AND HOLLOW

A Line of Winners.

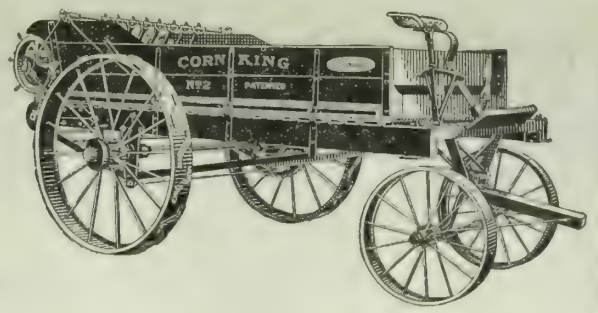
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Write Us for Catalogue of Farm Implements, Wagons and Vehicles.

PACIFIC IMPLEMENT CO.,
133-153 KANSAS ST., SAN FRANCISCO.

Why buy another farm?



Are you thinking of buying another farm in order to extend your operations and produce larger crops?

You will find it better in almost every way to build a new farm on top of the one you now have.

Do not seek to farm more acres but make your land produce more bushels.

If the farm you now have produces—say 35 bushels of oats per acre, instead of buying more land to get an additional 35-bushel yield, why not make the farm you have produce 70 bushels per acre? You can do it.

Buy an I.H.C. Manure Spreader

It is the machine which enables you to take the manure produced on the farm and in a few years fully double the productive power of your land.

It does this by placing the manure on the soil in the most available condition to support plant life.

It also makes the manure go further than can be done in any other way.

I. H. C. manure spreaders are made in three styles: Corn King, Cloverleaf and Kemp's 20th Century.

The Corn King is of the return apron type. The steel roller equipment of the apron on this machine reduces friction to the minimum, even with the heaviest loads. This machine will be supplied with either a ratchet feed or a double pawl worm feed for the apron. Either of these feeds can be regulated to bring the desired amount of manure to the beater. The beater is equipped with long, square steel teeth with chisel points. It is driven by means of a chain from a large sprocket on the rear axle. A vibrating rake is used on this machine to level the load as it comes to the beater. The Corn King spreader has steel wheels of the most serviceable construction and a frame made of thoroughly air-dried wood stock and put together in a very durable manner. There are three sizes of this machine: No. 2 small, No. 3 medium and No. 4 large.

The Cloverleaf is of the endless apron type. It is also supplied with two feeds for the apron—ratchet or double pawl worm feed. The beater on this machine is constructed the same as the beater on the Corn King. This spreader also has a vibrating rake to level the load as it comes to the beater, has steel wheels and a well made main frame. This spreader is made in three sizes: No. 2 small, No. 3 medium and No. 4 large. It is very attractive, being well painted and symmetrically designed.

The Kemp's 20th Century is of the return apron type. The apron on this machine has a worm feed which is very positive in its action. The beater bars are provided with long, round steel teeth, so placed on the cylinder that perfect distribution of the manure is insured. This machine has a leveling rake to insure a uniform supply of manure to the beater. The Kemp's 20th Century will be supplied with either wood or steel wheels. The frame of this machine is well braced both crosswise and lengthwise, and the wood stock used is of the very best. This spreader is made in a number of styles and sizes.

It is impossible to describe all of the features of the above machines in this small space. However, we have catalogs which illustrate and describe in detail the many excellent features of these machines. These catalogs are well worth procuring, not only because they describe the spreaders but because they contain information on soil fertility.

Points that are well to bear in mind in connection with these spreaders are that you can top-dress your fields and grow large crops of clover to turn under and enrich the soil, so that you may grow still larger crops and add to the soil's fertility. They double the value of the manure, save much time and labor and greatly increase the value of your land by increasing the soil's fertility.

Any one of these machines will pay for itself in from one to two years, depending upon the amount of work you have for it to do.

Call on the International local agent and see about owning one of these manure spreaders. He will supply you with catalog and full information, or, write direct to nearest branch house.

WESTERN BRANCH HOUSES: Denver, Colo.; Helena, Montana; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; San Francisco, Cal.

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DON'T BUY GASOLINE ENGINES UNTIL YOU INVESTIGATE "THE MASTER WORKMAN," a two-cylinder gasoline, kerosene or alcohol engine, superior to any one-cylinder engine; revolutionizing power. Its weight and bulk are half that of single cylinder engines, with greater durability. Costs Less to Buy—Less to Run. Quickly, easily started. Vibration practically overcome. Cheaply mounted on any wagon. It is a combination portable, stationary or traction engine. SEND FOR CATALOGUE. **THE TEMPLE PUMP CO., Mfrs., Meagher and 15th Sts., Chicago.** THIS IS OUR FIFTY-SIXTH YEAR.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Feb. 8.—The rains still continue in southern California and still the picking of oranges goes on and the cars are going out as though there was no such thing as rain to interfere. Of the last 18 days, 12 have been rainy, yet during this period nearly 1000 cars more fruit were shipped than in the same time last year when the weather was pleasant.

It would seem as though this excessive shipping must have some effect on the markets of the East, and while the brokers say that the orders are not plentiful and that there is a general tendency to beat down asking prices, the auctions are doing fairly well, and it is just possible that things will go through without a break in the market. It can be safely stated, however, that the Eastern jobbers are looking for a slump and some of them who contracted ahead for February delivery are frantically wiring to have these shipments held back at this time. The shippers seem to be disposed to get out the fruit as fast as possible and are filling the orders as fast as conditions in California and the terms of the contracts will permit.

The total shipments up to and including Sunday amount to 5031 cars of oranges, and 1156 cars of lemons, while to the same date last year the total was 5184 oranges and 1112 lemons.

The lemon market is in very fair shape for this time of the year and about an average of 20 cars a day is going forward. All the auctions report good demand for lemons, and it is just possible that this next summer will see a revival of interest in the lemon deal that would rival that of the years 1906 and 1907. The crop of summer lemons will be slightly short of last year and there is as yet no telling just how badly the Sicilian industry was crippled by the earthquake.

PUBLISHER'S DEPARTMENT.

THE AMERICAN APPLE ORCHARD.

We are in receipt of a new book by F. A. Waugh, published by the Orange Judd Co. of New York. The work contains 226 pages, handsomely illustrated, and to the apple grower will be found a very valuable help. The principal topics discussed are The Geography of Apple Growing, Apple Soils, Exposures, Windbreaks, Winter-Killing, Starting an Orchard, Propagation of Trees, Cultivation, Cover Crops, Pruning, Fertilizers, Insects, Diseases, Spraying Solutions, Machinery and Methods, Harvesting and Marketing, the Family Orchard, Renovation of Old Orchards, Selection of Varieties, Catalogue of Varieties. Price of the book is $1. For sale at RURAL PRESS office.

THE PHYSICAL PROPERTIES OF SOILS.

A laboratory guide, by Prof. Arthur G. McCall of the Ohio State University. This book of 106 pages presents a complete, concise and systematically arranged laboratory course for the study of the physical properties of soils. The experiments are the outcome of several years of practical experience in the teaching of soil physics, hence the work is thoroughly practical and up to date in every respect. The book is handsomely illustrated and should be in the hands of every instructor and every student in our agricultural colleges and high schools, and all others who are interested in the study of soils and soil conditions. Published by the Orange Judd Co., 439 Lafayette St., New York. Price, 50 cents.

The PACIFIC RURAL PRESS has opened an office at 1920 Fresno St., Fresno, which will be under the management of J. C. Henderson and Hal Hamner. These two gentlemen will make a thorough canvas of the San Joaquin valley in the interests of this paper. Subscriptions will be received at this office as well as advertisements, also Prof. E. J. Wickson's book, "California Fruits," will be supplied. We ask our friends to help Messrs. Hamner and Henderson place a copy of the PACIFIC RURAL PRESS in every home in the valley.

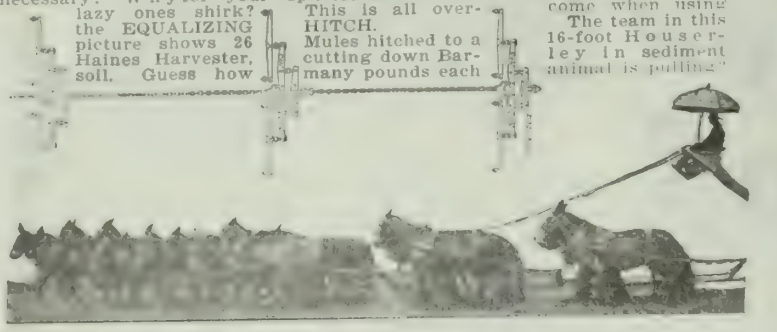
A new advertisement in our columns is the Oliver Plow, which is meeting with great success among the vineyardists. Look up the ad and examine the merits of the plow.

The cabbage crop of Orange county and surrounding districts will be little more than one-third of the output of last season, but it is believed the prices will be much higher. The first carload will be moved shortly from this county at $34 per ton, while the market opened last year at only $6 per ton.—Anaheim Gazette.

THE SCHANDONEY EQUALIZING HITCH

Perfectly Equalizes From Four to Forty or More Animals in a Team.

Why use a whip and worry yourself and team when it is absolutely unnecessary? Why let your spirited animals do all the work while your lazy ones shirk? This is all over-come when using the EQUALIZING HITCH. The team in this picture shows 26 Mules hitched to a 16-foot Houserley in sediment Haines Harvester, cutting down Barsoil. Guess how many pounds each animal is pulling.



For further information, Catalogue and Prices, address

THE SCHMEISER MFG. CO., Davis, California.

All Soils Alike to Wood Pipe



The heaviest adobe, the most corrosive alkali, the lighest sand—all are alike where wood pipe is used. **It resists them all.** Wood Saturated, Air Excluded—Can't rot. Metal in bulk, Galvanized, Asphalted—Can't Rust. High Factor of Safety in Banding—Can't Leak. Prices, Specifications, Hydraulic Data and General Information Furnished Upon Request.

Continuous Stave Pipe. Machine Banded Stave Pipe

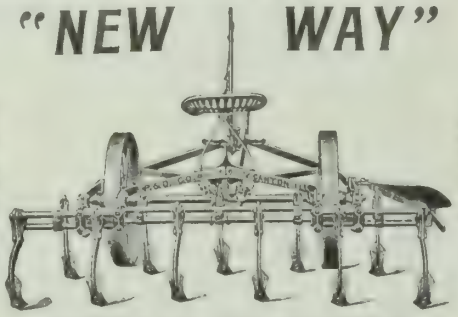
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404 Equitable Savings Bank Bdg., Los Angeles. 318 Market St., San Francisco.
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"NEW WAY"

This cultivator is designed especially for use in orchards and vineyards. Thorough tests in different sections of the State have proven the good and reliable qualities of this tool. There is ample clearance space between front and rear rows of shovels. It is raised and lowered with the utmost ease, and both rows of shovels are on the same level at all depths.

Write us for full particulars.



ORCHARD CULTIVATOR

GENERAL AGENTS:

PACIFIC IMPLEMENT COMPANY

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RAIN! RAIN! RAIN!

USE

REX! REX! REX!

The enormous rain storms of the past weeks have been great producers of fungi on the growing fruit trees of the Pacific Coast. More than ever will it be necessary between now and the time that the buds open, for the orchardist to spray his trees with lime and sulphur solution in order to prevent Curl Leaf and Twig Borer on his peach and almond trees, and Scale and Fungi on the other trees. The vines should also be sprayed to prevent Mildew, Rust, Thrip and the other insect pests incidental to moist weather. The California Rex Spray Company at Benicia Calif., are prepared to furnish the celebrated REX LIME & SULPHUR SOLUTION in any quantity on short notice.

ASK YOUR DEALER, OR ADDRESS:

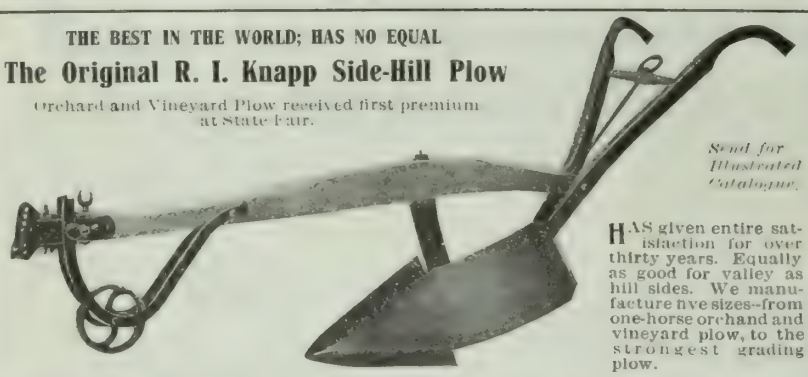
CALIFORNIA REX SPRAY COMPANY

Benicia, Cal.

THE BEST IN THE WORLD; HAS NO EQUAL

The Original R. I. Knapp Side-Hill Plow

Orchard and Vineyard Plow received first premium at State Fair.



Send for Illustrated Catalogue.

HAS given entire satisfaction for over thirty years. Equally as good for valley as hill sides. We manufacture five sizes—from one-horse orchand and vineyard plow, to the strongest grading plow.

SAN JOSE, CALIFORNIA **H. G. KNAPP & SON.**

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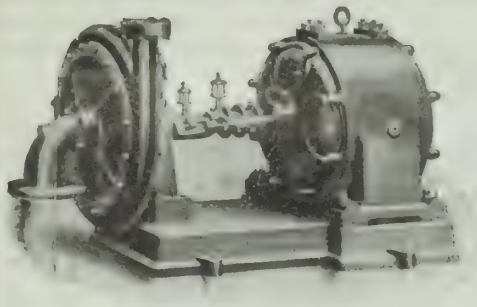
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Los Angeles, Cal.

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For high or low heads
Direct connected or belt driven
Highest obtainable efficiency.

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Send for new catalogue No. 50 just issued.

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We can CURE IT

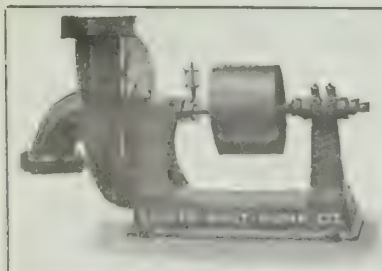
Our Remedy will not injure the tree.

SEND US YOUR ORDER NOW.

Process and Formula Patented.

Address Correspondence to Vacaville, Cal.

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GOLDEN WEST CENTRIFUGAL PUMPS

Specially designed for economy and durability. Write for catalogue and prices.

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FRANCIS SMITH & CO., Manufacturers of

SHEET IRON & STEEL PIPE

FOR TOWN WATER WORKS

Hydraulic, Irrigation and Power Plants, Well Pipe, Etc. All Sizes.
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Water and Oil Tanks—all sizes. Coating all sizes of Pipes with Asphaltum.



WINE TANK.

Tanks Tanks

WINDELER'S PLANING MILL AND COOPERAGE

GEO. WINDELER, Prop.

Water Tanks, Wine Tanks, made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

GEO. WINDELER,

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WATER TANK.

GREENBANK

Powdered Caustic Soda and Pure Potash.
Best Tree Wash.
T. W. JACKSON & CO., Temporary Address,
42 Market St., San Francisco.

CALIFORNIA STATE

THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 8. SAN FRANCISCO, SATURDAY, FEBRUARY 20, 1909. Thirty-ninth Year.

AGRICULTURE IN ALASKA.

Written for the PACIFIC RURAL PRESS
By T. A. RICKARD, Editor of the Mining and Scientific Press.

In central Alaska, near the junction of the Tanana and Yukon rivers, is Manley's Hot Springs—a notable resort. A hotel, bath-house and farm have been established by Frank G. Manley, a successful miner, who bought the property in the first instance from J. F. Karshner. This old prospector, formerly a farmer in Kansas, discovered a hot spring and ascertained that the ground near it was warmed enough not to freeze even in winter. He took up a homestead of 300 acres, and in the spring of 1903 made a clearing for a garden; then, his first effort being surprisingly successful, commenced systematic cultivation. Later Manley bought his rights and established a trading post, building a hotel and bath-house in 1907. At this spot there stood a grove of evergreen poplar, known as Balm of Gilead, and from them were sawed the logs for the erection of the roomy hotel building. The springs are about a hundred yards from the hotel, and from them the water issuing at 135 degrees is piped as required. On the adjacent hill slope the ground is warmed by the thermal springs so as to afford abnormal conditions highly favorable to agriculture. It is a natural hot-bed. Snow falling on the warm ground thaws rapidly so that the surface is rarely white for more than a couple of days. At the most the surface frost penetrates only to a depth of one inch. On the edge of the warm area, young parsnips have been dug in March from under two feet of snow. The water issuing from one spring will fill an 8-inch pipe and another spring higher up will fill a 3-inch pipe. A pent-house has been made by cutting into the side of the hill, where the ground is heated sufficiently to allow poultry to live in comfort throughout the winter. Mr. Manley has 650 hens and 50 ducks, 8 cows and a bull, 70 pigs and 25 horses. To appreciate what this signifies, it must be remembered that this farm is in latitude 65° north. Altogether 62 acres are under cultivation; of these, 32 are devoted to potatoes, which retail at 12½ cents per pound at Fairbanks. Usually the yield is 7 to 8 tons per acre, and a ton of potatoes in this part of the world is $250, be it noted. In 1908 the lack of rain injured the crop, so that the yield was only three tons per acre. Five acres are given to turnips, lettuce, cabbage and carrots. Cabbages grow a second time on the same stalk. Fodder is obtained from 14 acres of oats, barley and wheat. Near the springs the ground is covered with wild peas and bracken, for the moss does not thrive on the warm land. The soil is a sandy loam of light chocolate color, derived from the disintegration of granite.

This successful attempt at cultivation prompts an enquiry into the possibilities of agriculture in Alaska. For light on the subject I went to Mr. C. C. Georgeson, special agent in charge of the Alaska Experiment Stations, and to him I owe most of the information that follows. Broadly speaking, any kind of hardy vegetable can be grown even as far north as the Arctic Circle, 66° 33′ north latitude. During the summer season, which varies from three months at Rampart to six months at Sitka, fodder is obtainable from a luxuriant growth of native grasses, timothy and oats. It is true, on the coast there is trouble in making hay on account of rains at the gathering period, especially at Sitka, where the annual precipitation is eight feet. 'Inside,' within the vast interior of the country, the light precipitation may necessitate the aid of irrigation: thus in the Copper River valley the precipitation is only 9½ inches annually, and the lack of water is a drawback. On the other hand, the ground of interior Alaska is frozen to a depth of 200 feet, and it is found that the subsoil ice actually assists cultivation in summer because as the thaw proceeds the moisture rises by capillarity to the roots of plants. The most northern experiment station, at Rampart, in latitude 65° 40′, was begun in 1900. On a tract of 6½ acres it has been found possible to mature barley and oats from year to year. In addition, winter rye, winter wheat, spring rye, spring wheat and buckwheat have come to maturity in three years out of four. At Rampart, and elsewhere in the Yukon, the settlers have gown vegetables with unqualified success. Potatoes always do well, and they are doing better as potatoes grown in Alaska are used for seeding. It is a fact that this staple tuber has been grown 60 miles north of the Arctic Circle, that is, as far as any pioneer gardener has yet ventured. Cabbages also, with cauliflower, peas, turnips, radishes, lettuce, carrots, parsnips, parsley, beets, onions, squash and rhubarb all flourish during the short warm summer. In the more favored regions, such as the Tanana, it has been found that beans, celery, cucumbers, and salsify will grow well. Forage crops for livestock can be cultivated successfully. Timothy springs up as a volunteer crop along every trail where hay has been carried. In many localities the nutritious grasses native to the country cover large areas with lush growth, affording rich pasturage. At Rampart the horses employed at the experiment station are fed on native hay in winter. Emphasis must be placed on the fact that the seeds from which crops have been obtained heretofore in Alaska are of southern origin; that is, from a latitude full 20° south; in consequence, the plants have not been adapted to the climatic conditions of Alaska, and it is reasonable to expect better results from northern seed. For this purpose the experiment stations are well fitted and it is likely that they will do useful service in the development of varieties suited to the new environment. This beneficent work has been well started, but it is hampered by the need of funds. The first appropriation voted by Congress was only $10,000, and although the sum was increased to $15,000, it has barely sufficed to start and equip the four experiment stations at Rampart, Fairbanks, Copper River and Sitka.



Vegetables Grown in the Summer of 1908 at Fairbanks, Alaska, Lat. 64° 51′ North.

It is estimated that the interior of Alaska contains 90,000 square miles available for pasturage and agriculture; this area is nearly equal to the two States of New York and Pennsylvania. In 1900 New York had a population of 152 persons per square mile and Pennsylvania had 140. Of the whole of Alaska only one-sixth is deemed fit for cultivation, and it is reasonable to hope that this favored portion of the country will eventually support 25 persons per square mile, this being the average density of population in the United States (exclusive of Hawaii and Alaska) in 1900, even including the deserts, mountains and forests now uninhabited. If interior Alaska could yield products sufficient to support 25 persons per square mile, the population could rise safely to 2,250,000. Now it is about 20,000.

For a parallel we can go to Finland, which is bounded on the south by latitude 60° and on the north by latitude 70°. Finland has an area of 148,000 square miles, or about one-quarter of Alaska. Of Finland, one-third is lake and marsh land, another third is covered with forest, leaving only about 50,000 square miles available for agri-

(*Continued on Page 151.*)

Pacific Rural Press

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., February 16, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	1.78	35.52	28.58
Red Bluff	1.59	25.37	15.99
Sacramento	3.83	18.61	12.65
Mt. Tamalpais	3.45	29.97	14.98
San Francisco	3.31	20.77	14.87
San Jose	1.43	14.51	9.22
Fresno	.92	8.27	5 97
Independence	1.24	7.91	5.86
San Luis Obispo	1.53	26.88	12.65
Los Angeles	2.03	16.08	9.90
San Diego	.32	6.86	6.41

The Week.

The weather continues "unfair," with all the new meanings which the word has come to imply. It carries an effective boycott on much farm work that should be done, and although some parts of the State are in workable condition, the State as a whole is considerably behindhand, and there will be a rush to catch up, which is, of course, an unfortunate economic condition. We sympathize with those who have to pay their contract dues with the rainmaker. He is always in it not to lose. His employer argues that if the rain comes the cost will be insignificant, as compared with the benefit, and he is willing to give such a little to any old fraud—even to a rainmaker. But it does not look that way in some places. The money which has to be paid may be hard to raise where excessive rainfall prevents field work. We cannot see why people are willing to bet against an antagonist who puts up nothing—but we never could understand some things that some people do.

It may interest the outside world, which looks upon California as ranging from arid to semi-arid, to think of our rainfall as great enough to cause several million dollars damage along our untamed rivers, while other parts of the country which have a moister reputation are suffering from drouth. Take the report, for instance, which comes from Texas, that dry weather which has held Llano county in its grasp since early last fall has reduced stockmen to the extremity of chopping leaf-laden branches from trees to provide food for their starving cattle. The grass has withered and blown away, leaving the prairies almost bare. Water is scarce and the cattle are dying. A prominent stockman from that country says that the cowboys have discarded the lariat and spurs and armed themselves with axes for the novel work. We presume there is a certain amount of picturesque exaggeration in this account, but the recourse to tree forage is not a new thing in the world. It occurs once in a while in some parts of Europe, and we will have to admit that about once in a generation California men have had to climb trees in places where bridges are being washed away this winter, and they did not do it to keep out of the wet, either.

The blizzards in the Middle West seem to have been something fierce this winter, and that probably has something to do with holding rainstorms so long on this Coast. No doubt our complaints of so much warm rain strike the zero regions as causeless and ridiculous discontent. And so it probably is. Where stock is frozen in the field and fruit is killed in the dormant buds, there really is something to complain of, they say: and this is true. This year's weather, both here and east of the Rockies, is going to help California a great deal with her development ambitions. Nothing is better than growling about rains and floods to advertise the State in regions which are blizzard blighted. The zero district knows what rain is, and that its warmth is a surety against hard freezing, and reports of our high water mean more than our boast of winter sunshine, for they can have sunshine which will split a cast-iron dog, and its brilliance does not appeal to them. We admit that the tourists who have come for the California brand of sunshine have been largely bunkoed this year, and we are, in a way, sorry about that. We are sure, however, that the greater emphasis on warm and wet, which the very word rain applies to climatic character in the agricultural mind, will be a moving force when it comes to getting aboard the home-seeking trains a few weeks hence.

It seems that the Farmers' Educational and Co-operative Union, which recently held a notable meeting in the San Joaquin valley, as described on another page of this issue, seems to be scoring in a businesslike way in the upper regions of the Coast. The statement is that 10,000 farmers, controlling a grain output estimated to exceed 20,000,000 bushels yearly, formed a hard and fast combination through the executive session of the Farmers' Educational and Co-operative Union at Spokane, Wash., when it was unanimously decided that the executive board be empowered to employ one or more central selling agents to represent the union on the Coast or at other necessary places. It is stated by the officers that, while no attempt will be made to fix an arbitrary price, the selling agents will hold out for the highest market prices. This is rational, and such a movement has our earnest desire for its success. We like the name educational and co-operative union. In his message the other day President Roosevelt spoke of the educational qualification for successful co-operation, and California experience clearly demonstrates the truth of that position. Education must prepare for co-operation.

Speaking of education, we are reminded that the legislature at Sacramento is struggling with many propositions of provision for agricultural education in all instructional grades, from the primary to the University. It could hardly be otherwise with the whole population awakened on that subject and all speakers and writers, not alone in agricultural meetings and journals, but in all kinds of assemblies and all kinds of publications, doing their best to show how important to individual and national success such education really is. There probably never was a wider reaching or more persistent popular demand for any kind of education than is now prevailing for vocational training, largely on an agricultural basis. Different advocates are naturally promoting whatever particular phase of the general subject applies most directly to their ideas of desirability and efficiency. Although the aggregate amount for such purposes now asked from the legislature seems large, it is not large according to the past expenditures and present estimates of other States, and those States that have recently expended most in such lines are the ones which now contemplate spending most. The State of California has the best instructional farm in the United States, owing to the liberality and foresight of the last two legislatures, and the University Farm in Yolo county comes before the present legislature with a strongly supported claim for more buildings and equipment, so that it can fitly represent the State as the law contemplated. The instructional work began satisfactorily last year with exceptionally well given short courses, attended by about 125 pupils, mostly mature and all earnest. -The instruction of high school grade began last week, and is well attended for a beginning. All such undertakings on new lines and in new places have to begin and have to grow, and the growth in California, where there are such diverse forms of agriculture, depends largely upon a broader equipment, so that all may find instruction in lines which they choose to follow. There seems no doubt but the legislature will do the best it can for this important branch of the University's agricultural work.

At the same time, the needs of the agricultural work at Berkeley, in the form of new buildings and equipment, are great and cannot be neglected. This seems to be a matter not so fully understood as it ought to be. Occasionally, someone not well informed of the facts, questions the intent and purpose of the 160 regular and special students in agriculture at Berkeley, and reflects upon their behavior, motives, aspirations and their general attitude toward life and the industry in which they are directly interested and in which they propose to enlist their best efforts. As we personally know well, we must say that they are known to the University public to be, as a class, most serious-minded, purposeful and charged with the true industrial spirit. Many of them are supporting themselves by outside work during term time, many more are providing for themselves economically with their vacation earnings at farm work, others are pursuing agricultural studies at the expense of their parents or friends who have faith in better agriculture as a promising career. There is through the whole agricultural student body an earnest purpose to make good. Their average age is above that of University students generally; they know as a rule what they want and why they want it, and they are working hard because they feel sure that they are getting it.

As to the practical value of the knowledge which the instructors of the agricultural staff possess and are disseminating, very strong testimony is found in the demand which the farmers of the State make upon it. Over 15,000 individual letters were written by the staff last year in response to questions as to how to do particular things in California agriculture. There were 27,912 persons in attendance upon Farmers' Institutes last year, at which the instructors demonstrated the practical value of the knowledge which they had secured chiefly from actual trials and experiments. The printed statements of these results in the form of circulars and bulletins reach regularly about 12,000 families, from which a direct request has come for them, because publications are only sent to those who apply for them. The advice of the staff on practical questions is in constant demand by the publishers of all journals dealing with agriculture and by those making investments in this State. These and many more facts like them show that California farmers are in constant contact

with the teaching staff of the University, and their operations are largely influenced by the knowledge which is given them. The direct and practical value of the instruction given at Berkeley, both to students and to the public, is shown by the keen demand of farmers for it.

The agricultural department of the University is up to the standard of leading institutions in other parts of the country. The instructors and investigators are leading in their specialties. Their conclusions and results are distinctive and of particular local value, because California is different and they have to deal with high agricultural questions largely, because the California agricultural population is of very high grade and has advanced requirements. University of California men in their several lines of research and teaching are of national reputation, and their pupils work under them with zeal and enthusiasm. For many years the College of Agriculture did not have facilities for practical demonstration of instruction, but now this is provided by State generosity in the splendid farm in Yolo county, for which additional buildings and equipment are imperative, as already stated. But every improvement in practical instruction, and every effort to reach and help those who ask for new truth for their own use at home makes it more necessary that the scientific basis of all practical advancement shall be more adequately provided. This must be sustained where the sciences, pure and applied, are regularly pursued in research and instruction, and from which must come those contributions to agriculture which lift practice to greater success. To remove the agricultural sciences from their proper associations in the biological group would be to consign the work in them in California to a lower grade, which is unfortunately the case now in some other States. To properly equip and environ these agricultural sciences in another place would be to establish another great university in California—a State which now has a greater per capita endowment of first class university work than any other State of the Union. Such a broad science as agriculture must be in the center of a great university. We need many good practical schools of agriculture, and their future will depend upon the proper maintenance of agriculture in the highest State school—the University itself.

Queries and Replies.

Onion Growing.

To the Editor: Will you kindly give advice through your journal in regard to onion culture. I want to raise the dry onions from seed on a small scale for market, and also may try raising the sets. Would like information as to time and manner of planting, amount of irrigation, and varieties best suited to this climate. The soil here is classed as a rather heavy white ash.—Subscriber, Fresno County.

The best way to grow sets is to sow the seed thickly late in the spring, so that small growth is attained and the little bulb is slowed down by the advance of the dry season and stops short. These sets are then taken up and kept dry for fall planting, to get early bulbs of large size for sale. The best way, however, to grow onions in California is to start the seed in the fall, say in September, in a seedbed, rather thickly; take up the little plants when about the size of a goose quill; reduce the top about one-half and shorten the roots a little and plant out in field rows for larger growth. These are called transplanting onions. As it is too late to do either of these things this year, the only way now open for this summer's crop is to sow the seed in the field rows during the present month (in the drier, warmer parts of the State), and get the crop straight from the seed. In heavier soils in colder parts of the State this must be done later in the winter, as the ground comes into good condition. This is the way most of our field onions are grown. The amount of irrigation depends upon the season and the evident needs of the plant. There cannot be any rule for it except that growing bulbs should have enough to keep on growing—not to stop and start again. Any California seedsman's catalogue will give you information about varieties. Send for and carefully read these local catalogues.

A Bad Corner.

To the Editor: Two years ago I had a small piece of land that had been used for alfalfa for about six years. It was in good shape for irrigation, and I irrigated it about every two weeks, as it is pretty sandy; but still I did not get as much alfalfa as I thought I should, and so I plowed it up and planted it to Malagas. I supposed I would get a fine stand of vines, but instead I did not get hardly more than a quarter of a stand. Last year I re-planted the misses, but they did not do well either. I have not over half a stand now with two years planting, and those that did start do not grow the way they should. I planted some more of the same kind of vines just adjoining this piece, and they are doing nicely. Can you tell what is the trouble? Have I killed the land by too much irrigation, and will it be all right in time, with plenty of cultivation?—Grower, Fresno County.

We judge from your question that you have an idea that you have washed all the fertility out of the land. That is hardly possible. You should dig down three or four feet and see what you have in the subsoil. If you have filled the subsoil and excluded the air, that might be the reason for the unthrift of plants forced to subsist upon a shallow surface layer. It is possible also that you have an alkaline subsoil. That sometimes happens in a sandy soil, where the concentration may be below rather than on the surface, as is common with a heavy soil. If you take about a pint of the soil from each foot as you go down to the fourth foot, and send the samples, express paid, to the Experiment Station at Berkeley, an examination will be made for you. They do not undertake such examination "just to see what will grow in it," as many ask, but they will look into a difficulty such as you describe.

Planting Eucalyptus.

To the Editor: In setting out young eucalyptus trees, from 1 to 2 feet high, should I cut the top back or trim the roots, or both?—Planter, Contra Costa County.

With such small trees it is not necessary to do either. If you have long, thread-like roots, let them trail as deeply as they will. If the roots are cut, as they are likely to be, in taking from boxes, that is all right too. Press the soil firmly around whatever roots you have, long or short, and leave the surface loose. As for the top, that does not need to be cut back, if the soil is warm and moist. If you are planting under very dry conditions it is desirable to reduce the top.

Cabbage Lice.

To the Editor: Will you please state through the PACIFIC RURAL PRESS some spray solution to kill cabbage lice or small bugs that bother cabbage and other garden plants in warm spring weather. There must surely be a cure.—Subscriber, Clovis.

There is a cure if you begin as soon as you see the first lice on the small plants, and follow it up, killing survivors so that they never have a chance to reach a multitude. Get a spray pump and go to work with kerosene emulsion, or tobacco tea or whale oil soap (one pound to four gallons of water), or simply laundry soap suds. They are very easy to kill if you begin early, but if you let a plant become covered with them you will never be able to catch up.

Probably Too Much Alkali.

To the Editor: I have some land which is becoming set in salt grass. It is sediment or made land. Is there any crop I can put on it to check the grass? I sowed some alfalfa on some of it last year and got a fair stand, but irrigation seems too make the grass thicken, and I think it will choke the alfalfa out. Would sorghum or corn sowed broadcast have any effect on the grass?—A Subscriber, Madison.

It looks as though the salt grass was advancing because the land has too much alkali for other plants. Irrigation and increased surface evaporation brings up more alkali, and the salt grass is the plant which can stand it. Thick corn or sorghum would discourage it, if you could get it thick, but we apprehend that the plants would spindle and die and the salt grass flourish as the survival of the fittest. If you can underdrain and then irrigate freely, you can wash out the alkali and grow whatever you like, but irrigation without drainage will make the land worse and worse, probably.

Bird-Proof Cherries.

To the Editor: I have some Royal Ann and Black Tartarian cherry trees, located near San Carlos, which I wish to graft over, as the birds eat all the fruit. What is the best fruit to graft on these trees?—Subscriber, San Francisco.

Nothing but some other cherry, probably. Perhaps a sour cherry, like the Duke or Morello. According to our observation, birds do not like them any better than people—except in cherry pies.

Catch the Culprit.

To the Editor: Can you tell me what to do for grape vines where something eats the bud out. I have thought it was cut worms, and possibly English sparrows. Would paris green do the work?—A. S., Winters.

You will have to play detective before we can give you any advice. You do not even say at what time of the year the buds disappear. If it is now, it is not cut worms, and may be sparrows. Paris green is not practicable treatment for either. Tell us more about it.

Red Algerian Oats.

To the Editor: In the issue of January 23 you have on article on "Results of Cereal Improvement Work of the University Experiment Station." Can you tell me if it is possible to obtain some seed of the Red Algerian oats, and if so, who I could apply to?—Farmer, Lake County.

There is none of the seed for distribution this year. It may not be offered for another year.

Cubic Feet to the Ton of Hay.

To the Editor: How many cubic feet of hay does it take to make a ton, of first class wheat hay, short, clean, fine, and well settled in 20-foot deep mow.—P. ALLING, Lodi.

Probably about 500 cubic feet.

Apricot Root for Peach.

To the Editor: Please let me know in your next issue how peach trees do on apricot root, generally. —Reader, Madera.

Pretty well, generally, if the gophers do not eat the roots off. The apricot root is cake to a gopher.

Horticulture.

FIRING AGAINST FROST.

California fruit growers do not seem to have yet demonstrated to their own satisfaction how far firing against frost is superior to taking the risk of injury. There seems also to be doubt as to the best material to use, and in what form. Inventors and experimenters are still at work, and the common notion may be clearer ere long. Meantime, it is interesting to read of experimenters elsewhere who are as enthusiastic as were Californians a few years ago.

Mr. J. L. Hamilton, a Colorado apple grower, gives the Denver Field and Farm an outline of his operations thus:

I will give my experience of the past year in the use of the oil smudge pot in saving my crop of fruit near Grand Junction, in such detail as will go to make success or failure in the use of these little devices. I will tell a little only of some of the difficulties I successfully overcame, and some observation, all of which have been of great interest and benefit to me in this work. The results of my work were of such a nature as to leave no doubt as to the effectiveness of the scheme.

My orchard is made up of 20 acres of bearing trees, principally apples, trees about fifteen years old, of good size and uniform. They are but 20 feet apart, and the branches are very close overhead, which made an ideal condition for smudging with heat. Late in the day of April 25 I was very busy preparing to save my crop from the freeze the weather bureau had warned us was approaching and was due that night. Previous to that time no preparation had been made by anyone in the Grand valley for smudging, as the winter had been cold and the spring ideal in every respect. The growers felt secure so far as any possible damage from frost might occur. This was my condition, but immediately upon receipt of the warning I felt that to sit by and watch this old Hun of the skies invade my orchard and destroy my crop, with no effort on my part to interfere, would end with results that I would not relish, and I might feel that I could at least have tried something.

This I concluded to do, and at once secured several hundred California oil smudge pots and several hundred gallons of kerosene oil—cheaper oils not to be obtained at that time—and with this equipment set in the orchard and the pots filled with oil we waited for the temperature to reach the danger point. In this we had but a short time to wait after preparations had been completed, and when the thermometer showed 30 degrees we began firing. The entire field of pots was fired in about fifteen minutes, after which I carefully noted the temperatures and made readings from five thermometers. I located two thermometers outside the heated zone and well away from any possible effect of radiation, and three inside the heated zone, one in the middle and two near each edge, or about the second tree row inside the heat. Within ten minutes after the pots were fired the mercury went up to 32, while on the outside the reading showed 29. At this time we were burning but 40 pots to the acre, and a reading made an hour later showed the outside temperature to be 27, while inside it was 33. The pots were lighted at 10:45 p. m. and burned until about 6:45 a. m., or eight hours. The thermometer had been active on the outside, going as low as 23 for two hours, and for 30 minutes it had reached the low mark of 21. We had filled pots and refilled pots during the night, and consumed about 1000 gallons of kerosene oil. Owing to the oil supply running low, we abandoned all but 10 acres, and on this plat we made our stand for a finish fight. We maintained a temperature all night in the heated area of 30 above, excepting the 30-minute period when the temperature outside reached the 21 mark it also went down in the heated area and reached 28 for 30 minutes.

All the damage I received on this 10 acres was at that period, and probably represented many hundred boxes of apples. The filling process was a very tedious and tiresome task, and had my force of men been other than neighboring fruit growers bent on seeing the experiment carried to success, I would have lost the entire force. The sun rose on a very tired crew, but also on a crop of fruit that had been saved from the frost. It had been a hard task and had cost considerable, but the mark had been set and the impossible thing had been accomplished. The next day I secured more pots and more oil, and this same fight was maintained for six nights. Three nights the pots were burned for eight hours, and the others for shorter periods. The coldest time was always the hour just previous to sunrise, and the severest period just 15 minutes before the sun came over the hill, and these were the periods we most dreaded and fought the hardest to overcome. Let it be borne in mind that each and every pot must be kept burning at its maximum. It was one place where laggards were not welcome. This result was attained only by constant and careful watching on the nights that we burned kerosene.

For the last three nights I had a car of crude oil, which relieved our work very much. This oil would burn from four to five hours, and I had provided an extra set of pots, so that in the event the first set of pots fired did not burn out the desired period, the second set was lighted. I had this arrangement only with the crude oil, and we had no night filling of pots.

NOTHING NEW WITH THE PEACH BORER.

According to an account which a Los Gatos grower writer to the Rural New Yorker, none of the newer ways with the peach root borer appeal to him. He says: The practice here is to dig trenches around the tree trunk in the fall, and dig out the borers, and some follow this up again in the spring. So far no wash or preparation has proved "all sufficient"; this seems hard work, but it certainly pays, for one can know that where there are miles and miles of bearing fruit it means eternal fighting to keep even with these and other insect foes. As to the value of coal tar, in the orchard adjoining mine this was tried, and in three years that tar had hardened so it was girdling the tree, and had to be all dug off to save the tree. You can know what this meant on 18 acres, 108 trees to the acre. Since then the owner has been satisfied to dig like the rest of us.

I have a record of 80 borers taken from one cherry tree; have no desire to pedigree this tree, but wish only to give an actual occurrence of typical neglect that soon breaks up the slovenly farmers in a fruit country, and to call attention to the fact that the old-time orchard of the East must give up to the get-up-and-git of the Western fruit grower.

Citrus Fruits.

AGRICULTURAL VALUE OF TANKAGE VS. COMMERCIAL VALUE.

Written for the Pacific Rural Press
By Mr. Thomas C. Wallace.

I am asked to explain the value of nitrogen in tankage for fertilizer. The point is raised that low ammoniate tankage can be purchased for a slightly less unit cost of the nitrogen than in high-grade tankage.

The point raised is an important one, often taken advantage of by dealers in hog tankage and other low-grade tankages. In a low-grade tankage, which may be exemplified in what is known as a 6—30 tankage, meaning 6% ammonia (equiv.: 5% nitrogen) and 30% bone phosphate (equiv.: 14—14% phos. acid), the nitrogen is nearly all from bone. The balance of the nitrogen, say between 1 and 2%, is from such scrap material as goes into the tanks, depending upon the class of slaughtering and packing engaged in, and sometimes from the concentrates recovered in the evaporation of the tank water. As bone decomposes slowly, the nitrogen of such a tankage is inferior in its action to that from the more easily decomposable materials of high-grade tankages and blood. The higher the grade of tankage the more valuable the nitrogen of it, from a fertilizing standpoint, just as nitrogen of blood is still more valuable. This is of course based on the assumption that the early use of the nitrogen by the tree is desirable. So well is this understood by the Eastern farmer that he uses bone meal when sowing his fall wheat so that the 4 or 5% nitrogen it contains will become available the following spring and summer when his grain needs the stimulation. The orchardist uses tankage for the spring feeding of his tress. His selection of high-grade material, by which is meant about 11 or 12% ammonia (equiv.: 9—10% nitrogen), is to obtain prompt and steady feeding during the spring and early summer, with a diminution rather than an increasing nitrogen feeding during the late summer and fall. Some think nitrate of soda and dried blood too quick acting for the best results, and not sufficiently lasting or prolonged in their effect for trees, where others again use a small proportion of these stimulating materials with the high-grade tankage. Very few can be induced to use bone in the spring season, and as a low-grade, 6—30, tankage is practically a reinforced bone, they do well not to be misled by the term tankage applied to it.

From an agricultural standpoint, the nitrogen of fine bone or low-grade tankage values about 15% less than that in high-grade tankage or blood, and in coarse material about 30% less. So that if the nitrogen of high-grade materials costs 20 cents a pound, it should value at 17 cents in the low grade and 15 cents in the coarse grade. It seems opportune to refer to the fact that high-grade tankage being sold on ammonia basis has comparatively little value attached to its prosphate in a commercial sense, the cost of manufacture and transportation being taxed on its nitrogen content on the money value basis of 1 to 6 or 7; while bone meal, being sold as a phosphate, the cost is borne principally by that ingredient, on the basis of about 1 to 3 or 3½. This is, of course, based on California values, which includes freight from the East, as nearly the whole market is supplied from Eastern slaughter houses. In dried blood it only pays to ship West the highest grade, as the freight, being by weight, increases the unit cost of the lower-grade material. Only the high percentage of ammonia makes the transcontinental shipment of dried blood profitable. The production of nitrate of soda, being on the west coast and subject to water shipment, keeps the unit cost of it within the limit of market endurance, but here again the percentage of high grade scores an advantage.

Does Manure Waste on the Soil?—A grower comes with the query, "Do I lose any plant food by spreading manure on the soil as I have it to haul out, and letting it lie to be plowed in at convenience." There is no loss worth consideration by such a method of handling manure. If it lies a long time exposed on the surface there would be some loss of bulk by erosion, but for the time a grower would need in the ordinary course of orchard work, this would be too slight to affect the value. Once the manure is taken out of the heap and spread, or if it is never piled, but just spread on the orchard as cleaned up from the stable or corral, the chances of loss of plant food are minimized, and there is probably no better plan than this of using manure, if it is convenient. Our grower friend can rest assured on this point without special reference to the technical reasons for such opinion, as it has been quite fully demonstrated by experiment.

The Field.

POTATO SCAB.

From an advance copy of Circular 23 of the Bureau of Plant Industry of the U. S. Department of Agriculture, by Mr. W. A. Orton.

(Concluded from page 125 of last week's issue.)

Scab, a disease causing rough, pitted tubers, is very prevalent in California, where it is considered the most serious enemy of the crop, since its injuries are brought conspicuously to the attention of the grower by the enforced rejection of the scabby potatoes.

Losses from Scab.—The loss from scab is very heavy. There is, in the first place, a reduction of yield due to the attack of this fungus on the underground portions of the plant, and, secondly, a depreciation in quality. The very scabby potatoes are not marketable, and usually have to be left in the field, as there is at present no starch or alcohol factory to utilize the culls. The writer has roughly

estimated that from 5 to 75% of the crops are rejected on account of scab, the lowest amounts being found on land planted for the first time in potatoes, and the highest on old land. Possibly 25% is an average loss on land previously planted to potatoes. As the annual production of potatoes in San Joaquin county is more than 2,500,000 sacks, the loss from this disease might easily amount to over $300,000 per annum.

Two forms of scab appear to occur in this area. The indications are that the principal injury is caused by the same disease that occurs in the Eastern States, which has been shown to be due to a fungus, Oospora scabies. There is at present, however, a good deal of another fungus, Rhizoctonia, to which has been attributed a stem-blight prevalent in heavy Western soils and a surface cracking or russeting of the tubers.

Cause of Scab.—The cause of the scab is a minute parasitic fungus. The disease does not develop except where this fungus is present. The amount of scab is, however, greatly influenced by certain soil conditions. The principal factor appears to be the acidity or alkalinity of the land. The scab develops most freely in an alkaline soil and is greatly retarded by acidity. In this respect the San Joaquin county soils are extremely favorable to its development. The amount of moisture also exerts an influence on the disease; it appears to be worse in wet seasons and in wet soils. It is the experience of growers that it varies greatly in different seasons, yet, nevertheless, it can be prevented by excluding the germs of the disease.

Preventive Measures for Scab.—1. Clean seed. The most frequent source of infection lies in the seed planted, and the experience of Eastern growers has been that by disinfecting the seed and by planting in land free from scab a clean crop may be produced. It is therefore of the greatest importance that those California growers who have land not already infected by this disease should seek to keep it healthy by allowing nothing but disinfected seed to be planted.

In the majority of cases, however, it is necessary to deal with land that has already been infected by the cultivation of one or more potato crops. The disease has already been introduced; the problem is, how to control it. It goes without saying that additional reinfection should be avoided by disinfecting all the seed planted, in accordance with directions given later in this publication. Additional means to be adopted comprise:

2. Rotation of crops. Scab tends to diminish when land is planted in crops which do not harbor the parasite. Other root crops, however, such as sugar beets, turnips, etc., must be avoided. The length of time required to free land from scab varies in different sections, but as a rule a period of three years will very greatly reduce the amount of disease, though it may not be entirely exterminated after five, or even ten, years.

The principal point to be kept in mind in choosing rotation crops is to increase the amount of organic acids in the soil by plowing under green crops, such as rye, clover, vetch, etc., which by their decay tend to produce an acid reaction in the soil. It is possible that the soil can be further favorably modified by the use of fertilizers, such as acid phosphate, muriate of potash, land plaster, etc., which leave an acid residue. It seems at first thought illogical to advise plowing under green crops on soils largely made up of organic matter and to suggest fertilizers where there apears to be no lack of plant food. No such positive recommendation is intended, but in the absence of knowledge of the subject such experiments to test this should be undertaken. The beneficial effect of such treatment is well recognized in the Eastern States.

3. Soil treatment. The chemical treatment of the soil to reduce scab promises but little. Applications of sulphur at the rate of 300 pounds per acre have been used with some degree of success in Delaware and New Jersey, and might give good results in California.

Seed Treatment for Scab.—The most effective method of disinfecting seed potatoes is by the use of formaldehyde gas liberated by mixing the commercial solution with potassium permanganate. This method is adapted to the disinfection of large quantities of potatoes in a short time. To use it, an air-tight shed should be constructed, of sufficient size to hold whatever quantity it may be desired to treat at one time. This may be made of rough lumber, lined with building paper and provided with a tight door. The potatoes may be treated in sacks, but these sacks must be piled so as to allow a free circulation of air all around them. It is suggested that they be piled in tiers, with two 2 by 4 scantlings between each layer of sacks. Space should be left in the center of the building for placing the charge of formaldehyde, which should be set off in shallow pans, such as galvanized washtubs. For each 1000 cubic feet 23 ounces of potassium permanganate and 3 pints of formaldehyde should be allowed. After the potatoes are properly stacked and everything is made ready, the permanganate should be spread in a thin layer on the bottom of the pan, the required quantity of formaldehyde poured in and stirred quickly, and the building vacated. The building should then be kept closed tight for 24 hours, when it may be opened and the potatoes taken out.

Formaldehyde is a nonpoisonous but highly irritant fluid, which can be purchased in small lots at about 50 cents a pound, in carboy lots at 20 cents, or in barrel lots at about 12 cents. Potassium permanganate is a reddish brown, crystalline substance, purchasable at from 13 to 25 cents a pound.

The precaution should be taken not to pile any potatoes directly over the pans or with three feet laterally, as the gas there might be strong enough to injure the potatoes and destroy their germinating power. The formaldehyde works best in a humid atmosphere. It is therefore advised that the floor of the shed be wet down before the treatment is made. The potatoes, however, should not be wet, as the disinfection is more thorough if the surfaces are dry.

Small quantities of potatoes may be disinfected by soaking in a solution of 1 pint of formaldehyde to 30 gallons of water for two hours. Either the gas or the solution treatment may be applied some time previous to planting, provided the potatoes are not exposed to reinfection by being put into receptacles that have previously held scabby potatoes. The treatment should also be made before the potatoes are cut for seed.

The expense connected with the treatment of seed potatoes by the gas method will vary in different cases according to the amount of labor required in handling and whether a special building has to be erected for the purpose. The cost of labor and of the building will be the principal items. The cost of the materials need not amount to over 1 cent per sack. For example, a shed 12 by 24 feet and 7 feet high contains 2016 cubic feet and would require 3 pounds of potassium permanganate, costing 60 cents, and 6 pints of formaldehyde, costing $1.20; total, $1.80. Two hundred sacks can easily be treated at once in such a shed. An entire day should be allowed for each treatment.

Decay of Potatoes.—Considerable loss is occasionally experienced from rapid decay of potatoes shortly after harvesting. It is reported that an entire shipment of potatoes will sometimes "go down" in a few days, or while en route to market. This trouble is locally known by the expressive term "leak," or "melters."

The affected potatoes turn a dull brown outside; the flesh is buff or brown and very soft. When subjected to pressure a copious amount of clear brown liquid is discharged. There is no bad odor in the early stages.

This form of decay is due to the invasion of a fungus, Rhizopus nigricans. This fungus can enter only through wounds, and experiments in the laboratory have corroborated the testimony of the growers that potatoes injured by careless digging especially are attacked. The fungus spreads rapidly under favorable conditions, growing between the cell walls. Later the cells are separated, and hence the rapid softening of the tissue.

The fungus is propagated by spores produced in large heads or sporangia. It can grow on a great variety of dead organic substances. While it is not usually considered a dangerous parasite, it is known to cause decay in sweet potatoes, apples, and pears, and a related fungus causes a disease of lily bulbs.

Remedial Measures for the "Leak".—Suggestions for the control of this disease may be based on our knowledge of its cause:

1. Avoid breaking the skin of the potato in handling. Nature has given the potato an effective protection against such fungi in an unbroken epidemris. Rhizopus is a wound parasite, and fork holes and bruises are its principal means of entrance.

2. Practice sanitary precautions to prevent infection. Keep refuse away from the sorting sheds and docks. The fact that certain locations produce potatoes especially subject to this decay merely shows that these farms are seeded down with the fungus. Rotate crops, as the testimony is that the loss is greatest from old fields.

3. Avoid piling newly dug potatoes in large piles where they will "sweat". The indications are that infection with the leak fungus takes place most readily at this time. Keep the potatoes dry and well ventilated.

Rotation Problems.—The most profitable use of the peat lands, if plant diseases could be left out of consideration, would be to grow continuous crops of potatoes and other vegetables that bring in a large return per acre. The prevalence of wilt and scab necessitates a rotation of crops to maintain sanitary conditions in the soil, and raises the question of what crops to alternate with potatoes.

This depends very largely on market conditions and other economic factors. Other vegetables may be substituted, but an overproduction of onions or anything else that has to be sold in near-by markets would quickly result from planting the several thousand acres involved. Celery promises well, and experiments with its culture should be made. The asparagus acreage can also be considerably increased. Further work on the subject of profitable crop rotation must be undertaken to solve these problems.

BLACKBIRDS AND SORGHUMS.

To the Editor: I note in a late issue an inquiry from "A Reader, Oakley," relative to the existence of a variety of Egyptian corn that blackbirds will not eat; also your inquiry as to who could answer the question.

I presume that any kind of corn that a hungry blackbird would not eat would be of little value for any purpose. However, there is a very great difference in the different varieties of so-called Egyptian corn regarding the waste from the blackbird nuisance. The ordinary white Egyptian corn is very easily shelled, and the birds waste many times more of the grain than they eat, after it has become thoroughly ripe. The Milo Maize, or red Egyptian corn, does not shell nearly so easily as the white corn, and the grain is considerably harder and less attractive to the blackbird. In fact, blackbirds will not work in a field of this variety of corn if there is any white corn in the vicinity to be had. It is possible that if blackbirds are very numerous and feed scarce, that they would do considerable damage to Milo Maize, or red corn, but under ordinary circumstances we have never known them to do any damage to that variety of corn, of any consequence. The dwarf Milo Maize, introduced in to this locality in recent years from Oklahoma, yields much more crop than the white Egyptian corn, or any other variety, within our knowledge.

Blackbirds do not damage the white Kaffir corn to the extent they do the ordinary white Egyptian corn referred to. The Kaffir variety yields, and is the only variety within our knowledge the fodder of which is of much value. We consider the fodder of this variety of Egyptian corn much more preferable than that of the ordinary Indian or field corn, and we find our stock eat it much more readily than the sorghum or sugar cane. However, it requires a much longer season in which to ripen than does any of the other varieties of Egyptian corn, for which reason it is less desirable as a midsummer crop. We consider the Milo Maize referred to one among the best and most profitable midsummer crops grown on the irrigated lands in this section of the State, when it is considered from the standpoint of the amount of labor required in production. Good crops can be secured from land that does not possess a sufficient amount of moisture to grow any other crop, within our knowledge, and without any cultivation whatever.

W. H. Gilstrap.

Gridley.

AGRICULTURAL REVIEW.

Fruit Notes.

Saratoga, in Santa Clara county, will again hold its blossom festival this spring.

Quite a large acreage of prunes will be set out this spring at Banning, Riverside county.

The four-acre guava orchard of Samuel Brown of Long Beach will, it is claimed, produce this year more than 35 tons of fruit. This is the largest guava orchard in the State.

Ninety per cent of the peach crop of the Niagara peninsula, Ontario, Canada, is reported to be ruined by the alternate frost and mild weather. The loss will reach into the millions of dollars.

Reports from Vaca valley are that prospects for a good fruit crop are fine. The crop may not be extra large, but the quality is expected to be unusually good. Cherries, prunes, plums and pears promise a big yield, while apricots and peaches only a fair crop.

The receipts of nursery stock into Merced county have been very heavy this season. At Atwater station over 66,000 trees have been received, and at Merced, Livingston and Le Grand many thousands more have been shipped. Merced is rapidly changing from a grain to a fruit county.

In the Vegetable Fields.

Asparagus is being shipped from the Coachella and Imperial valleys. The crop in the latter place is estimated to be worth $75,000, based on present prices.

The asparagus crop in the island districts of Sacramento county is reported to be about a month earlier than usual, and one of the largest ever grown. The warm rains have helped the crop but retarded the work.

The recent cold spell in Alabama is reported to have nearly ruined the cabbage crop in Mobile county, entailing a loss of about $500,000. The acreage that was set out was fully 25% larger than usual, and the freeze ruined three-fourths of the crop.

The Gridley Vegetable and Fruit Growers' Association is buying seed for its members. Preparations are being made to grow a large acreage of early tomatoes this season, for which it is stated that they have already received offers of $40 per ton.

Coachella valley growers are now marketing their cabbages. The crop is reported to be good, and the first sales have netted the growers $35 per ton. There are about 330 acres planted in the valley. The bulk of the crop will be shipped during March.

The recent heavy rains in the southern part of the State have caused heavy losses to the celery growers of Orange county. It is claimed that fully 200 cars of celery have been ruined, which means heavy monetary loss, as the Eastern market is paying good prices for the vegetable this season.

Increase in Vineyards.

J. C. Thomas of Sacramento announces that he has received instructions from Philadelphia clients to buy 2000 acres of land in the district south of Sacramento, which is to be planted to Tokay grapes.

The Ethel vineyard, owned by D. J. Guggenheim, near College City, Colusa county, has been sold to Baker & Son, raisin growers, of Fresno, for $30,000. The place consists of 220 acres set out to Muscats, and is one of the best in that locality.

The Riverside Vineyard Co. of Kerman, Fresno county, which already has 300 acres planted to vines and fruit, is planting 200 acres more. The Empire Vineyard Co., of the same place, will increase its 1200 acre vineyard to 1500 acres. Other growers in that section are also planting quite extensively.

Among the Dairy People.

Fred H. Haight & Co., of San Francisco, have purchased the creamery at Santa Rita.

The Central Creamery Co. of Ferndale, Humboldt county, is building a condensing factory, at a cost of $13,000.

The specifications for furnishing the U. S. Navy on the West Coast with butter will soon be out, that the creameries may make their bids.

R. D. Hunter and Ney Wolfskill are each getting together a herd of Jerseys at Corcoran and will enter the dairy business on an extensive scale.

The machinery for the new creamery at Klamath Falls has arrived and is now being erected. C. F. Goodrich and J. A. Holcombe are to be the operators, and they expect to commence making butter early in March.

The Imperial Valley Dairymen's Association was organized last week, when a meeting attended by about 40 dairymen was held. The next meeting will be held at El Centro on the 23rd. D. G. Whiting acted as chairman of the first meeting, and is lending his services to get a strong organization built up. It is stated that there are now in the valley fully 200 dairies in operation.

The board of health of Marysville, acting under the pure milk ordinance recently adopted by the city council, has given the dairymen and all others held by the law, until March 1 in which to have their herds submitted to the tuberculin test by a competent veterinary. No licenses will be issued by the health board until the milkman presents a clean bill from the expert.

Agricultural Notes.

The grain farmers of Sutter county predict another short grain crop there this year, owing to rain and overflowed lands.

The Farmers Storage Co. has recently secured control of all the storehouses of the Colusa Warehouse Co., which gives them the largest storage capacity north of Sacramento. This company is owned and operated by several prominent farmers of Colusa county.

Lima bean growers of the southern part of California are looking for the market to strengthen and prices go higher. While the crop on hand the first of this year is stated to be 465,000 sacks, this large amount was only 10,000 tons in excess of the amount held at the same time in 1908. The crop held a year ago was practically all sold at prices ranging from 4½ to 4¾ cents, and as present quotations are a cent lower, it is believed that all the beans will speedily find buyers or the prices advance.

Marketing Raisins.

Geo. Ritchey, who runs a cyclery at Sacramento, has found a way to market raisins. He recently placed five tons of unstemmed raisins in his show windows, advertised them at 5 cents per pound, and sold them all in a few days. He has sent for 30 tons more, and expects to clean them out at the rate of more than a ton a day.

At a meeting of delegates from Fresno, Kings and Tulare counties, held last Friday, of the Farmers' Union, it was decided to help market the holdover crop of raisins. It is proposed to send 10,000 tons to the storehouses of the Union scattered

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through the East, and to have their men sell to the trade direct, at standard prices. The power-of-attorney proposition made by R. K. Madsen was turned down by the meeting.

Stock Notes.

On one of the Miller & Lux ranches in Kern county are now being kept 20,000 head of hogs.

A dispatch from Red Bluff, dated the 13th, stated that fat steers were selling there at 9 cents per pound.

Four horses belonging to the Pacific Sugar Corporation at Hanford were killed last week, under orders of the U. S. Bureau of Animal Industry, they being afflicted with glanders.

The Arlington Egg Ranch, in Riverside county, holds the record for profitable poultry. About 600 White Leghorns are kept, and it is claimed that they average a profit of $5 per hen per year.

Heavy Eucalyptus Planting.

During the past year these columns have recorded the organization of many eucalyptus companies and the planting of hundreds of acres to these trees. During the past week we have learned of several more companies about to enter the business of eucalyptus growing.

Around Banning, in Riverside county, the planting will also be heavy.

Around Kerman, in Fresno county, over 200 acres will be set out this spring by two parties.

At Turlock a new company, capitalized at $250,000, will commence planting this spring and continue yearly till 1000 acres are set out.

The Forest Syndicate, a New York concern, which two weeks ago purchased the Domonoske ranch of 1260 acres near Willows, to plant to eucalyptus, announces that it has secured 1200 acres more land in the same vicinity for the same purpose.

Cotton and Sugar Beets in Imperial Valley.

Land has been secured around El Centro for the experimental growing of sugar beets this year, and it is stated that capitalists have agreed to erect a million dollar sugar factory there as soon as the beet growing has been demonstrated a success. Many half-acre plots will be grown this year by farmers in various parts of the valley.

Cotton growing will be one of the industries in the Imperial country this year, when many of the ranchers will raise the Texas variety. During the past two weeks W. A. Peterson, who has charge of the Government Experiment Station at Yuma, has completed plans for the introduction and growing of several experimental plots of Egyptian cotton around El Centro. Experiments in growing this variety at Yuma have indicated a large yield—nearly a bale to the acre—and if it will do as well in the Imperial valley the future of the cotton industry there is assured.

Horticultural Commissioner Law.

A new bill is before the State legislature, and has already passed the senate, to amend the present law relating to county horticultural commissioners. The proposed law provides for the appointment of one commissioner instead of three, the term to be four years, the salary to be $5 instead of $4 per day. Before being appointed the applicant must pass a civil service examination which will be held by the State Board of Examiners, consisting of the State Horticultural Commissioner, the Director of the State Experimental Station at Berkeley, and an appointee of the Governor. The county commissioner will district his county and appoint local inspectors, their salaries to be $3.50 per day. The new bill has many points in its favor, and should it become a law will raise the standard of efficiency.

Vast Losses for the Farmers.

President Roosevelt recently stated that the losses to farm products due to injurious mammals is estimated at $130,000,000 annually, and the loss through insects is reckoned at $659,000,000 annually. This statement is verified by the Secretary of Agriculture and scientists of that department. It is asserted that the prairie dogs in Texas alone eat as much grass every year as would feed a million and a half of cattle. There are estimated to be 400,000,000 in that State, an average of 25 to the acre, and 260 dogs will eat as much grass as a steer. West of the Mississippi river, in the States where grain is extensively cultivated, ground squirrels are exceedingly destructive and cause the loss of many millions of dollars annually. In California alone every year they eat up about $2,000,000 worth of wheat.

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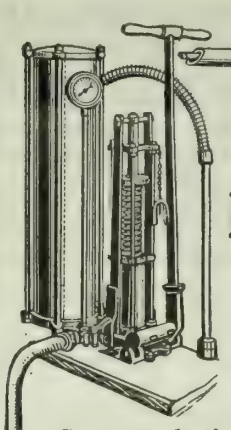
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FARMERS' EDUCATIONAL AND CO-OPERATIVE UNION.

To the Editor: In that I had published in the PACIFIC RURAL PRESS a short time ago an article telling of the Farmers' Union, and the first State meeting to be held by that organization, it may not be out of place to submit another article, telling something of the State meeting that has just been held.

According to arrangements, the meeting was called to order in the Barton Opera House, in Fresno, by Mr. John S. Dore of that city, on Wednesday, February 3. The purpose, as stated previously, was to acquaint the people generally with the principles and purposes of the order, and also to secure a large membership from among those who were in attendance.

Considering that the weather was so very threatening, it was the most remarkable gathering of farmers ever held in the central part of the State. Fully 3000 persons occupied seats in the opera house, and not one departed until the meeting was over. In the forenoon the meeting was open to all, members and prospective members, but in the afternoon a secret session was held, to which only qualified members of the Union were admitted.

When the afternoon, or secret session, was called to order, it was found that there were nearly 2000 members present. It was hard to believe, at first, that so many members of the Union were in the house, but in view of the fact that new members were joining at the rate of 25 to 100 a night in the several localities in the three counties, it was not surprising, after all.

From all sections of the State came men interested in the movement, to investigate the order. After hearing a masterly address by the State Organizer, W. W. Welch, and after the latter had been bombarded with questions from all sides, it seemed that nearly every one who had come to see, joined. Then the cry for organizers went up, and as a result, the Union is sure to spread over the entire State in a very short time. The numerous places at which organizers are desired will be supplied as soon as the men in the fields can arrange the plans..

Perhaps the most interesting feature of the meeting was the consideration of the proposition to amalgamate all the Union warehouses in the United States. This is known as the Tennessee warehouse plan. The Union owns and controls upward of 5000 warehouses, and it is planned to consolidate these under the direction of a national board of control of three members. Thus, for instance, if the call comes in the East or South for California fruit or raisins, the board of control knows just from which point it may order the shipment made. If from California comes the call for any produce supplied by the people of the East or Middle West, the same board of control knows from which point the shipment can best be made.

High grade produce only is to pass through the Union warehouses. Every article or package must stand the most rigid inspection—enough so that banks will not hesitate to guarantee the same to the buyer at a distance. Goods or produce that merits a bank's guarantee as for quality and grade will find ready sale, for the Union, through its national executive board, has planned the proposition to a point where three-fourths of the value of the produce, be it wheat, cotton, raisins or what not, shall be paid upon the delivery at the warehouse, the remainder to be paid upon the sale of the goods. This the Union is able to do by charging a fee in the way of interest at 6%, to be figured from the time the payment is made until the goods are sold. No member of the Union, as such, on the Board of Control or off it, gets his hands on any grower's money. All the funds are handled through the banks. All officers and members of the various boards of the Union are under bonds, ranging from $5000 to $10,000 each, and in many cases they never handle a dollar of coin.

It may be said that the great central idea of the Union is to eliminate the middel man—the speculator. From the producer to the consumer, is the slogan.

And now a word as to those who may become members of the Union. Section 1 of the Constitution says that any person is eligible to membership who is of sound mind, and over the age of sixteen years, a white person or Indian of industrious habits, who believes in a Supreme Being, is of good moral character, and is a farmer, a farm laborer, rural mechanic, rural school teacher, physician or minister of the gospel; who is not engaged in banking, merchandising, practicing law, or belongs to any trust or combine for the purpose of speculating in agricultural products or the necessities of life, or directly affecting injuriously agricultural interests; provided the owning of bank stock by an actual farmer shall not be construed as making him a banker as long as his principal support comes from the farm. Editors are admitted when they take a special obligation to support the Union, etc. Women are admitted under the same condition as the men, except that they pay no fees or dues.

For the benefit of those who may want to learn more of the order, for it is a secret order, with its pass words, signs, grips, etc., the writer offers to supply such information as may be required. A self-addressed envelope will bring the reply you may desire. And the numerous inquiries that are coming in indicate that the people of California are awake to the necessity for an organization along the lines of the Farmers' Union, and when they become acquainted with it, it is not long until they have become working members.

While the order is a secret one, the "secret" is simply a matter of keeping the affairs of the Union from being published broadcast, and to make it possible to keep out those not desired among the membership. For instance, to keep out those who are not eligible, this "secret" feature makes it easy sailing. Persons opposed to secret societies will find in this one that is not secret in the sense of being dangerous or objectionable.

P. F. ADELSBACH.

Kingsburg, Cal., Feb. 4, 1909.

THE COUNTRY LIFE AND VOCATIONS.

"Where the bee sucks, there suck I:
In a cowslip's bell I lie;
There I couch when owls do cry.

"On the bat's back I do fly
After summer merrily.
Merrily, merrily shall I live now
Under the blossom that hangs on the bough."

—Shakespeare, "The Tempest."

The chief aim of every agricultural State should be centered upon keeping the young rural-bred people in the country, in the fields, the pastures, the gardens and the orchards thereof, and in checking the disposition of so many of them to drift into the towns and city. The city and towns will always obtain all the increase in population they want, and which is best adapted to city and urban business and life, without drawing away the much needed rural population. The larger and the more prosperous the rural population is, the better by far it is, in every respect, for the business

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WOOD

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The Rhubarb and Berry Specialist. Dept. I.

and well-being of the citizens of the city and towns. "Speed and plow" should be the motto of State, city and town. It is the prevailing crass ignorance of the true features of simple natural objects, such as soil, seed, germination, growth, etc., among the farming community, both old and young, which the State seems called upon in the present day to remove.

The sons and daughters of the farmer would be more likely to stick to rural pursuits if the conditions and inducements thereof were what they should be and can be in this twentieth century. It should be the aim and duty of the State authorities and the Legislature to inspire and establish this needed residential spirit in the rising generation of the farming community by the encouragement of small farms, the establishment of good roads, State object-lesson farms in several parts of the State, and by giving a larger scope to the teaching in the rural public school of all things that tend to make rural life interesting, profitable and pleasant in every way to the children.

Rural education on these broad lines in conjunction with the elementary education in reading, writing and arithmetic would be of the greatest benefit and source of wholesome interest and amusement to both boys and girls.

Each public school should have its flower and vegetable garden in addition to its playground, and prizes should be given annually for the best kept garden lot apportioned to each school class or grade. The children would thus learn from days of infancy the A B C of vegetable life from its seed to maturity, and this simple and easily acquired knowledge will aid them when they grow up to be the tillers of field, garden and orchard.

The normal schools of each agricultural State should be the training soil of all public school teachers in this line of rural kindergarten education.

What the children learn at the schools in these elementary and practical trainings will be sure to bring forth good results to their homes and to their parents.

Vegetation was the first dress worn by Mother Nature; from germhood to maturity it affords an ever interesting study for the rural population of every age, and it should be instilled and fostered in rural childhood. Children could easily be taught to perceive that each seed of a plant is comparable to the negative in the photographer's closed kodak. It contains in microscopic form its life and the verisimilitude of its individual outcome when proper development, food and conditions for expansion are supplied. The mind and interest of children are now centered more exclusively in artificial mechanical toys, etc.; why not divert these more to the more beautiful living objects in Nature's kindergarten, by which they are daily and hourly surrounded?

It is natural for man born and bred in country life to love and follow it; if it be made, as it should be, both mentally and physically useful, profitable and pleasant to him.

The child of the Indian is far ahead of the child of the civilized white man in its observation and knowledge of natural objects and signs, but knows nothing of the principles of the greatest industry on earth, which seeks to make the utmost use of the soil for supplying the food and raw materials for the sustenance and manufacturing industries of the nation.

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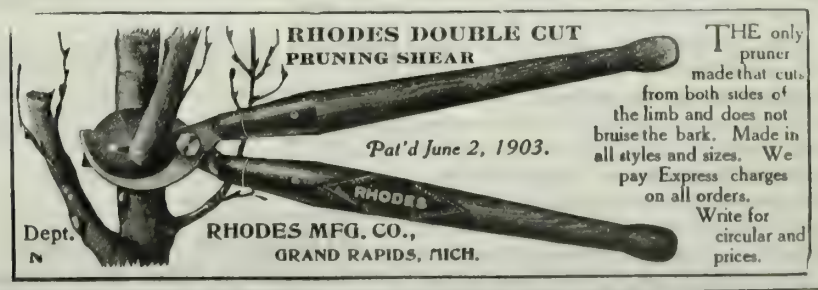
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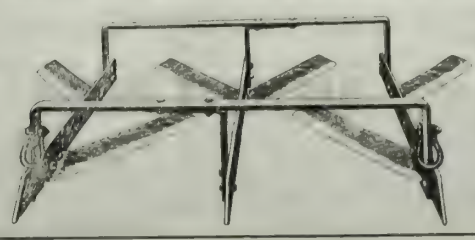
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Apiculture.

CALIFORNIA STATE BEEKEEPERS' ASSOCIATION.

Nineteenth Annual Meeting.

Written for the PACIFIC RURAL PRESS
By Mr. RALPH BENTON.

The State Beekeepers' Association held its nineteenth annual meeting at the Chamber of Commerce, Los Angeles, on Friday and Saturday, January 29 and 30.

The association convened at 10 o'clock on Friday morning, with Delos Wood, vice-president from Santa Barbara, in the chair, and about forty members present. After the reading of the minutes the resolution of the Northern California Beekeepers' Association relative to proposed legislation in regard to bee diseases was read, and the proposed amendment to the present law relative to foul-brood and other diseases of bees was presented. This matter was laid aside for future consideration and the program for the morning taken up.

Mr. J. F. MacIntyre, one of California's most experienced queen breeders, and an extensive beekeeper in Ventura county, presented the subject of "Good Queens and How to Raise Them." At noon the association adjourned to meet at 1:30 p. m.

The afternoon session, after the question-box discussion, lead by Mr. Wood, was given over to a discussion of "Diseases: Their Control and Cure." The ellology, symptoms and treatment of the several diseases common to bees were presented, including both the brood diseases and the diseases of the adult bee, collectively called "paralysis." This discussion was led by Mr. Benton, and was followed by a review of the bee disease situation throughout California. Just before adjournment for the day a committee of five, consisting of Messrs. Shafner, Burdick, Mendleson, Fischer and Oden, was appointed to confer with Mr. Benton in the matter of the proposed amendment to the law relative to bee diseases.

The committee met at 9:30 Saturday morning, and for two hours and a half considered the amendment in detail, section by section, word by word.

While the committee was out the association proceeded with the regular program, discussing the following subjects: "Production and Marketing of Money"; "Melting Cappings Directly from the Uncapping Knife"; and "Are We Keeping All the Bees Profitable?" At 12 o'clock the association adjourned for dinner.

At 1:30 p. m. the final session of the association convened, and the report of the committee on legislation was called for. The committee reported favorably upon the amendment, suggesting three minor changes. The association then proceeded to consider the document section by section as amended by the committee, adopting each in turn. Section 12, relative to importation of queen bees, and recommended by the majority report of the committee for passage, was then called for by the committee in minority, and the association proceeded to consider the features embodied in this section.

Section 12 provides for a system of inspection of incoming queens. There are certain of the brood diseases and of the adult diseases of bees which it is suspected that the queen regularly transmits; this condition may also become true of all the diseases of bees, in case the queens imported come in nuclei or swarm boxes, thus accompanied by combs and honey, the harboring centers for germs of disease. The section makes all importations of queens unaccompanied by a bill of health from a duly authorized inspector of apiaries certifying that such queens are from apiaries that have been free from disease for a continuous period of one year immediately prior to such importation, liable to confiscation and destruction. In case queens arrive without such a certificate, the consignee is required to immediately notify the inspector of apiaries of their arrival, holding the queens subject to his orders. At the discretion of the inspector, in view of the difficulty of being able to tell definitely by a casual examination whether the queens or their attendants are diseased or not, the queens with their attendants may be introduced into the apiaries of the consignee, and if after being kept under observation for a period of not less than 60 days, no disease results, the queens are pronounced free from disease and then lawfully imported.

It was felt by a small majority of the beekeepers present that this law if passed might militate against the importation of queens by placing a burden upon the beekeeper. The real burden of the work, as pointed out, would rest with the inspector, increasing the duties of that officer. But the bee disease conditions in California are at a very critical stage, and if the immense losses, amounting annually to some $250,000 to $300,000, are to be decreased, more stringent protective measures must be taken.

The amendment was then passed as a whole, with the exception of section 12, and a committee of three appointed to push the matter in the legislature.

One of the features which the amendment provides for is a system of supervision of inspection by a State inspector, accompanied by an investigation of the maladies affecting bees, together with other enemies. It is a measure vitally connected with the welfare of the honey industry of California, valued at some $2,000,000, giving an annual return of nearly $1,000,000, and as such should receive the hearty support of every beekeeper, and of every farmer or horticulturist interested in fostering so valuable



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a business as bee culture is to the fruit and seed interests of our State.

The association then received the report of the committee on honey adulteration from Dr. Maynard of Los Angeles, and in view of the pure food law now in operation the committee was discharged.

The matter of making the State association more representative of the State, and of establishing a system of affiliation in a more effective way among the district and county associations, received attention, and a committee, consisting of Messrs. Benton, Shafner and Mendleson, was appointed to look into the matter of more effective organization among bee keepers.

The association then proceeded to the election of officers, and the following list were those selected: President, B. G. Burdick of Redlands; secretary, A. B. Shafner of Los Angeles; executive committee, G. L. Emerson of Santa Ana, M. H. Mendleson of Ventura, and L. L. Andrews of Corona; the vice-presidents by counties: Santa Barbara, Delos Wood; Ventura, L. E. Mercer; Los Angeles, E. A. Fischer; Orange, J. C. Pleasants; San Diego, G. F. Merriam; Riverside, Pearl Glass; San Bernardino, J. K. Williamson; Imperial, J. W. George; Inyo, Wm. Muth-Rasmussen; Kern, A. J. Bowen; Tulare, H. I. Brown; Kings, F. E. Brown; Fresno, J. C. McCubbin; San Joaquin, Sebastian Iselin; Sacramento, B. B. Hogaboom; Alameda, W. A. Pryal; Monterey, Vernon Townsend, and San Luis Obispo, John Peterson.

The place of meeting was settled upon as Los Angeles, and the time is regularly set by the executive committee, and usually the latter part of December or early in January is the time chosen. The association then adjourned.

AGRICULTURE IN ALASKA.

(*Continued From Page 141.*)

culture. Yet this country in northern Europe supports a population of 3,000,000, or 60 persons per square mile utilized for cultivation. Why should Alaska be less productive. Temperature is a controlling factor. From this standpoint, it is interesting to note that at Helsingfors, the southermost point in Finland, the average annual temperature is 37.7° F.; at Sitka, it is 43.3°. In northern Finland the average annual temperature is 27.05° F.; at Rampart, it is 31.65°. Thus there are more than four degrees in favor of Alaska. Finland exports butter, beef, bacon, and even grain, chiefly oats. There is hope for Alaskan agriculture. If it has made but little progress as yet, the failure is due largely to the greater attractiveness of the Canadian Northwest. So far the farming in Alaska has been done by disappointed prospectors and diggers, who seize the opportunity of making a little money by growing garden truck for the mining camps.

As indicating possibilities I cite the experience of J. C. Riley, of Tolovana, who planted half a crate of potatoes in 1906 and obtained 11 crates therefrom; in 1907 he planted an equal amount and the ground yielded him 16 crates of marketable potatoes, worth 12 to 15 cents per pound, or $250 to $300 per ton. That is the price for which they sold at Fairbanks. Last season a woman living at Gilmore, on Gold Stream, cleared one acre and sold $3,000 worth of potatoes from it. Apparently there is no excuse for failure to cultivate locally at a profit, but the fact is the population is migratory and extravagant, and also intimidated by the big trading companies, which may at short notice spoil the local market for any commodity. Moreover, the indigenous crop is uncertain, making it necessary for the provident to order their staple food-supplies from the 'outside' two or three months before the opening of the season.

Hay is worth $125 per ton. Native red top sells for $80 to $100 per ton. Other necessaries, such as cabbage, turnips, dairy products, eggs, can be produced locally at a large profit, if grown at all, for the freight from Seattle and San Francisco represents a margin big enough to make the indigenous article highly profitable.

Wheatland, Yuba county, is beginning to change from grain farming to fruit growing. Part of the 700-acre Creps ranch is to be set out to trees and vines, and the McCurry ranch is also to have quite an acreage set to table and wine grapes this spring.

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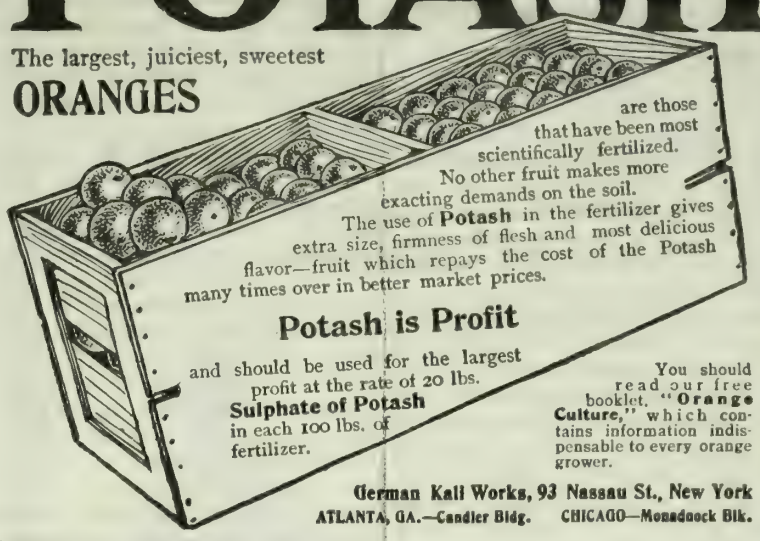
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Live Stock and Dairy.

BENEFITS DERIVED FROM LIVE STOCK ORGANIZATION AND CO-OPERATION.

Written for the Pacific Rural Press
By Leslie W. Symmes.

This was the subject of the address delivered to the American National Live Stock Association Convention by I. T. Pryor, president of the Cattle Raisers' Association of Texas, and one of the best known live stock men in the country. It is a subject that Californians can benefit by reading, as probably in no other State where the live stock industry is of so much importance as it is here do they show such indifference to these organizations. We hope it will be of benefit to some of our live stock organizations in showing them what results can be accomplished for their industry. Mr. Pryor said:

It is apparent to all thinking and successful men that the day of organization and co-operation is at hand. Those representing almost every branch of business in this country have formed some kind of an organization looking to the protection and upbuilding of that particular industry, and the individual who refuses to join with his fellow man in this particular is either ignorant of the benefits to be derived therefrom or he is willing to let others do for him that which he should do for himself.

In order that you may comprehend the benefits of organization as applied to the live stock industry, I will give you briefly the history of the Cattle Raisers' Association of Texas, of which I have the honor to be president.

Those veteran cowmen who organized the first cattle raisers' association in Texas in 1877 had not the slightest idea they were laying the foundation of what is now one of the greatest and most influential organizations of its kind in this country.

This small beginning, the seed of which was planted in 1877, has grown and spread until its membership is about 2500 individuals, and carries on its assessment rolls over 2,000,000 cattle, controlling as many as 5,000,000 head.

The membership includes all the prominent cattlemen of Texas, a great many live stock producers from New Mexico, Oklahoma, Indian Territory, and Kansas, and a number from Colorado.

The object of this association at its birth was solely a protective and detective association. Nearly all of its members were raising cattle on the open range, which created an inviting field for cattle raisers and brand defacers. Through this organization and their methods of protection they were enabled to render the sheriffs of the counties embraced within the territory of this association great services, and the effective work done by this organization in bringing to justice those unlawfully handling cattle and defacing brands, resulted in great benefits to the cattle raisers in general. So much for organization.

One of the first rules of this association was to put as many inspectors in the field as their finances would admit. These inspectors in many cases were officers of the law; where they were not, they did great service in assisting the officers in discovering depredations on cattle belonging to the members.

In the evolution of time, open ranges disappeared, and the invention of barbed wire, and the practical use of it by the cattlemen, resulted in the open ranges merging into large pastures. This method, of course, made depredations by thieves more difficult. Nevertheless, this did not in any way prevent or diminish the ardor with which these veteran cowmen who organized this association, and who are entitled to great credit, pushed this organization and increased its membership and usefulness each year.

It soon became necessary to place inspectors at all market centers, in order to protect the membership from losing cattle that might have been shipped to market, some by intention, others by mistake.

The inspection force of the Cattle Raisers' Association of Texas has caught 53,006 head of cattle since 1883—in 25 years—a total valuation of $1,081,782.

Of this number 25,000 head were found in market centers, proceeds of which were turned over to owners, leaving 28,006 which were likewise returned to the owners.

More briefly speaking, the members of the Cattle Raisers' Association of Texas have received over $500,000 in cash and 28,006 head of cattle, delivered to their respective owners, since 1883. This is a record for you! And without organization this would have been impossible.

As the necessity for ranch protection diminished, it became apparent to the members of this great organization that other and equally important matters should claim their attention, hence in recent years they have become a large factor in shaping such legislation, both State and National, as is of vital importance to the live stock interests of the entire country.

I use these facts to illustrate what can and should be done in each State in the transmississippi section. What the Texas cattlemen have done can be accomplished by the stockmen of other States similarly situated.

The American National Live Stock Association should, and must, secure its support from the State and district associations.

The Farm Water Supply.

One of the most important factors on any farm is its water supply. If we expect to have healthy families, raise good horses or cattle, we must have pure water. To the dairyman it is all-important, and yet today I have seen stock watering at dirty or muddy holes and water troughs that had apparently never known a cleaning. An occasional cleaning may easily prevent trouble.

The protection of the water supply from contamination is important, whether that supply goes to the house or the barns. I know what chances are often taken by ranchers in this regard. While working on a certain ranch we one day discovered a rather disagreeable taste to the water which we were accustomed to drink. This taste kept getting stronger each day, while the amount of water which we usually drank was rapidly lessened. We determined to investigate the matter, and so followed up a small stream until we determined the cause by our sense of smell. It is not necessary to explain this any further; the trouble was removed, and we were all thankful that we were still able to respond to the dinner call. I simply mention this incident in my own experience as an object lesson that is worth considering. Our water supply, be it stream or well, should be carefully protected from unsanitary surroundings. Shallow wells are particularly liable to receive seepage, and should be protected so that surface water will not flow into them.—L. W. S.

Questions and Answers.

OILY BUTTER.

To the Editor: We have a good cow that gives rich milk, but is hard to churn. The butter gets just like oil. We have to let it stand over night in a tub of cold water before we can get it out of the milk at all. It never gets hard enough to mold, and when brought in on the table melts like oil. We feed her alfalfa hay and bran. She runs on a good pasture and has a calf a month old. If you could tell me where the trouble is, I would be very much pleased.—Reader of the Press, Fresno County.

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This fine Belgian Stallion was bred by Mr Martin Tirtiaux of Graux St. Gerard, France foaled February 12, 1902, and was imported by Dunham & Fletcher of Wayne, Illinois, July 10, 1905. He is a magnificent animal, deep bay in color, with star in forehead. His weight is 2200 pounds.

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fat, which is supposed to be due to the hardening of the fat globules. The agitation causes a change of the fat globules from a liquid to a solid condition. This is entirely a physical change, and will take place only at the right temperature. The temperature of churning depends upon the ripeness of the cream and the size and character of the fat globules. Making butter from the milk of a single cow is rather precarious, and the trouble you experienced is not uncommon. The temperature at which cream should be churned depends in some degree on the breed of cow, and principally on the thickness or richness of the cream. It is impossible to lay down an exact rule as to the right temperature: ordinarily from 58 to 68°. I suggest that you get a dairy thermometer and make sure of your temperatures. A little more information as to temperature, breed of cow, style of churn, and method pursued would be of assistance. You may find, however, that a change will take place as the cow advances in lactation.—L. W. S.

BREEDS OF SWINE.

To the Editor: I would like some information about two breeds of swine—Hampshire and Mule Foot. I know almost nothing about either, and any information you may give me will be appreciated.—Farmer, Shasta County.

The Hampshire hogs referred to are more often known as the Thin Rind hogs. The standard adopted by the Thin Rind Record Association prescribes a black color, with the exception of white belt encircling the body, including the fore legs, of solid black. White running high upon the hind legs is objectionable, but is allowed. Hence they are often spoken of as the "belted" hogs.

Mule Foot hogs originated in the South, and were bred because of this characteristic, or rather, peculiarity of the foot. Neither the so-called Hampshire nor the Mule Foot hogs are very popular, and the breeds are rather limited, and confined to local Southern areas.—L. W. S.

BOVINE TUBERCULOSIS.

One of the most interesting subjects touched on during the convention of the A. N. L. S. A. was handled by Dr. O. E. Dyson, of Chicago, Ill., on "Bovine Tuberculosis." Dr. Dyson is an expert, and we consider his remarks on this very important subject worthy of the careful consideration of every live stock man. He said:

Regardless of the fact that I am not a producer of live stock, I fully realize and appreciate that in the past few years there has been a great evolution in the cattle business, the organization of the American National Live Stock Association merely marking one stage of advancement; and no one, I think, can say the association has not so far fulfilled its every purpose.

While your association has been actively interested, and through able representatives has concerned itself in promoting and looking after the live stock interests in general, there is one feature in connection with your business to which, so far as I know, but little attention has been given. I refer to bovine tuberculosis, a disease that, owing to its insidious nature and lack of any uniform effort to control its spread, is gradually extending from herd to herd.

Until a few years ago it was generally supposed that only dairy cows or cattle confined in stables for extended periods became infected with tuberculosis. Such, however, is not the case, as the disease is now frequently found in cattle of improved breeds direct from the range, thus clearly demonstrating that by the use of pure-bred bulls (unless they are free from tuberculosis) and a gradually decreasing range, you will have to actively contend with the greatest scourge of civilization, a disease that also causes an annual economic loss of millions of dollars on account of food animal carcasses condemned as a result of the United States meat inspection service.

That tuberculosis does not constitute a serious menace to the production of live stock in the West today is simply on account of the wide range of territory to which your cattle have access; nevertheless, the disease is gaining a foothold, and will assert itself with no uncertain results whenever you are compelled to confine your cattle within a limited area, a time not far remote, according to the general consensus of opinion.

Although tuberculosis is a contagious disease, there is positively no reason why it should prevail in any herd, as a reliable means of diagnosing its presence in the live animal is practically assured by the administration of the tuberculin test.

Great efforts have long been made by many cattle breeders and dairymen, who knew their herds were diseased, to discredit the use of tuberculin, in order that they might be able to dispose of diseased animals, or their products, to unsuspecting purchasers, at a price which only the healthy animals, or tneir products, should command.

In addition to economic losses resulting from the condemnation of beef and hog carcasses by the United States meat inspection department, packers also indirectly suffer heavy losses through being unable to find a foreign market for their surplus stock of cheap cuts and trimmings; this, in a large measure, must necessarily influence the price paid for the live animal.

Notwithstanding the fact that the United States has the most efficient system of meat inspection in the world, the local government board of England on the first of the month placed in operation regulations to govern the importation of fresh meats which practically exclude from the English market fresh cuts and trimmings from both beef and hog carcasses; consequently, hereafter the trade with England, our largest consumer of exported fresh meats, will practically be confined to entire carcasses.

The reason given by the English authorities for excluding such products was that tuberculosis is prevalent in animals in the United States. Thus you see that upon some pretext or other our export trade in meat food products to many countries is being gradually restricted, and unless the live stock producers of this country, especially live stock associations, take the initiative and endeavor to force some plan of reciprocity through Congress during the present session, it will only be a question of a short time until the door for all export meat products to all countries will be entirely closed, regardless of the fact that this country now has a surplus of meat food products for which a market must be found in countries unable to furnish their own supplies at a reasonable cost to the consumer.

Not many years ago it was a serious question in the minds of most cattlemen as to whether a quarantine line would avail to stop the then common and repeated outbreaks of Texas fever, to which thousands of native cattle annually succumbed. Thanks to the Department of Agriculture, however, such losses are now practically a thing of the past and need no further consideration, for the reason that your interests are amply protected and will continue to be, without further agita-

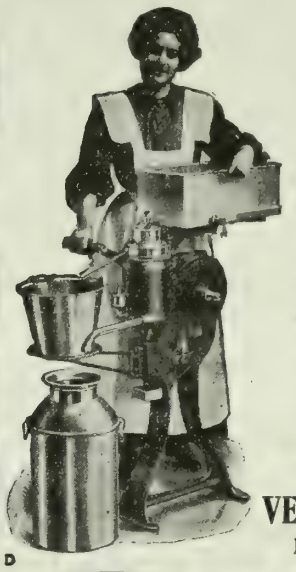
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BERKSHIRE AND POLAND-CHINA HOGS C. A. STOWE, Stockton, Cal.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

tion, until the Texas cattle tick, euphoniously known as the "boophilus-bovis," becomes extinct.

Tuberculosis in cattle is perhaps as ancient as the various breeds, and its prevalence now can be accounted for as being due to a lack of knowledge concerning its cause for so many years, and to the fact that it was highly contagious and that no reliable means of detecting its presence in a herd of apparently healthy cattle was available until the discovery of tuberculin, of the efficacy of which there is no question. Now, however, in the light of our present knowledge concerning the disease and a reliable means of detecting its presence in any herd, no excuse can possibly be offered by the owner of a dairy or pure-bred cattle herd for the continued existence of tuberculosis in his herd.

One of the greatest factors in connection with the spread of tuberculosis in animals is the lack of State and Federal laws prohibiting the sale of milk and butter products from diseased cows. While every State and the Federal Government have passed pure food laws, which have been vigorously enforced, those responsible for the enforcement of these laws have never considered milk and butter in their natural state as food products; consequently consumers are offered no choice between the products of diseased or healthy cows.

The inconsistency of such laws is made apparent by the fact that under the meat inspection act not one pound of meat can be shipped in interstate trade until after it has been inspected and passed.

On the other hand, there is no restriction placed upon milk and butter products derived from diseased cows, which in most instances (and especially in tubercular infections) are a thousand times more dangerous to consumers than the flesh of the diseased cow, for the reason that the average milch cow annually produces many times her carcass weight in milk and butter products that are usually consumed raw, in contrast to the cooking and consequent thorough sterilization to which meats are ordinarily subjected before being consumed.

Having previously stated that tuberculosis in cattle was almost invariably spread by pure-bred animals or milch cows, and that the disease in hogs was incidental to the disease in cattle, there remains but one solution to the problem of preventing a further spread of the disease, and that is removing the cause.

This can easily be done by subjecting all cattle utilized for breeding or dairy purposes to the tuberculin test, and then separating the diseased from the healthy animals. Of course, it is not expected that a majority of the breeders of pure-bred cattle would accept such a proposition until forced to do so; and this can only be brought about by the enactment of State and Federal laws to prohibit the sale or shipment of cattle for breeding or dairy purposes unless authoritatively certified to as being free from tuberculosis.

In the absence of such laws, much could be accomplished by individual effort on the part of every purchaser of pure-bred stock, by demanding a certificate of health. It should be specified, however, that every certificate must be endorsed by State or Federal authorities.

The classification of pure-bred cattle as to whether or not they are diseased should be as distinctive as the various breeds, and no man with a healthy herd should be compelled to meet in competition either the diseased animal or any of its products. That he is now compelled to do so is largely due to the fact that he does not take advantage of the opportunity afforded by the United States department of agriculture, which enables him to make an application for the administration of the tuberculin test, and then receive a United States government certificate for all non-reacting pure-bred cattle. By adopting this method of procedure and advertising the fact that he is able to furnish a government certificate for every animal sold, would soon put every breeder in the class where he belongs; in fact, it would operate in every way similar to the present method of registration as applied to pure-bred herds."

MAKING $118.93 PROFIT PER COW IN ONE YEAR.

The story of S. W. Coleman of Sedalia, Mo., is an inspiring one for every farmer and dairyman. It shows what one man can do with little capital on a few acres by right methods. Mr. Coleman made a clear profit of $832.50 from seven cows in one year on only ten acres. Think of it, only ten acres and seven cows! That is a profit of $118.93 per cow a year or $83.25 per acre.



A former secretary of the Missouri State Dairyman's Association, commenting on the success of Mr. Coleman emphasized the following important points in his career:

Mr. Coleman began small. His cows averaged only about 175 pounds of butter each year. He improved them to an average of 400 pounds.

Mr. Coleman, not being a strong man, must buy his winter feed. Were he robust and able to handle enough land to produce his winter feed he could show much better results.

Mr. Coleman himself puts his finger on a crucial point in farming when he says: "The majority of farmers have not learned the secret of raising and handling no more than they can save and take care of without a loss.

This successful dairyman is just as expert at buttermaking as he is in increasing milk flow. For years he has won first prize on butter at the Missouri State Fair and elsewhere. He uses a United States Cream Separator to get all the butterfat out of his milk and states that it greatly aided him in improving his methods of buttermaking as well as saving him hundreds of dollars in cream he otherwise would have lost. For ten years he used one United States Cream Separator without having to spend a cent for repairs.

The United States Separator will do as much for you. Begin to save now by writing to the Vermont Farm Machine Co., Bellows Falls, Vt., for their catalogue No. 148, which tells all about the United States Cream Separator. This book is handsomely illustrated, clearly and entertainingly written, and above all, it tells you how to make money.

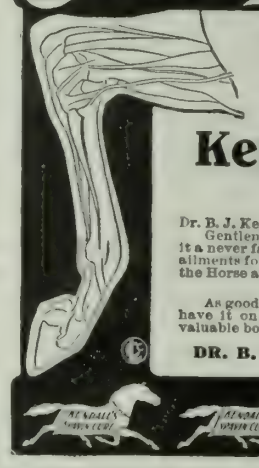
ANGORA GOATS FOR NATIONAL FORESTS.

Three thousand angora goats herded out on the brush-covered foothills of California are going to do some hard work for Uncle Sam during the coming two years beginning this spring. The experiment will be unique both as a stock raising proposition and as an engineering and tree culture problem.

The little white animals whose long wool is of such great value are going to be put to no less a task than constructing mile after mile of fire line through the bushy chaparral growth in the National Forests, saving much labor by the United States Forest Service engineers and making way for forestation by merchantable trees. Not the least important feature of the experiment, which for the first two years will be confined to the Lassen forest, is the fact that the task will be performed during the regular grazing by the goats which will not even realize they are doing a valuable work.

Plans for carrying on the work are outlined in a co-operative agreement drawn up by the Forest Service and the owner of a band of angora goats grazing on the Lassen National Forest of California. The scheme is to run fire lines parallel with the contour of the slopes by cutting trails about eighty rods apart. Those trails are to serve as guides for the angoras. They

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Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

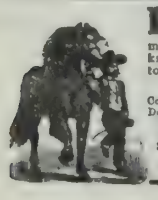
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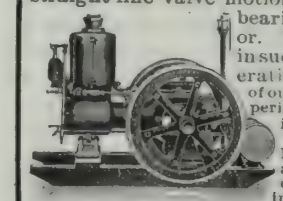
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will graze in each direction from the trails, killing, it is estimated, a strip of brush about 300 yards wide. The wide lanes cut out and grazed by the goats will serve as ideal fire lines in protecting the forest covered lands lying beyond and around the chaparral areas, and also make a place for reproduction of merchantable trees.

For the past two years the government has been carrying on permanent improvements in the National Forests on an extensive scale, and the construction of fire lanes and trails has been one of the most important features of the work. The task of clearing the ground and providing for good forest trees is, however, perhaps the most important benefit to come out of the experiment.

The proposed work of the angora goats may finally solve the chaparral problem, which has been troublesome in the State of California for many years. The bushy chaparral growth chokes out seedlings of valuable commercial trees which may get a start, and when dry is one of the worst kinds of fire risks. Often a small blaze which starts in it gains such headway in a few minutes as to travel hundreds of yards and lick into valuable stands of merchantable timber.

The protection to be afforded by the goat-built fire lanes, therefore, may at last bring relief to the State, which in the past has had its full share of timber loss through destructive forest fires.

BETTER DAIRYMEN FOR BETTER COWS.

By Prof. T. L. Haecker of Minnesota, read at the National Dairy Show.

There are in round numbers 22,000,000 dairy cows in the United States. It is probably safe to say that 18,000,000 of these are what we are pleased to term common cows, or we will refer to them as $30 cows. I think you will agree that $40 a year as the cost of keeping the $40 cow is a fair estimate. We will assume that the by-products are worth all it costs in time expended in caring for the cow. Granting this, we will find that the owner of this $40 cow enjoys a profit of $10 per cow per year.

If this common cow were to be replaced by the special dairy cow, one-half the number of cows would return the same product with an expenditure of practically one-half the feed for maintenance, one-half the stable accommodations, one-half the pasturage, and one-half the labor in caring for them, as the average special dairy cow is capable of producing 300 pounds of butter.

We cannot do the common cow justice, however, in comparing her actual performance with the special dairy cow under proper conditions. It brings up the question of whether it would really be advisable to replace the common cow, were it possible to bring this about. The $40 cow is the outgrowth of the conditions that prevail upon the average farm, and it is a question whether she is not a better cow for the average farmer.

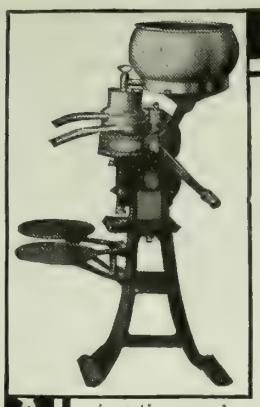
We need only to give the common cow proper care and feed to learn that instead of being the 150 pound cow she may be made a 250 pound cow. This proves conclusively that she is a far better cow than the average man is a dairyman. In every instance where she has been given an opportunity to demonstrate her ability, she has conclusively proved this fact. Improvement must begin with the owner of this common cow. Success in any business comes through complete knowledge of that business, and the average dairyman does not know even the rudiments of the breeding and feeding of cows. While he is only capable of making a common cow produce only three-fifths of the product she is capable of producing, it is a serious question whether it is advisable to attempt to decrease the cost of producing butter fat, thereby increasing his profits, by placing a special dairy cow in his care, or rather, lack of care, when we know that her very nature rebels at the misuse to which she will be subjected.

I wish to repeat that the common cow appears to be the outgrowth of conditions that prevail upon the average farm, and perhaps she is the cow that is best adapted to those conditions. If she is to be replaced by a better cow, then this better cow should be preceded by a better dairyman. In other words, the 300 pound cow should follow the 150 pound cow only when the 150 pound dairyman is transformed into a 300 pound dairyman.

The common cow, even under the discouraging conditions which prevail, has brought prosperity into every community in which she is worked. When disaster has come to the exclusive grain farmers she has stepped in and saved the home from the mortgage foreclosure. She has brought back fertility to the soil and has made the mortgage unnecessary. She has furnished the home with the necessities of life and has educated the children.

Aye, she has done more than this. She has made co-operation among farmers a reality. The co-operative idea has been worked out in the creamery business, and she has of course made the creamery possible. This all proves that the $40 cow has been a wise investment for the average farmer. Were this not true, she would not have remained there. She is the cause of dairying, and the effect has been prosperity. When I refer to the common cow, I mean the cow that is found upon the average farm, the cow that is capable of producing 250 pounds of butter but is producing only 150 pounds; in other words, the $40 cow. And this definition would not cover the so-called dual purpose cow that is inclined to lay on flesh at the least opportunity.

I do not wish to be understood, however, as advocating the common cow, except for the man who is not a better dairyman that she is a dairy cow. The dairyman who understands, or is willing to learn, the principles of breeding and feeding of dairy cattle, and who is competent, or is willing to become competent, to judge whether he is producing dairy products at the least cost possible, under the conditions with which he is contending, cannot afford to waste his time and energy and thought with this common cow. In other words, he is a better dairyman than she is a milk producer. To him I will certainly commend the special dairy cow.



EASY IN EVERY WAY

SKIMMING WITH AN

IMPROVED DE LAVAL

Skimming milk with an improved DE LAVAL cream separator is an easy, simple matter from start to finish. Getting the machine ready, filling the supply can, turning the crank, and cleaning when through are all done with the greatest ease and convenience.

Every part of the DE LAVAL machine is designed for easy operation. The bowl construction permits of its being very compact and small in size and requiring but low speed. The length and height of the crank handle are just right for easiest turning. The method of gearing is the product of perfect engineering. Thus the necessary speed is maintained with the least continuous effort on the part of the operator.

Some separators are so designed as to run deceptively easy when starting, but greatly tire or strain the operator in a half hour's use. The DE LAVAL turns easy from the beginning to the end of a run. Scientifically correct mechanical construction throughout is the reason for it.

The improved DE LAVAL machine is so simple in every feature that an inexperienced person could if necessary take it apart from top to bottom in five minutes, and put it together again within ten minutes. There is no need of expert knowledge or hard work in operating a DE LAVAL machine or handling any of its parts. Its "Easy in Every Way."

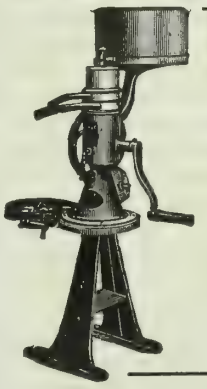
Our illustrated catalogue explains DE LAVAL simplicity and ease of operation in detail. Let us send you a copy, or, better still, try a machine for yourself in your own dairy. You have but to ask for either.

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THE EMPIRE

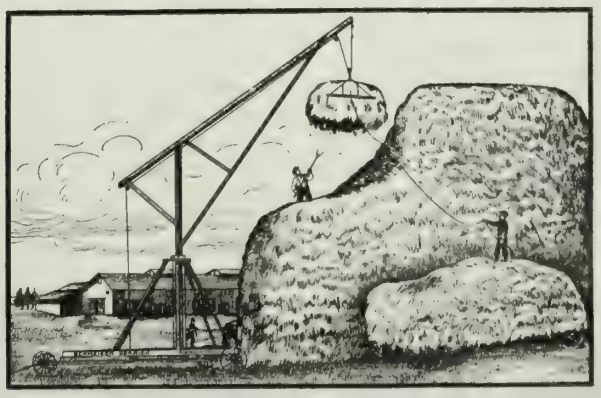
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The Poultry Yard.

CARE OF CHICKS IN BROODER.

Written for the Pacific Rural Press
By M. R. James.

On the 23d day give the chicks their first feed. This should be simply a handful of chick feed sprinkled over a layer of pounded shells and fine grit in the front part of their brooder. Cracked wheat will answer, but a standard make of chick feed is better for the first three or four days, as it contains a variety of cracked grains and seeds. On one side place a water fountain filled with pure water with the chill off. The fountain should be a vessel inverted in a straight edged saucer. These may be bought at the supply stores, with pointed tops to keep the chicks from perching on them as they get older, or they may be made out of fruit cans by putting a nail hole on each side of the can a half inch below the top rim, filling with water and inverting quickly into a flower pot saucer or a small inch-deep granite pan. The space between the can and the edge of the saucer should not be more than half an inch, thus the chicks may easily drink without getting a foot into the water. Throughout the care of the chicks, the water dish must be kept clean and full of pure water. It will need washing and filling many times a day, especially at first when the chicks are not large enough to allow of it being set up out of the way of the flying litter. Always take it out of the brooder or brooder pen at night, rinse and let air till morning.

Though the chicks will greatly enjoy their first feed and their play in the air and light, they will soon tire. Get them back under the hover as soon as you hear their cuddling call, take out the water fountain and close the brooder for a couple of hours, keeping the heat always regular. At the end of that time open the brooder and give them another handful of chick feed and the fountain of fresh water. Put in a good litter of the leaves from alfalfa hay or dry cut clover the next day and scatter the chick feed over this. The way that the little feet will make it fly is good to see. Continue this treatment for two days, keeping the chicks in the brooder and quiet except when they are feeding, when with narrow strips fence off a couple of feet in front of the brooder and let the chicks out in the warm part of the day. At this time have ready a beef or sheep heart cooked tender and slightly seasoned with salt and pepper, cut in strips like tiny angle worms. Sprinkle a very little of this among them. It will give them the time of their life and prevent them catching each others' toes, besides furnishing warming exercise. Feed this meat once a day, but only a little at a time. Watch the chicks closely and as soon as they begin to huddle get them back in the brooder and under the hover. This is important. If neglected they not only become chilled and liable to diarrhea, but they get into the habit of huddling, one of the worst habits of brooder chicks and a prime cause of failure in handling them. The mother hen does not let her chicks huddle, but calls them under her.

When the chicks are some six days old, onions and lettuce may be chopped fine and mixed with the meat, the whole dried with bran or shorts and continued once a day. At this time cracked wheat and corn may take the place of the chick feed. The chicks may now begin to use the whole of their brooder run and remain out longer each day, but never allowed to huddle in corners. Bunches of the large tender leaves of mustard, chard and heads of lettuce should now be kept securely tied just above their heads in their run. This manner of feeding should be continued till they are a month old, when the daily feed of meat may be made into a more generous mash with cooked rolled barley, vegetables and the like, but always dried with shorts or bran till it is practically a dry mash. This should be fed at noon. In the writer's experience hard grain and green feed is the best evening feed for all fowls. Feed the mash in clean dry troughs and as soon as the chicks are through eating it, which should be in about a half hour, hang up the troughs where they will keep clean and dry. Gapes and worms are caused by chicks eating their feed from among filth. Keep wheat and cracked corn in clean litter always before the chicks; this with plenty of tender greens and their noon mash are all they require.

After the first week keep the front of the brooder open, and after the second week increase the room and the ventilation, but keep up a temperature that prevents huddling. The chicks should be the thermometer now. If they spread out in a comfortable cozy way, barely winking an eye at you, they are all right, but if they are trying to get under each other and piling up, they are cold.

Cleaning the brooder is but a small chore during the first ten days, after that work begins. It requires scraping and sweeping daily, then should be sprinkled with air-slacked lime and over this dry sand. Keeping the brooder and run clean and well sanded does away with the troublesome balling of the feet. The clean litter for nesting should not be put in until the chicks go in for the night. Always give the babies a clean, dry, warm nest.

After they are three weeks old they will need double the space they have been occupying, and on a warm night may be changed to cold brooders. These may be made by placing large hovers in dry-goods boxes. The hover may be made by tacking a piece of coarse woolen blanket onto a frame, allowing the edge to hang down on all sides within an inch of the floor. This is considered better than hanging strips, as the chicks are liable to get tangled in the latter. The hanging edges of the blanket should be hemmed to prevent ravelling. On cold nights extra thickness should be laid over the top of the hover. Always take this hover out in daytime and sun, air and clean it. About once a week dust buhach over the chicks after they are under the hover at night. Lice on the chicks and mites in the brooder are a disgrace to the breeder. Save your reputation with cleanliness, lime, sand and buhach. The rule for successful breeding is:

Keep the chicks growing!

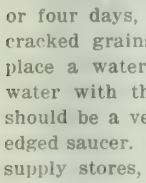
In other words, keep them clean, keep them busy, keep them happy, and they will grow into money-makers, instead of poor, stunted money-takers.

POULTRY NOTES.

The Alameda Poultry Association sends in the following notice:

On Thursday, February 25, at 8:30 p. m., in the School of Engineering, at the corner of 12th and Harrison streets, Oakland, Professor Jaffa will give a lecture on "Balanced Rations" before the members and friends of the Alameda County Poultry Association. We would be pleased to have everyone interested in poultry attend. The lecture is free.

Davenport, the cartoonist, who started in business as a Pacific Coast poultry keeper, thus talks of the big New York poultry show in the New York Mail: This article was inspired by a noise in Madison Square Garden this week. It is a continuous performance, but one that puts on its best numbers about five in the morning. Just about the time people in that neighborhood are beginning to think they ought to get a little sleep, they imagine they are back on the farm climbing over the haymow hunting nests while cackling hens and crowing cocks are busy in the barnyard below. This poultry show is the only exhibition at the Garden really on the level, and it's the only one that is wide awake at daybreak. No forms of decay have struck the actors in this drama; and, blind to the fads which affect others, these country folk act just the same in the Garden as at home. And any crotchety bachelor in a nearby club who wants to sleep till nine in the morning will have to put overshoes on his ears, as all his wiles or threats couldn't bribe or bluff the smallest rooster to miss his crowing part, which lasts from 4:30 a. m. till the last chicken on the job has been fed and dressed and had his feathers oiled in anticipation of a shower.



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Death to Lice

is practically indispensable to those who raise, sell or exhibit Poultry. Is the quickest and safest Lice Killer on the market, and is guaranteed not to injure Eggs or Chickens. Pocketbook Pointers on "Modern Poultry Methods" sent for 2c. stamp. Write today.

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ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

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The leading varieties of chicks every week.
L. W. CLARK,
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A high or low death rate is usually the difference between successful and unsuccessful poultry raising.

REX Flintkote ROOFING is used for roofs and sidings on profitable poultry plants, because it keeps the houses warm and dry, with even temperature and humidity.

As a result, fewer chickens are lost and the layers are more productive in poultry houses covered with

REX
FLINTKOTE
ROOFING

This roofing is fire-resisting, rain and snow-proof, and very durable. REX Flintkote ROOFING affords more kinds of protection to your buildings and their contents than any other roofing. Everything needed in laying comes with roll—any laborer can lay it.

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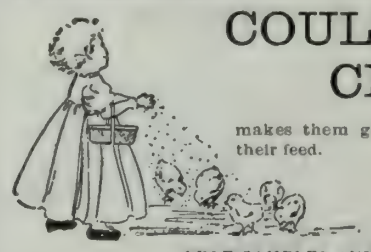
Heavy 36-doz. Cases and Fillers...	$ .60
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COULSON'S SPECIAL CHICK FOOD

makes them grow. Throw it in the litter and let them work for their feed.

It contains the best quality of everything they require for first six weeks, except grit.

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Coulson Poultry and Stock Food Co.
PETALUMA, CALIFORNIA.

The Home Circle.

The Rain.

How beautiful the water is!
Didst ever think of it,
When down it tumbles from the skies,
As in a merry fit?
It jostles, ringing as it falls,
On all that's in its way—
I hear it dancing on the roof
Like some wild thing at play.

'Tis rushing now adown the spout
And gushing out below,
Half frantic in its joyousness
And wild in eager flow.
The earth is dried and parch'd with heat,
And it hath long'd to be
Released from out the selfish cloud
To cool the thirsty tree.
—Elizabeth Oakes Smith.

In sheets of rain the sky descends,
And ocean swell'd with waters upward tends;
One rising, falling one, the heavens and sea
Meet at their confines in the middle way.
—Dryden.

Now in contiguous drops the flood comes down,
Threat'ning with deluge this devoted town.
To shops in crowds the draggled females fly,
Pretend to cheapen goods, but nothing buy.
—Swift.

See daily show'rs rejoice the thirsty earth,
And bless the flow'ry buds' succeeding birth.
—Prior.

Phoebe's Way.

"No, Ralph," said Phoebe Lynde, firmly, "I can't."

"You mean what you say? There isn't any doubt?"

"No, none, I can't be your wife."

Ralph tugged at his short brown beard. He was young, strong, handsome, with a face thought sunny and debonair. But now a scowl clouded it.

"Well," he muttered, "all right. This is the last time, though, that I'll ever speak to you, Phoebe. You've got a heart of stone, just as Agnes Farrows always said. Good-by."

"Good-by," answered Phoebe; and her suitor flung himself out of the room, and presently out of the house as well.

That reference to Agnes Farrow stung. Phoebe had been looked upon by the townsfolk of late as a wealthy girl, a very marriageable young person. With both parents now dead, and the large old homestead quite hers, and not a little solid money besides, it would not have been thought at all strange if she had borne herself proudly. But to do so was not in her nature; and as regarded her former schoolmate and present friend, Agnes Farrow, this charge, if possible, was especially untrue. Agnes, of all persons she knew, had least right to call her stony-hearted.

Ralph Halstead went his way that afternoon, and for days she heard nothing more concerning him. Then some gossipping acquaintance told her that he had gone on one of his drinking bouts, and that his people were enraged against him and had sullen feelings toward herself as well. They had wanted her to accept him, and believed that, after treating him as civilly as she had done for months past, it was her duty to become his wife, and turn him by her good influence, away from the wild course into which his reckless habits were drifting him.

"Then, too," pursued the voluble informant, "they dread his going and getting engaged to Agnes Farrow. They don't like the girl's family; it's never been up very high, but now it's barely more than just genteel."

Phoebe made some evasive answer and then talked about old Abner Dwight's apple orchard, saying how lovely it looked, now it was in full blossom. "I suppose you saw it," she said, "as you came along the road."

The visitor bit her lips. Yes, she had seen it. Then, driven from the subject just now dearest to her shallow soul, she went on:

"All the apple orchards in the world, Phoebe Lynde, can't compare, to my thinking, with that splendid pine wood here at the back of your house."

Phoebe herself was very fond of this wood. She had often taken walks in its colonnaded gloom, which sometimes was so thick that not a ray of sunlight could sift down upon its floor, russet and slippery with the fallen and faded needles of decades past. She knew every square inch of the deep, cool, cloistral expanse.

Nearly everybody somehow insisted that Phoebe Lynde was cold. It was a custom that popular judgment adhered to, thus being time-honored, however fallacious. That many fine and wise and tender charities were dispensed by her, nobody dreamed of denying. Still, there was the fixed fashion of calling her "cold."

One day, during the next fortninght, she met Agnes Farrow face to face, under the elms of the great main street which divided the town.

Phoebe greeted her and opened her hand in gratulation of her engagement to Ralph Halstead. Agnes refused to take the hand and in return for Phoebe's greeting spoke angrily, fiercely to her. "I am going to marry Ralph," she said. "I always knew he cared for me, though you did win him away from me for awhile. Then you turned from him, cold-hearted, cruel flirt that you are! '

The two girls, former friends parted. Phoebe's heart was sore, but she made no outcry. A year passed. Ralph married Agnes, and his kinsfolk turned their backs on him. Ralph had made a claim on his father for a sum of money left him by an uncle, and the claim had been scoffed at by old Mr. Halstead, and Ralph (somewhat the worse for liquor) had threatened to have his rights.

Then another year passed. The stories ran that Ralph had taken the pledge and got some sort of work. His earnings were so slight, however, that no one could say just how he and Agnes managed to live.

She sat reading one night in a room whose large, low windows opened on the piazza. Suddenly she heard a tapping sound on one of the windows. The next instant she saw a white face beyond the uncurtained portion of one broad pane. She at once went forward then.

"Agnes! How pale you are!"

"Hush, Phoebe! Let's talk in whispers. Get me where this light doesn't glare on me so. Yes, this is better, off here in shadow beyond the fireplace. I'm so afraid they may have followed me."

"They? Who?"

"The police. Oh, I know I look like some half-crazy tramp, Phoebe; but never mind that. Ralph took some of the money you sent up and spent it in drink. Then that mad idea came over him again about the three thousand dollars he accuses his father of having kept back from him. Mr. Halstead, you know, claims that he spent some of it on Ralph's education with his son's own consent, and that the rest is covered by loans and not by gifts. Ralph has never had any real proof, and when sober he comprehends this and accepts the matter as it stands. But drink changes his whole nature, and tonight he broke into the homestead, while the family were nearly all away somewhere on a visit. He tried to pry open a big chest upstairs, where he knew his father keeps certain bonds and money. A woman servant heard him and gave the alarm. Ralph got away, but while dashing out of doors he struck his arm against something and broke it. When he returned home he was almost fainting with the pain of it. But I wouldn't let him remain, Phoebe. And somehow—I can't tell just how or why—I thought of the big, dark pine wood behind your house. I made him promise he'd stay there. Then I went to his father's. The old gentleman had got home and his fury was terrible. He declared that the police should be set on Ralph's tracks till they caught him. Oh, Phoebe, if you only could and would help us!"

"Help you, Agnes?"

"Don't you see, Phoebe? Don't you see?"

After a slight pause came the answer: "You mean hide him here in the homestead!"

"Yes, yes! It's the last place any one would think of looking for him or for me. No one has seen us three together for such an age. Oh, do decide quickly, Phoebe—do! I'll get him indoors, if you say so; I——"

"Get him indoors at once," broke from Phoebe. "I'll do what I can."

Agnes was right. The last place in which any one ever dreamed of searching for either Ralph or his wife was the Lynde homestead. As for the doctor who came and set Ralph's arm and afterward visited him until he was quite well, Phoebe found this gentleman not at all hard to win over. Through him it was made possible that a little farm out in the far west could be bought for Ralph and Agnes.

Mysteriously, and in the dead of night, Phoebe's two pensioners at last took their departure. The carriage that was to convey them to a distant station waited at a certain point in a road passing through one side of that same pine forest where Ralph had first been concealed.

On the night of her guests' departure, Phoebe, with an equal serenity, bade them both good-by. It is true that she kissed Agnes on only one cheek, and very tranquilly. But Agnes kissed her on both cheeks, and passionately exclaimed as she did so:

"Ah, Phoebe, what a friend you are proving to us! I'd like to devour you with many more thankful kisses. I'd like to throw myself on my knees before you, and——"

"Please, don't!" said Phoebe.

Chilled in spite of all her glowing gratitude, Agnes recoiled a little. Soon they stole forth into the summer air and were guided by Phoebe's man-servant, who bore a lantern, through the intense gloom of the pine wood. When they had almost gained the spot where the carriage waited, Agnes, who was walking just ahead of Phoebe, felt a hand pluck the sleeve of her gown.

"Phoebe?" she murmured.

"Yes, Agnes, it's I." The voice that now spoke sounded strangely vibrant and eager.

"Agnes," it went on, "we may never meet after tonight. The chances are that we will not. You're going hundreds and hundreds of miles away——"

"Through your kindness, Phoebe! Because of your generosity, your noble pardon."

"Never mind that. I feel that I must tell you the truth, Agnes. What I did, what I'm doing, hasn't been on your account."

"No?"

"No. Not that I had the least grudge against you. God knows I hadn't! We're in the dark now, so you can't see my face—I can't see yours. Perhaps for this reason I can speak with more courage. You know how I have always shrunk from showing what people call feeling. It's my 'way,' as you used to call it."

"Yes."

"Agnes, when you came to me that night and begged me to save him, I could almost have struck you for sheer hate!"

"Phoebe Lynde!"

"Yes—it's true. But I loved him. I'd loved him long before he asked me to marry him. But I'd have cut off my right hand rather than marry a man I couldn't respect. That's 'Phoebe's way,' too, if you please to call it so. Helping him to a better life is different. But all I've done, Agnes, I've done for him. Tell him or not—I don't care. I loved him, and I love him still. Good-by!"

Agnes stood thrilled for a moment.

"Phoebe," she called.

But there came no answer. In a few more seconds Agnes understood.

From Bad to Worse.

At the end of his first year in the ministry a young divine was about to leave his parish for a wider field, and one good old lady was bewailing the fact and insisting that the church would be ruined thereby.

Flattered by her words and manner, and wishing to console her, the minister said: "But, sister, the man who will succeed me is a fine preacher and a splendid fellow. You'll soon see that everything is all right, and get used to it."

"No, no, I won't," she answered, tearfully. "I don't get used to this changing. I've seen six changes in preachers now, and it's got worse and worse everytime."—Illustrated Bits.



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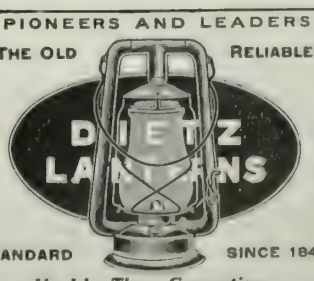
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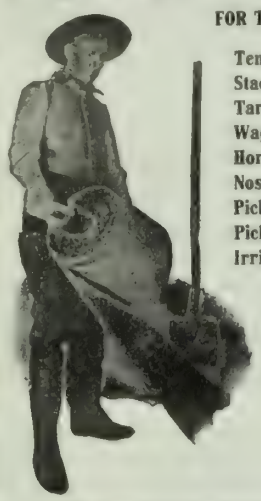
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THE WM. H. HOEGEE CO., Inc.
138-40-42 South Main, Los Angeles.

THE MARKETS.

San Francisco, Feb. 17, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

The firmness of this grain continues to be a leading feature of the market. Every grade has again advanced sharply in price. California White Australian and Northern Bluestem both being held at $1.95 to $2.00. At the same time, somewhat more activity is developing among the buying interests, though the millmen are not disposed to take on much surplus until after next month. Considerable wheat is being received from the North, but this is mostly on former purchases, though some of the interior mills are buying in the North. May wheat is about 7½ cents higher.

California White Australian	$1.95	@2.00
California Club	1.77½	@1.80
California Milling	1.85	@1.87½
California lower grades	1.60	@1.70
Northern Club	1.77½	@1.80
Northern Bluestem	1.95	@2.00
Northern Red	1.75	@1.77½
Turkey Red	1.85	@1.95

BARLEY.

Barley stands about as last week, with no material change in either spot or future prices. There is a moderate movement in the feed market, and holders as a rule are asking top prices, but little is moving above $1.40. There is little inquiry for anything but feed grain.

Brewing	$1.45	@1.47½
Shipping	1.45	@1.47½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.40	@1.42½
Common Feed	1.35	@1.38¾

OATS.

Black oats remain weak at the decline formerly noted, but reds are about steady. There are scarcely any gray oats on the market. Whites are very scarce, as the arrivals are of small consequence, and the local buyers are beginning to show some interest. The market, however, is by no means active, as the high prices have curtailed the consumption.

White, per ctl.	$1.82½	@ 1.95
Gray	Nominal	
Red, seed	1.85	@1.95
Feed	1.65	@1.80
Black, seed	1.65	@2.00

CORN.

There have been no arrivals of this grain worth mentioning this week, and offerings are very light, making a practically nominal market. Prices are very firmly held, however, and holders are asking an advance on Western grades in bulk.

Western State Yellow	$1.60	@1.65
Mixed, in bulk		1.54
White, in bulk		1.57
Egyptian, white	1.75	@1.80

RYE.

The demand for this grain is never large, and purchasers are now holding off on account of the high prices asked. The market is almost bare of first-class grain, and the few offerings are stil held at $1.80.

Rye	$1.80

BEANS.

No decided change has occurred in the prices of beans since last report, prices on nearly all varieties being firmly maintained. A movement of considerable valume has taken place in pinks, and the lower grades of this variety are rapidly being shipped out, as the demand has been mostly for lower priced stock. All choice stock is now firmly held. A considerable quantity of lima beans has been changing hands in the interior, where a steadier feeling in regard to values is reported. The Eastern quotations, however, have been very irregular, and frequently below the prices ruling in this market.

Bayos, per ctl.	$3.25	@3.30
Blackeyes	3.00	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.50	@2.00
Small Whites	5.00	@5.25
Large Whites	4.10	@4.25
Limas	3.75	@3.90
Pea	4.75	@5.00
Pink	2.45	@2.60
Red	4.50	@5.00
Red Kidneys	3.25	@3.50

SEEDS.

The seed market, which has been rather quieter than usual for this time of year, is beginning to show somewhat more life, and large quantities will probably be required during the next month. Prices are unchanged, being quoted by local dealers as follows:

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@ 3 c
Hemp		4¾c
Millet	2¾	@ 3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

No change in price has been made in this market for some time, though quotations are very firmly held and a further advance is not unlikely, owing to the high figures which the millmen now pay for wheat. The Oregon mills have announced an advance. The local market is mostly of a jobbing character, and is by no means active.

Cal. Family Extras	$5.80	@6.40
Bakers' Extras	5.80	@6.05
Superfine	4.60	@4.90
Oregon and Washington, Family	4.50	@4.75

HAY.

Hay arrivals show a falling off of about 1000 tons for the week, and while the market is not much higher, there is a very firm tendency, and buyers generally are disposed to look for a further advance in the near future. Choice grades of hay remain at about the same figures, though the medium and lower grades are gradually stiffening, as the demand runs largely on these grades. While the movement in the interior is still interfered with by weather conditions, there is a heavy movement, and inquiries are coming from both the smaller towns and the cities of the State, showing that the available supplies in such districts have been about exhausted. Alfalfa remains high, considering the grass outlook, but apparently stocks will hardly be more than sufficient to supply the dairy requirements.

Choice Wheat, per ton	$21.00	@23.50
Other Grades Wheat	18.00	@21.00
Wheat and Oat	17.00	@21.50
Tame Oat	17.00	@21.50
Wild Oat	16.50	@19.50
Alfalfa	16.00	@19.00
Stock	11.00	@14.00
Straw, per bale	50	@ 80c

MILLSTUFFS.

Notwithstanding the fact that most of the mills are running considerably below their capacity, making supplies considerably smaller than they were a few months ago, the market on bran is decidedly weak, while shorts and middlings are only steady. With plenty of green feed in sight, the demand seems to have fallen off in this section, and somewhat lower prices are likely to rule. Miscellaneous feedstuffs are unchanged.

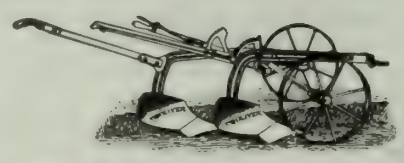
Alfalfa Meal, or mealfalfa, per ton	$24.00	@25.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	28.50	@30.00
Shorts	31.00	@32.50

VEGETABLES.

The demand for onions continues moderate, and while supplies are still light the prices on ordinary stock are a little easier. Choice lots, however, command good prices and move off without difficulty. A few shipments from Oregon are offering at an advance. Most lines of miscellaneous vegetables from outside points are firm, with some advance in prices, as most articles are scarce. Tomatoes are 25 cents higher, and green peas and beans have also advanced. Rhubarb and asparagus are becoming more plentiful and ordinary lots are lower.

Onions, ctl.	$ 2.00	@ 2.25
Garlic, per lb.	8	@ 10c
String Beans, per lb.	17½	@ 20c
Green Peas, per lb.	10	@ 15c
Cabbage, per ctl.		1.50
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, crate	1.25	@ 1.75
Green Peppers, lb.		25c
Cauliflower, doz.	65	@ 75c
Celery, doz.	40	@ 50c
Asparagus, lb.	12½	@22½c
Rhubarb, lb.	7	@ 10c

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We want you to see it and examine it. It is now on exhibition at all of our agencies in the Orchard and Vineyard Sections.

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San Francisco, Cal.

POULTRY.

The market shows very little change since last report. Arrivals of Eastern stock have amounted to about five cars a week for some time past, and receipts of local poultry continue very moderate. Offerings clean up well, broilers and fryers being quite firm. Small and medium hens also show a little advance. Arrivals of dressed turkeys were very large last week, causing some reduction in values, and no advance is expected in the immediate future, though there is a fair demand.

Broilers	$ 5.50	@ 6.50
Small Broilers	4.50	@ 5.00
Fryers	6.50	@ 7.50
Hens, extra	7.00	@ 9.00
Hens, per doz.	5.50	@ 6.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	7.00	@ 7.50
Young Roosters, full grown	8.00	@ 9.00
Pigeons	1.00	@ 1.25
Squabs	2.00	@ 2.50
Ducks	5.00	@ 8.00
Geese	2.00	@ 2.50
Turkeys, live, per lb.	18	@ 20c
Turkeys, dressed, per lb.	20	@ 25c

BUTTER.

Butter has remained about steady most of the week, as the arrivals have been only moderate, and the market has been kept well cleaned up under a steady demand. Extras show a reduction of 1 cent, but all grades are now firm, with some advance on seconds and local storage goods. Eastern storage stock is again offered, bringing 1 cent below the local. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	36 c
Firsts	33 c
Seconds	30½c
Storage Ladles, extra	23½c
Cal. Storage, extras	32½c

EGGS.

A very marked downward movement has taken place in eggs, resulting from the absence of any inquiry for shipment, coupled with increased production. There has been no movement for the Northern markets this week, and the local demand has been unable to absorb the heavy arrivals at former prices. With a desire on the part of receivers to clean up, extras have gone down 12½ cents, and other grades nearly as much.

California (extras), per doz.	26 c
Firsts	25½c
Seconds	25 c
Thirds	24½c
Fresh Cal. Pullets	24 c

CHEESE.

This market shows a little more feature than for some time past, as some grades are developing considerable firmness. With only moderate supplies of first-class stock, fancy California flats are ½ cent higher, though firsts are unchanged. All Oregon stock is also higher.

Fancy California Flats, per lb.	14½c
Firsts	12½c
New Young Americas, fancy	16½c
Oregon Flats	14½c
Oregon Y. A.	16½c
Storage, Cal. Flats	13 c
N. Y. Cheddars	17 c
Storage, Oregon, Flats	14½c

POTATOES.

The demand continues moderate, and little of the better river stock is moving, though the cheaper lots from the river are cleaning up fairly well. Offerings from Oregon are also in demand. Prices on both lines are lower, but Early Rose are firmly held.

River Whites, ctl.	$ 1.00	@ 1.35
Lompoc, Burbanks, ctl.		2.00
Salinas Burbanks, ctl.	1.65	@ 1.80
Oregon Burbanks, ctl.	1.60	@ 1.75
Early Rose	1.75	@ 2.00
Sweet Potatoes, ctl.	1.50	@ 1.75

FRESH FRUITS.

Former quotations still cover all transactions in apples, but there is a decidedly firm feeling in the better grades, which are in demand both locally and for shipment. Ordinary apples, however, are plentiful, with additional lots still coming in, and little attention is paid to them. Pears are steady with about the average demand.

Apples, fancy	90c	@ 1.75
Apples, common	60	@ 85c
Pears, box, Winter Nelis	$ 1.25	@ 1.50
Other varieties	50	@ 75c

CITRUS FRUITS.

The citrus market shows some recovery from the effects of the adverse weather, and oranges are now in fairly good demand, while a temporary scarcity tends to strengthen prices. Arrivals have been very small, and the market is well cleaned up. Lemons show no change, and limes are still scarce and firm at high prices.

Choice Lemons	$2.00	@ 2.50
Fancy Lemons	2.75	@ 3.00
Standard	1.25	@ 1.50
Limes	6.50	@ 7.00
Oranges—		
Fancy Navels	2.00	@ 2.50
Choice	1.75	@ 2.00
Standard	1.50	@ 1.75
Tangerines	1.25	@ 1.75
Grape Fruit	3.00	@ 3.50

DRIED FRUITS.

Advices from the East indicate a comparatively quiet market for dried fruits, with practically no attention paid to raisins. Neither apricots nor peaches are in much demand, and the latter are inclined to weakness, while there is a moderate movement of prunes. There is, however, a steady jobbing movement of moderate proportions, and considerable quantities have been shipped from San Francisco by sea this month, both for the Atlantic Coast and for Europe. The packers are paying rather less attention to raisins at the moment, as they have secured about enough for immediate requirements. In other lines they are still buying moderately, and the prices paid for offerings in good condition are about as formerly quoted.

Evaporated Apples	4	@ 5c
Figs, black	1	@ 2c
Figs, white	1	@ 2½c
Apricots	7	@ 10c
Peaches	2½	@ 3½c
Prunes, 4-size basis	2¼c base	
Pears	2½	@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

The prices quoted show no further change, and the movement from grower to packer is very limited, as nearly all the growers' holdings have apparently been disposed of. Almonds are very closely held, and while there is a fair inquiry from various quarters the market is quiet. There is nothing new in walnuts, as supplies are considered sufficient to last through the season and buyers show little interest at present.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c

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Drakes		9 c
Languedoc		8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Honey is very quiet, the movement being confined almost entirely to local jobbing operations. Practically not stock is moving from the producing centers and stocks are not large, but the demand is not sufficient to give much firmness to the market.

Comb, lb.	10 @13	c
Water White, extracted		7¼c
White	6¼ @	6¾c
Light Amber	5 @	5½c
Dark Amber		4¾c

HOPS.

Prices are unchanged and little trading is going on, owing largely to the weather. There is some activity in Oregon, however, and from the firmness of other markets it appears likely that California growers who still have anything on hand will realize fair prices.

Hops, per lb.	6@ 10c

WOOL.

A little late buying of fall clips is going on, but the market is nearly cleaned up, and the market is quiet pending the arrival of the spring clip. Prices are quoted at the advance mentioned last week.

Red Bluff (f. o. b. Red Bluff) free	7 @	9 c
Defective	less	2 c
San Joaquin (at S. F.) free	5 @	7½c
Defective	4 @	6 c
Mendocino, free	7 @	10½c
Defective	6 @	8 c

MEAT.

Another slight increase is noted in the prices of some lines of live stock, though dressed meats are easier. No further advance is looked for from now on, as conditions favor larger shipments and a gradual decline is expected in the next month.

Beef: Steers, per lb.	8½@	9 c
Cows	7½..	8 c
Heifers	7½@	8 c
Veal: Large		9 c
Small	9½@	11 c
Mutton: Wethers	9½@	11½c
Ewes	9½@	10 c
Lambs	11½@	13 c
Hogs, dressed	9½@	11 c

LIVESTOCK.

Steers, No. 1		5¼c
No. 2		4¾c
Cows and Heifers, No. 1		4 c
No. 2		3½c
Bulls and Stags		2½c
Calves, Light		5 c
Medium		4½c
Heavy		4 c
Sheep: Wethers	5½@	6 c
Ewes	5 @	5½c
Lambs, lb.		6½c
Hogs: 100 to 150 lbs.		6½c
150 to 250 lbs.		6¼c
250 to 325 lbs.		6¼c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Feb. 16.—The orange markets are in very good shape when it is considered that the weather over East has been particularly bad and also that some of the fruit offered has been affected by the frost. On Monday's sale the St. Louis auction reports that the market is overstocked with dry fruit, which means fruit that has dried out through the effects of being frost bitten. Apparently nearly all the stock offered at St. Louis had been affected, for the highest price was $2.55 and the majority of the cars sold below $2, the fruit from Tulare county selling particularly low. As it was denied at the time that the fruit of Tulare county had been touched by the frost this testimony seems to prove conclusively that there had been some damage there and that those who claimed no damage were mistaken.

The sale at Philadelphia resulted in a little higher prices, though $2.60 was high and the average was not over $2.30 a box. Figuring freight charges of 83 cents a box, this means $1.57 a packed box f. o. b. California. Deducting 35 cents for packing charges brings it down to exactly 1¾ cents per pound.

There has been considerable buying in some districts here in California at 2 cents a pound, and even a little higher, this price to include culls. How these buyers are going to come out whole at present prices makes complicated arithmetic. They have been offering a limited amount of this 2 cent stock at $1.55 a packed box f. o. b. California and this is just about 1¾ cents per pound. Orange shipments for the past week have been: Monday, 106; Tuesday, 68; Wednesday, 113; Thursday, 105; Friday, 94; Saturday and Sunday, 103 cars. The output for the same days last year were 156, 172, 227, 60, 120 and 288 cars. The total to date amounts to 5620 cars, as against 6216 cars to same time last year.

Lemon shipments for the same days as above amount to 13, 21, 14, 21, 20 and 20 cars. Last year, 6, 12, 14, 18, 17 and 22 cars. Total, 1265 cars, as against 1212 for last season.

Trumbull Seed Company.

We are pleased to see a good strong second generation arising to continue the grand work of the horticultural pioneers and to keep the honored names in honorable places. There are, fortunately, many instances of this desirable succession, but the one which particularly impresses us as we take up the handsome new catalogue of the Trumbull Seed Co. is that the younger man, who has undertaken the reorganization since the fire, is the son of R. J. Trumbull, who is one of the first friends we made on arrival in California in 1875, and who was leading the seed buiness at that time. The business now conducted by the Trumbull Seed Co. is perhaps the oldest in continuous existence in the State, for it was founded in 1852, and has proceeded without interruption since that date.

One of the elder Trumbull's significant enterprises was the introduction of Egyptian corn—the forerunner of all the sorghum family, which now yields so much in this State. We note in the new catalogue a special offering of hemp seed: the crop has been grown for a number of years, but this is the first time we have seen the seed catalogued and confidently urged for general planting on suitable lands; that is, deep, moist alluvial soils. Mr. Horatio Beveridge, now with Messrs. Parrott & Co. of this city, has given much attention to hemp production, and now gives us assurance that a sample of California hemp which he sent to a leading Eastern fiber firm has been pronounced superior to Kentucky hemp, and is now worth 6½ cents per pound. There seems to be an ample local opening for the product, because a local firm of spinners requires from 4000 to 5000 tons of fiber, and could only get 500 tons from the crop of 1908.

This is, of course, only one item of a full catalogue of seeds and plants, but we have emphasized it to show that a very old establishment can be a very progressive one.

CAUSTIC BALSAM WORTH TWICE THE PRICE.

I have used Gombault's Caustic Balsam, and would not do without it for twice the price.—M. E. Nicwood, Roselawn, Cal.

THE EVANTS CULTIVATORS

The Evants Cultivator, with 9 Circular V Teeth and Seat, Cutting 4½ feet; also with Wheels and Levers for Lifting Teeth out of Ground and Ratchet for Regulating their depth in the Ground.



1st Premium at State Fair 1907-8.

The Best Summer Fallow Plow.

Light Draft and great saver of horseflesh.

See Catalog for testimonials.

Send for Catalogs.

BOWEN & FRENCH
MANUFACTURERS

659 Washington St., Oakland, Cal.

PUBLISHER'S DEPARTMENT.

H. J. Mercer, the beekeepers' supply man of Los Angeles, is advertising this week a timely article. Weed foundation, he claims, will be found the best for honey producers.

Morris & Snow, one of the good seed houses of Los Angeles, are making an attractive and timely offer to our readers. Their advertisement appears in the horticultural department and is worth looking up.

On our last page this week will be found the advertisement of the Century Mercantile Co. of Berkeley, who are asking that all growers send their wool to them to be placed in pools to secure the best prices. This firm recently handled a large consignment of wool from Mendocino county to the advantage of the producers, as they secured 23 cents per pound net for a large part of it. Read the advertisement.

The Pear-Blight Remedy Co. of Vacaville are sending out a little booklet containing their message to growers who are afflicted with pear blight, which will be sent free to all who are interested and will write for it. The following statement is taken from the book, which is interesting: "We have trees in our experimental orchards that were first treated with our remedy in the spring of 1904 and again in 1905, and every season since there have been picked from 10 to 14 fifty-pound boxes of very fine pears from each tree so treated, showing that no injury has been done to either tree or fruit. These trees have made a good growth of wood each year and have developed no blight in that time. We can demonstrate this to you if you will visit this orchard at Vacaville."

The Orange County Nursery and Land Co. of Fullerton have just sent up a copy of their new illustrated and descriptive catalogue. This new catalogue is very valuable to intending planters of either fruit or ornamental trees or shrubbery. Accompanying it is a small booklet on propagation and growth of eucalyptus, which we think will be eagerly sought after by the almost numberless people now interested in the subject. Write to the firm for a copy.

The School of Telegraphy of this city are among our new advertisers. This institution has been established for many years and has students from all the coast States. To the young man who wishes to learn telegraphy, we would urge that they read the advertisement.

The West Coast Mill Co. of Los Angeles have commenced their Gopher Poison advertising in our columns. This is a very reliable firm and their announcement will be read with interest by everyone who has gophers or squirrels to contend with. A. L. Grigsby of Campo says that by its use he has about cleaned out the gophers on his 22-acre alfalfa field. Read the advertisement.

Through Tropic Climes

ATLANTIC STEAMSHIP LINES
New Orleans-New York Service

In connection with the Sunset Route between San Francisco-Los Angeles and New Orleans.

Largest American coastwise steamers—elaborately furnished staterooms—electric lighted throughout—perfect dining service.

Rates from San Francisco:
One way, first class rail, via Sunset Route to New Orleans and first cabin on steamer—$76.80.

Round trip, first class rail and first cabin steamer—$144.40.

Choice of rail route on return trip.

Second class rail and second cabin steamer—$64.55.

Rates include your berth and meals on ship. Just as cheap as an all-rail route.

Ask nearest Agents.

Southern Pacific

A 250,000 BUSHEL ELEVATOR.

The John A. Salzer Seed Co., La Crosse, Wis., by all odds the largest farm, grass, clover, potato and vegetable seed growers in America, if not in the world, have just broken ground for a unique seed elevator with storage and cleaning capacity of more than a quarter of a million bushels. This great firm is sending out clover seed testing 99.95% pure, a record justly to be proud of. If you haven't Salzer's Catalog, look up their advertisement and write for it today.

WOOL | A POLICY THAT WINS | WOOL

Over 23c Net Returns on Humboldt County Wools Sold by us in January, 1909

In the handling of consignments of wool from growers it is well that our policy should be clearly defined and understood. We are NOT WOOL BUYERS. ALL STOCK IS HANDLED ON A CONSIGNMENT BASIS.

This places us in a position where GROWERS' INTERESTS, ARE OUR INTERESTS. Our entire future prospects lie in being able to give growers satisfactory returns. This is a difficult task, but WE ARE SUCCEEDING. Our business has INCREASED OVER THREE HUNDRED PER CENT (300%) EACH YEAR, for the last three years.

Part of this success is due to the fact that we serve growers with a BETTER EASTERN WOOLEN MILL OUTLET for their clips than they have ever had before. Strict economy is observed in all departments.

Our CAREFUL GRADING of wool into large lines to suit the needs of Eastern mills, produces a great deal of EXTRA MONEY FOR GROWERS. Well graded fruit of any kind always brings more than ungraded. Each mill customer can thus buy the particular stock wanted, and is willing to pay a GOOD PRICE, since there is no waste.

THIS GRADING MUST BE DONE HONESTLY, so that full confidence with mills is established. It is no joke for a woolen mill to invest a hundred thousand or more dollars in a particular grade of wool, and find out several months later that they have been badly cheated.

FAIRNESS OF ADMINISTRATION in the accounting to growers for proceeds of sale is perhaps the most vital of all issues. Without this, everything else fails of its purpose. Since there are wide differences in the values of various growers' clips, OUR SYSTEM must be able to detect and measure these differences, so that the grower with the BEST CLIP STANDS AT THE TOP of the scale.

CONFIDENCE in our INTEGRITY OF PURPOSE must be fully established: also in our BUSINESS ABILITY. One good way to judge the future is in the past. We are not ashamed of our record, and the SUCCESSFUL HANDLING of many millions of pounds of wool, amounting to some millions of dollars, is TESTIMONY TO THE WORLD.

The MOST PRICELESS JEWEL which such a movement as ours can possess is a TRUE CO-OPERATIVE SPIRIT. This does not come in a haphazard way, and never can be forced from without. No legislation can compel it to exist, and no self-assumption, designated by co-operative names, can insure it. It is not likely to be found among SPECULATIVE WOOL-BUYERS.

This true co-operative spirit MUST COME FROM WITHIN. It must be in our hearts, and when firmly planted there, all the forces of men are powerless to up-root it, and it will live AS LONG AS CIVILIZATION LASTS. In fact, it is the VERY FOUNDATION for the HIGHEST TYPE OF CIVILIZATION—this SACRED RESPECT for THE RIGHTS OF OTHERS, on the broad lines of the GREATEST GOOD TO THE GREATEST NUMBER.

This is but a brief outline of the policy that has brought us ONE-HALF THE WOOL GROWN IN THIS STATE, besides much from adjoining States. Practically all this business has come to us SINCE THE EARTHQUAKE. We are prepared to handle the other half.

This policy is firmly planted in our forces, beginning with the MAN WHO HANDLES A TRUCK in the warehouse, and embracing everyone up the line till the HIGHEST OFFICIAL IS INCLUDED.

Everything can be summarized in these few words: "EXTEND TO OTHERS THE SAME FAIR TREATMENT THAT YOU WOULD EXPECT UNDER SIMILAR CIRCUMSTANCES." This policy pays both sides. It is what the people want. It is what they need, because it HELPS ALL THE PEOPLE.

Successful in Large Operation
Great Financial Resources
Liberal Advances Made

Century Mercantile Co.

CO-OPERATIVE
SELLERS OF WOOL
Berkeley (P. O. Address), **California**

Warehouse and Grading Plant, also Shipping Point,
West Berkeley, Cal.

THIS COMPANY IS THE ONLY WELL ORGANIZED POWER UNDERSTANDING THE EASTERN MARKETING OF WOOL THAT HAS ESTABLISHED AN EASTERN WOOLEN MILL OUTLET, WHERE ITS CAREFUL GRADING AND BRANDS ARE WELL KNOWN AND THAT IS NOW AND ALWAYS HAS BEEN A STRONG FORCE IN RAISING PRICES AND PROTECTING GROWERS' INTERESTS. THINK THIS OVER CAREFULLY.

In Union there is Strength. Our Business Unites Growers. Organization beats Dis-Organization. Manufacturers prefer graded Wool. We combine small clips into large lines. A line of wool consists of a number of clips of Similar Wool Graded and mixed together. There are from 6 to 10 grades in a line.

Our system Pools growers' Interests. Net returns of over 23c. have been made by us to large growers in Humboldt County within the last 30 days.

SHEARING IN ARIZONA is now in full swing, and wool is selling within ½ cent of the **PRICE TWO YEARS AGO**.

In **UTAH, IDAHO** and **MONTANA** some wool is **SELLING ON THE SHEEP'S BACK** at but little less than the price two years ago. The man who buys it expects to **MAKE GOOD MONEY**.

Now Mr. Wool-Grower, what we want you to realize is that wool can be made to **BRING A GOOD PRICE THIS SPRING**.

What did you get for **YOUR CLIP TWO YEARS AGO**? Use this as a basis of your calculations. It is **SELLING AT NEARLY THIS FIGURE** in other places. **WHY NOT IN CALIFORNIA**?

It is by **POOLING OF INTERESTS** in strong hands that **BEST RESULTS** Will be obtained.

The **CENTURY MERCANTILE CO.** desires business from **EVERY GROWER**. It has shown its ability to handle it.

DO NOT HESITATE. Ship to us or hold for a good price.

LARGE WAREHOUSES AND NO CHARGES for drayage, storage or grading. Insured at our expense. All these items included in our selling charge of **ONE CENT PER POUND**.

Over 23c **NET** to Humboldt County growers shows the **STRENGTH** of **OUR MARKETS**. This is a year of **RISING VALUES**.

LIBERAL ADVANCES MADE

THE PRICES OF TWO YEARS AGO (1907) ARE QUITE POSSIBLE IN A STRONG POOL. YOUR WOOL STRENGTHENS THIS POOL.

CALIFORNIA STATE

THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 9. SAN FRANCISCO, SATURDAY, FEBRUARY 27, 1909. Thirty-ninth Year.

THE RIXFORD: A NEW TYPE OF SMYRNA FIG.

Written for the PACIFIC RURAL PRESS
By Dr. WALTER T. SWINGLE, (In Charge of Plant Life History Investigations, Department of Agriculture, Washington.)

A quarter of a century ago Mr. E. W. Maslin set out on his ranch at Loomis, Placer county, California, about ten acres to seedling fig trees grown from seed of the best imported Smyrna figs to be had in San Francisco and New York. He soon found that these seedling trees matured only a very few figs, and most of the orchard was abandoned. Three acres, containing 153 trees, were, however, left, and of these trees 147 are alive today, 139 being of bearing size.

The blastophaga was introduced from Algeria into California in the spring of 1899, and within a year or two it reached the Maslin seedling fig orchard, which they set fruit for the first time. Thereupon it became evident that about half of the seedling trees were males, or caprifigs, and about half females, or edible figs, of the Smyrna type, which do not mature their fruit unless caprified.

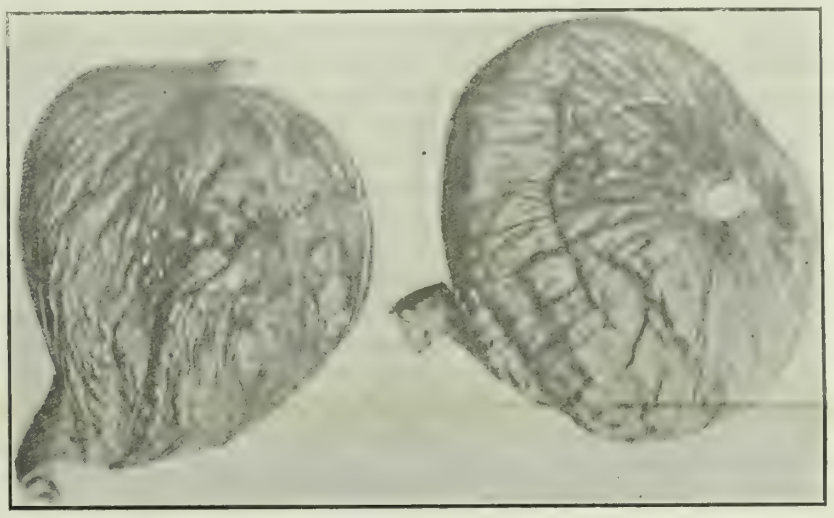
Among these edible figs are several new varieties of decided promise, and at least two of them represent a new type of drying figs, decidedly different from any of the varieties of the Smyrna fig as yet imported from the Old World.

These new varieties, which might be called self-sealed figs, show a drop of pellucid gum completely filling the very narrow mouth of the fruit when it matures. As the figs dry and shrivel on the tree and fall to the ground the drop of gum hardens and hermetically seals the mouth, effectually preventing the entrance of filth beetles, pomace flies and other insects. Such figs do not sour, since the germs causing fermentation are unable to effect an entrance to the pulp within.

One of the self-sealing varieties was discovered late in October, 1908, by Mr. A. H. Brydges of Loomis, through the circumstance that the fruit had withstood uninjured two soaking rains that had ruined the figs on the adjoining trees, which, being seedlings, were all different varieties, and not self-sealed.

The best studied of the self-sealed figs I take pleasure in naming in honor of Mr. G. P. Rixford, who has done so much for California horticulture, and who is giving the Department of Agriculture the benefit of his long experience in a scientific and practical study of caprification now being made in this State. The Rixford tree is of gigantic size, having a spread of perhaps 50 feet, though grown from seed planted in 1886 and set out in 1887, only 22 years ago. The seed was taken from select imported Smyrna figs donated to Mr. E. W. Maslin in 1886 by H. K. Thurber, then one of the leading importing merchants of New York.

Since the advent of the blastophaga it has borne good crops regularly. The figs are of medium size (about $1\frac{3}{4}$ to 2 by $1\frac{1}{2}$ to 2 inches) with a short stalk. The skin is pale in color, very thin and tender, often translucent and amber colored in the figs that have cured on the ground. The pulp is light amber colored, full of fertile seeds, sweet and of excellent flavor. The drop of hardened gum that closes the mouth is usually from one-sixteenth to one-eight inch in diameter, sometimes concealed just within the mouth, but usually partly protruding outside.



Rixford Fig Showing the Gum Drop.



Original Rixford Fig Tree at Loomis.

A large proportion of the figs on the tree were completely self-sealed in 1908, and it would have been an easy matter to select such figs and put them up in special packages of fruit "guaranteed clean without and within," which could doubtless be sold at fancy prices to fastidious purchasers—especially since the Rixford fig is of good size, of excellent flavor and has a thin skin.

Besides their superior cleanliness and freedom from souring, self-sealing figs like the Rixford may prove of value for culture in the cool costal valleys of California and at high elevations in the foothills of the Sierras where, owing to the cool summer climate, the autumnal rains are likely to begin before the fig crop is fully ripe. As self-sealing figs can stand a soaking rain without injury, their superiority for such situations is obvious.

The Rixford and the other self-sealing variety are growing at an elevation of about 475 feet at Loomis, Cal., on a warm granitic soil without irrigation, the annual rainfall averaging about 25 inches. It must be determined by experiment whether so large a proportion of the figs would be self-sealed on trees grown under irrigation or on heavier and colder soils. One thing is sure: dozens of other seedling figs growing near by the two self-sealing varieties under apparently identical conditions show no trace, or only a very small proportion, of self-sealed fruits.

The Maslin seedling fig orchard has been leased by the Bureau of Plant Industry of the U. S. Department of Agriculture, and in order to encourage the breeding of new figs and caprifigs, cuttings from the Rixford and other superior new varieties of Smyrna figs, as well as the promising new caprifigs, will be sent free to any person who will agree to plant three seedling figs (also furnished free) for every cutting received. A special circular giving the details of this co-operative fig breeding experiment will be sent free to all applicants who address the writer in care Plant Introduction Gardens, Chico, Cal.

Besides the two self-sealing varieties noted above, several others are so promising as to merit being tested widely. The West fig (named for Mr. W. B. West of Stockton) is a very good flavored drying fig, though not a self-sealed variety. It has a longer stalk than the Rixford and a darker colored pulp, but is sweeter and equally good flavored. It is one of the best varieties to eat fresh from the tree, fully ripe but not cured.

Among the caprifigs the Bleasdale (named for Rev. John I. Bleasdale, the first to advocate caprification in California) and the Mason (named for Prof. S. C. Mason, arboriculturist of the Bureau of Plant Industry, who discovered this variety) are of much promise.

(Continued on Page 170.)

Pacific Rural Press

667 HOWARD ST., SAN FRANCISCO.

Los Angeles Office, 123 So. Los Angeles St.

TWO DOLLARS PER YEAR IN ADVANCE

Entered at S. F. Postoffice as second-class mail matter.

PACIFIC RURAL PRESS CO. - - - PUBLISHERS

Advertising rates made known on application.

E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., February 23, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	1.80	37.32	30.32
Red Bluff	.58	25.95	16.99
Sacramento	.79	19.40	13.52
Mt. Tamalpais	1.68	31.65	15.91
San Francisco	1.22	21.99	15.79
San Jose	.68	15.19	9.78
Fresno	.26	8.53	6 25
Independence	.04	7.95	6.14
San Luis Obispo	.42	27.30	13.36
Los Angeles	.00	16.08	10.54
San Diego	.00	6.86	6.83

The Week.

We are glad that we do not have to slam the weather this week. It was becoming tiresome. The normal California winter is reasserting itself, and it is just as fine to feel as to remember. The skies cleared to throw more heart into the preparations for the annual citrus fair at Cloverdale, and behaved themselves quite well through the whole very successful extent of it, even to the close on Washington's birthday. The only discordant note which comes to us from the fair is that which comes as a sentence from the opening address, in which the orator "contrasted the splendid section of Cloverdale with the Southland, where nothing will grow ten feet distant from a water faucet." If the speaker knew much about the South he would also know that his statement is not even roughly true; but that misrepresentation is perhaps not so bad as the opposite inference, viz., that his hearers were better off for not knowing how to use water as well as they do at the South. This play of the North against the South, and vice versa, resulting in misrepresentation, misinformation and conceit at both ends of the State, has no place in this generation. It was bad enough in the last century, when people really did not know California as well as they now do, or ought to do. Perhaps we are taking the matter too seriously; but a statement which betrays ignorance, if not ill nature, gives us distemper. The proper thing to do at Cloverdale is to point with pride to a manifestation of citrus conditions which are shared with parts of the State which are now adding twenty millions to the annual income of the commonwealth and are teaching the whole State how to use water. Besides all this, no matter how heavy the rainfall may be, the citrus tree worth having cannot be "distant from a water faucet" in Cloverdale or anywhere else—unless it may be on some land just rightly irrigated by underflow. The citrus trees which add to the beauties of Cloverdale are just as dependent upon the water faucet as any others in the State; except perhaps those in the river bottom, and we are not sure about those. Therefore, again, what is the sense of putting a lot of bogus plumbing into an oration at Cloverdale? Well, never mind, the weather was all right, and so was the fair.

Once in a while the agricultural editor who tries to do his duty gets comfort and compensation in great chunks. Here is a great one: "I thank you for your advice regarding the many questions which I have sent on so many different subjects. Californians are to be congratulated on having such a 'Father of Agriculture'. In no other State in which I have lived have I ever found men such thorough students of agriculture." This is very delightful, and naturally we haste to share the compliments with our readers, before whom we always try to be at our best—just as every wise father exploits the tokens of his greatness in the bosom of his family, lest they should be overlooked. But if we are to pose as the Adam in this new Garden of Eden, we must modestly remind our readers that the garden had more to do with the making of that earlier Adam than Adam had with the making of the garden. Without pursuing the matter to the length of discussing creative means or ends, or even reminding the reader that the original father of agriculture did not have sense enough to hold his job on the easy terms at first provided, we do wish to say a few words to explain how it is that one who tries to know and understand California agriculture finds so much joy and praise in it. In the first place, California agriculture is more alluring and satisfying than agriculture elsewhere, because, first, it is incomparable in breadth and variety; second, it stands in the public mind on the same social plane with all other professions and vocations, and no one in it is discounted by its name, which, if we mistake not, is not true to the same degree elsewhere in the world; third, nowhere else does agriculture have such wide recognition as a learned profession nor so nearly justify such recognition; fourth, nowhere else is agriculture pursued with such application of what are called modern business principles. Now is it not clear that anyone working faithfully and intelligently to the extent of his powers in these regards, will reach a certain effectiveness and capacity through the influence of such environment, and, in fact, be himself uplifted by it? So at least we are coming to think of everyone who scores a success in any undertaking in California agriculture. One has only to be true to his environment to do some great thing, because the environment itself is great. Of course we do not forget that the really great are those who achieve greatness in spite of bad environment and in creating better environment for their fellow men—and in this respect the first father of agriculture made a bad mess of it. We dare not pursue the matter, lest we deny our text as quoted above, and no good preacher will do that. Both the old and the new father of agriculture must content themselves with being near-great.

But grant us a word about the remark of our appreciative friend, that in no other State in which he has lived has he ever seen men such thorough students of agriculture. We count the observation competent, because we know the observer has lived among men in several States, and came to California with wide knowledge of men and their methods and their attitude toward their farming enterprises. This is then a true tribute to California agriculture, and we are thinking also that the character of our agricultural environment has much to do with that also. We must frankly acknowledge, though, that we doubt if we can claim any more thorough students of agriculture. Have we anything to surpass the thoroughness with which the Central West has secured more nutrition in a kernel of corn, more kernels on a cob, more cobs on a stalk, more profitable stalks in a field, more feeding capacity in a more valuable steer, better hogs to follow a steer, better manure to grow more corn—and on again, the ceaseless round? Ah, there it is—the ceaseless round. There is no lack of thoroughness; men are devoted to it, and whole States are great and prosperous largely because of this thoroughness; the whole industrial life of communities rests upon the profit between the tail of a steer and the jaw of a hog! We must claim that to Californians pursuing so many lines of growth and production and having natural and commercial conditions favoring agricultural activities and ambitions equal to their sum total in the United States (ourselves greater in these regards than the total, except when our distinctive lines form a part of it), it is not strange that there may be a thought of greater thoroughness here, while, in fact, it is rather a thoroughness in more things. Our students of agriculture are therefore not more thorough than those in other States, but they know more because they have conditions making it necessary to learn more and because there are success and profit in a vastly greater number of lines. We doubt if an equal number of people anywhere else in the world know how to do effectively so many things as California farmers do, and so there naturally arises an aggregate of novel, practical, and scientific wisdom which is exceptional and creditable. The greatness of California is, therefore, diversity, and all the knowledge which that implies. And yet we are thorough; but so are others, according to their lights and lines. Of course we must guard that treasure of thoroughness, though, and hold strongly to it. We have just read an enthusiastic article in an exchange, entitled "The Diversified Farmer," and have smiled at the ingenuousness of our contemporary. Diversified farming is, of course, a wonderful advantage to a State, or to an individual, under certain conditions; but a diversified farmer is no acquisition to his State or to himself. A man must be concentrated, self-centered, powerful, though he may bring those qualities to bear upon several lines of production to which his conditions are suited. Diversify the farms then, if you like, but the men must be thorough—thorough students of agriculture, as our friend fortunately finds them in California.

We confess to have been considerably harrowed of late, by telephone, mail and personal visitation, in the way of appeals that the meadow lark be allowed by law to save its life for a song, and that shooting larks be made unlawful. The appeal has been to the effect that legislators are normally so upright that they cannot be expected to know much about larks, and must therefore be informed what a good bird a meadow lark is. The fact is well established that as a rule the meadow lark does agriculture far more good than harm, and thus far the legislature seems to align itself with that decision, for the Assembly passed unanimously a bill "extending protection to all non-game birds," and this takes the lark out of the pie. Still, it must be claimed that the meadow lark is sometimes a very bad and injurious bird, and it will destroy young grain to beat the band when it chooses to do so. Possibly counting a great acreage of common grain, the injury will be slight, but if you happen to be working with small areas of something which you must keep or else the work of months will be lost, you can tolerate no meadow larks. They have to be shot then as trespassers, and if we are good enough lawyers to give an opinion, it is that such shooting of actual destroy-

ers of one's property is justifiable. One does not have to sit on the fence and see quail eat his grapes, or lie in bed and know that the deer are destroying the vines, although the law may protect both. So it is with larks. One must not shoot them for fear that they will do injury, nor must he make a pretense of injury to get larks for a pie, but when caught in the destroying act the grower may protect his property even against larks.

A very interesting story is told in the daily papers about a distinguished citizen of this State who recently went to Italy, taking with him all the way from California 10,000 live ladybugs. The ladybugs were for the lemon growers at Capri, and intended to eat the scale from the lemon trees. They were safely delivered to the president of the agricultural collge at Portici, and while some of them had died, a sufficient number survived, and one of them had eaten the scale from a lemon in half an hour. The president of the college was profuse in his thanks for the ladybugs from California. This is all very interesting, and we hope the young Californians will continue to perform well in company. The only drawback to glowing expectation is that in California the ladybugs do not eat enough scales to relieve growers from the cost of fumigation in our chief lemon growing regions.

Continuing about insects, it is interesting to note that the House of Representatives at Washington has passed a bill similar in some respects to the law on the statute books of California prohibiting the importation of nursery stock which is diseased or infected with insect pests. The bill carries an appropriation of $25,000 for its enforcement. The Secretary of Agriculture states that the infamous brown-tailed moth, which is working such havoc in New England, was imported to this country in this manner, and he desires to enforce strict quarantine against infected stock. California is in constant danger from such introductions, and very much desires to have such a line of outworks at the national boundaries to increase the effectiveness of her own safeguards. But we hope the national quarantine will not pertain alone to nursery stock: importations of infested fruit are just as dangerous, and should be similarly excluded.

It certainly does look as though the canners did not "tote fair" when they urged protection for their product and sent on a manifesto for free tin and free sugar. All breadth goes out of the protection idea when such exhibition of selfishness is made. Sugar making is a California industry, the success of which is conditioned upon protection as largely as the canning industry is, and it is useless to claim protection and deny it to an allied industry. We do not wonder that the Washington telegrams state that the California canners put the California delegation in Congress in a "delicate situation." We should say so.

Now that the spectacular features have gone out of the Japanese labor question, it can be seen that the agitation did some good in attracting attention to the greater opportunity there will be for other laborers in California. It will also do good by bringing to light the exact relations of a Japanese labor element to our social and economic conditions. It is announced from Washington that the Immigration Commission, created by Congressional resolution in 1907, has agents in California studying the foreign additions to the population. Their object is to obtain information in regard to both the immigrants who pass beneath the notice of the officers of the Government and also those who are reported to have been smuggled across the border. A study has been made of the mode of life of the Japanese, the effect of the leasing system, and all the relations of the races, with a view to arriving at some conclusions regarding the future effects of the presence of Oriental elements in our population. We do not know just how this inquiry is being made, but it certainly should include agricultural testimony enough to make it representative. The agricultural point of view was practically excluded from the movement which resulted in Chinese exclusion. Such a mistake should not be made twice.

We are glad that Senator Rush, after his acceptable six years of service, is to have such a good successor in the presidency of the State Board of Agriculture as Mr. H. A. Jastro of Bakersfield, to whom we have alluded appreciatively in recent issues for his excellent services as president of the National Live Stock Association. At a meeting at Sacramento the other day Mr. Jastro was elected to head our State Board, with Mr. Frank H. Burke as vice-president and Mr. J. A. Filcher as secretary, the organization must be held to be well officered. Mr. Jastro is quoted as saying that in accepting the office he would make the fair an event to educate the farmer, and would not tolerate gambling or drinking on the grounds. With such assurance, and his well known energy and breadth, Mr. Jastro ought to be able to popularize the fair among legitimate producers and to justify the liberal treatment which we hope the current legislature will extend to this branch of the State government.

Queries and Replies.

What About Australian Salt Bush?

To the Editor: I have bought a small farm which has some Australian salt bush which it is claimed will produce 20 to 30 tons of forage per acre. The seller claimed it to be very valuable on the basis of publications from the California Experiment Station. Is this true, and how does the plant now stand in your State?—Farmer, Washington.

The Experiment Station at Berkeley published some time ago an account of experiments in the growth of Australian salt bush; also analyses showing its nutritive content. In both these respects the plant was notably satisfactory. We cannot send you a copy of this document, for it is out of print. Recently the Station has done nothing with the plant except to grow such an amount of seed as the commercial seedsmen desired, and this amount has been growing smaller from year to year. The trouble with the salt bush seems to be, not in its growth or nutritive value, but in the fact that it is not usually acceptable to cattle, and many who have undertaken to grow it have been disappointed in this regard. It does not constitute any appreciable acreage of our stock-feeding plants at the present time, and from the results of observation we should consider an acreage of it rather a doubtful asset. Perhaps you could do better with it than we have in this State, and if you have sheep to feed, it might be more valuable than for cattle, for we understand that considerable wool is produced from wild salt bush pasturage in Australia. Some months ago we asked that anyone who had found the plant worth growing should send us word of why he held that opinion, and no one responded. We ask again for such information, that the plant shall be fairly represented.

Trenching, English Holly and Sweet Cider.

To the Editor: I have a small orchard of about an acre, with a general variety of fruit trees, all of which are four years old. Each year I raise an abundance of vegetables between the trees, as I have a plenty of water for irrigation. I have planned to have this piece of ground dug to a depth of two feet, and would like to know what you think of this plan; also when is the best time to do it. The soil is dark loam, surrounded by a profuse growth of oak and heavy underbrush. Early in the fall I covered the ground with barnyard manure. I would also like to know something of the culture of English holly, and if you think it advisable to raise it. Do you know of any way to keep apple cider fresh for any length of time?—Subscriber, Santa Cruz.

We doubt if the proposed trenching would pay. If the soil is reasonably deep and uniform, it is not required. It would also cause unnecessary and undesirable interference with the tree roots, probably. We should dig the ground to the full depth of the spade or spading fork and believe that we had done all that was necessary. If, however, you wish to try trenching, do it as soon as the ground works well, so that coming rains may restore a degree of firmness to the subsoil. It ought to have been done earlier in the rainy season, but you are in a region of ample late rains. English holly will do well in your locality on such soil as you describe, and needs only such culture as you give other shrubs—remembering that it is an evergreen and should have a continuous moisture supply in the soil: like an orange tree, for example. We know of no way to keep cider sweet except by heating and bottling as described for grape juice in the PACIFIC RURAL PRESS of October 24 last.

Apricot Blossoms and Frost.

To the Editor: Will you please advise me how much cold apricots will stand before they are injured, and at what stage are they apt to be injured? I have been told that there was no danger as long as the jackets were on, and that they would stand a temperature of 28 degrees without danger, unless the temperature remained at that point several hours. One man advised to smudge when the temperature is at 32, and I notice where a man lit 1400 smudgers when the temperature was 36, and claims to have kept it there, while the unprotected area was 31. It seems to me that this was an unnecessary expense. I would be pleased to know at what time and on what conditions a person should smudge in order to save the crop. —Grower, Los Angeles County.

You are probably right about apricot blossoms standing a temperature of 28° for a very short time. At the same time, the advice to begin smudging just before the temperature drops to 32° would seem to be desirable. It is impossible to tell just to what degree it will drop, and if you are going to undertake smudging at all, it is better to get in just a little ahead of the sudden fall in temperature, which may occur just before dawn. This matter is not yet definitely demonstrated, and is largely a matter of individual conviction. Some men like to reach the station just when the train is beginning to move out, and others are wretched if they do not arrive ten minutes before time, and it is the same in smudging against frost. The man who is ten minutes ahead of time will never get left, while the other one may occasionally, and so may the man who figures too closely on the thermometer. If you have not had the publication on frost prevention issued by Professor McAdie, you should apply for it, addressing Prof. A. G. McAdie, Merchants Exchange, San Francisco.

Horticulture.

MR. DARGITZ RAISES MORE DUST.

To the Editor: In regard to Mr. Buckingham's suggestive questions, I desire to say that the same things were up in my mind, before and after I began using the dust. I have a large barn with a cupola on it, and from this point of view I can look over about 3000 acres of orchard, my own and my neighbors'. My neighbors have used for years, and are still using, the lime, salt and sulphur spray, and perhaps would say, as Mr. Buckingham says, that they have controlled the curl leaf with it. If so, then I did likewise. But from my barn I have been able to look over all peach orchards around here and locate curl leaf in its peculiar foliage effects in spots in these orchards, except where we used the dust the last two years. This seemed a very decided test to me. When the time comes I would be glad for Mr. Buckingham to visit me and see if I am correct.

As to our almond blight: Some scattering trees in the outer edge of the blighted area which we did not spray in 1907 did not regain much of their foliage that year, and though we sprayed them in 1908 they have not yet fully recovered from the serious attack of the year before. As to the sal bordeaux, I presume the sample analyzed was of the same lot as that from which my supply was drawn. I must admit that it looks like applying the remedy in a very much attenuated dose, but if the higher homoepathic attenuations and dilutions in medicine for men and animals are effective, why not in the vegetable kingdom?

Here is the solution that has been brought to my attention: In the wet sprays we have been assured that the bluestone and lime in uniting form several different compounds which are indicated as being insoluble and inert. Now I am not a chemist, and will have to leave it to the chemists to say just how far this is true. If it be true, however, may it not be true that even in the wet spray there may not be to exceed two ounces to the acre of real pure, soluble and effective sulphate of copper? I am frank to confess that it is a hard question for a novice to fathom, and if there is nothing effective in the material we are using with seeming good results, we ought to know it and save our money by not doing it. I am sure that the results are hardly due to the sulphur alone—so sure that I have left the sulphur out of our winter spraying this year, for I reasoned that in cool weather we get no effect from dry sulphur.

I almost regret giving my experience, if I am to be quoted all over as an authority on dust spray, which I am not, but, as plainly stated, only an experimenter as yet. I hesitated about writing my first article on this subject, wanting to be more certain of my ground, but yielded to persuasion for the good of the public. I am an orchardist rather than an enthusiast on this subject, and the minute that I find the wet spray more effective than the dry, I shall unhesitatingly return to it.

J. P. Dargitz.

Acampo, Cal.

THE DUST SPRAY.

To the Editor: Since Mr. Dargitz' article in your issue of December 26, in relation to the dust spray, wherein he uses the names of Mr. Judd and myself, I find that my mail has more than quadrupled, and I am forced to come forward, as Mr. Judd did, and give such experience as I have had with the dust spray. It is a matter of impossibility for one to answer the great number of letters and the numerous questions of the different growers throughout the State; to do so one would have to devote much of his private time to that line of work; so I trust that the few statements that I may give of my experience with dust sprays will answer the questions of all correspondents whom I have failed to answer.

To begin with, I will quote from a letter I wrote on January 8 to the Holmes Lime Co., Inc., San Francisco, who asked me to give my experience with the dust spray, as follows:

"I used quite a lot of your lime the past year as a dust spray, and I am much pleased with the results. By referring to the front page of the Pacific Rural Press, issue of December 26, you will see that I am the party mentioned as using the dust spray near Dixon. My opinion of the dust spray is that, while it will not supercede the wet spray altogether, nevertheless it will be universally used if the orchardist once gets educated up to its value as a spray.

"I sprayed 200 acres five times, and the results were far more than I expected. While I am burdened with letters asking if I believe it will take the place of the wet spray, I will refrain from giving an opinion until I experiment a little further along these lines. This past year was no actual test, as the dry spring itself would prevent fungus, and as far as fungus went, sprayed and unsprayed trees did not develop fungus.

"As a preventive of red spider, codlin moth, peach worm, etc., I am prepared to endorse the dust spray as being superior to the wet, much easier applied and far less expensive."

After writing the above letter, I had hoped to have nothing further to say this year, but, as I mention above, circumstances have forced me to say more upon the subject.

On Apples and Pears.—When I say that I endorse the dust spray as being superior to the wet for apples and pears, I expect to be sharply criticized by many growers throughout the State who have for years held to paris green and arsenate of lead solutions as being the only remedy for worms. To illustrate my assertion, I desire to state that I commenced to use dust spray upon my apples and pears five years ago, before I had ever heard of what is now colled sal bordeaux; I manufactured my own dust, using 20 pounds air-slaked lime, 10 pounds flowers of sulphur, 5 pounds wood ashes, and 1 pound of paris green. I followed behind the spray wagon with men with hand blowers and blew this mixture all through the trees.

My pears were shipped East that year by Pinkham & McKevitt of Vacaville, and they afterward told me that mine were the cleanest pears shipped out of Vacaville that season. This past season, by using the dust as we now prepare it, my apples showed less than 5% wormy.

Now, if we know lime, sulphur and paris green to be an insecticide, and sulphate of copper the best known fungicide, why will not the combination of the four applied to the tree as a dust and wet by the moisture, make a bordeaux that must surely be of some benefit to the tree?

I don't figure that the cost of the dust spray is quite as much as Mr. Dargitz does. I apply mine very early in the morning, while the trees are still wet with dew, and go every four rows. When it begins to dry off I wait until next day.

Method of Use.—I go every four rows over the entire orchard; the dust, using Holmes' hydrated lime as a carrier, will easily drift that far; the second time over I go between the first four rows (second and third), and then four rows again over the orchard. In this way I have really sprayed every two rows. The next time over I go between first and second, and then every four rows, and then third and fourth and four rows more—which makes it sprayed between every row throughout the entire orchard.

The proportions that I use are as follows: Hydrated lime, 40 pounds; sulphur (best), 5 pounds; sal bordeaux, 2 pounds; paris green, 1 pound.

I desire to say one word in regard to the machines—that is: Use a power machine if possible. If you use a sprocket power machine, driven from the wagon wheel, you will find it much better to rig up a counter-shaft on the wagon and drive from the counter-shaft to the machine by belt. By so doing you will take all sudden jerks off the machine. Also put on the proper sized pulley to give sufficient blast to suit the speed of your team. Mount your machine on the rear center of the wagon and then you can handle your spout from either side. You can only use one spout, and blow only with the wind: by so doing you will keep entirely out of the dust.

Peach Blight and Curl Leaf.—In conclusion I will say that any grower at this time of the year who expects to control peach blight upon a tree that has not been sprayed is mighty apt to get left, although I have never failed to control peach blight and curl leaf by a thorough application of bordeaux mixture that was applied early in the season. Only a few days ago I met a very prominent grower, and he said that peach blight has appeared in his orchard quite badly already, and after he had given his trees a "thorough wet spraying."

I am not at this writing advocating to the growers of this State that the dust spray will control the ravages of the peach and almond blight. That remains yet to be satisfactorily proven, but if it will control the ravages of the worms in our almonds, peaches, apples and pears (and I believe it will), I say that it is one of the most valuable sprays we have today, saying nothing about its very small cost and great ease of application.

Should I find this year, after the number of sprayings I intend to give my orchards, that it is not satisfactory, there is no grower that would discard it more quickly than myself. I am spending my hard-earned money along these lines, and I most certainly expect respectable results. I think the time has come when every grower in this State should co-operate in this work and by experiments and otherwise assist our University professors in this work of fighting these orchard pests. Should we be compelled to use a wet bordeaux to control the blight and a dust bordeaux to control the insects, I think that is a noble advancement in our industry, and one that will save our growers thousands of dollars every season.

A. T. Foster.

Dixon, Cal.

MORE ABOUT COLORADO FROST FIGHTING.

Last week we gave a chapter out of recent Colorado experience in frost fending, and as this matter is now seasonable for our deciduous fruit interests we continue with additional data which the same writer, Mr. J. L. Hamilton, gives to the Denver Field and Farm. The results described last week were so apparent, he says, that no one could doubt that he had saved his apple crop by the process.

My own orchard was the best evidence, as the ten acres smudged bore over 5000 boxes of fruit, while the ten unsmudged and adjoining bore practically nothing. And further, there was little or no fruit for miles about. To say that this ten acres of fruit was a curiosity states it mildly. It was more like an oasis in a desert. The place was visited by hundreds and thousands of curious and delighted people. It gave new hope and encouragement to the fruit growers, as it was a thorough example of what may be accomplished by each one in an independent way.

In six nights I burned the pots for 32 hours and maintained any desired temperature to meet the case. Three nights the mercury was as low as 23 for short periods, and one night went down to 21 for thirty minutes. For the entire operation I burned 3000 gallons of oil, 2200 gallons of which was kerosene. Had I used crude oil for the entire operation I would not have burned to exceed 2500 gallons. I still have some of this crude oil, which I have stored in a cement cistern, and after several months I find it in as good condition as when placed there, to all appearances, and it certainly burns just as freely. The cement cistern is in good condition and will hold the oil for an indefinite period, so far as any present apparent deterioration is concerned. On the night of April 27 I burned the pots for eight hours, and maintained an average temperature of 9.03 degrees above the normal, while on the night of May 5 I burned 4½ hours and maintained an average of 11.03 degrees.

With this oil arrangement it is possible to maintain almost any desired temperature to meet the conditions, and any system that cannot do this will prove a failure. The coldest period is the last hours of the night. In the event of an eight or nine hour fight, the hottest and best fire must be during the last hour. Without a system that will meet this condition, one is wasting time and money in trying it. It will make no difference how high one may have raised the temperature earlier in the evening; it does not help in any degree after the heat has passed off and the crisis arrives.

I was very successful with the smudge largely because my orchard is in ideal condition for this work. The trees are large, are close together and the foliage was heavy at the time we operated. The dense foliage forms a retaining blanket which holds the smoke, and the smoke and the foliage combine to hold the natural heat of the wood and foliage, as well as the artificial heat from the pots.

This was evident from the fact that after extinguishing the pots in the morning, after hard burning, I noted that the smoke would seem to linger in the foliage for a short period.

The grower must study out many things in preparing to place an equipment in his orchard. Where the trees are small and planted quite a distance apart he will require different placement than if they were large and close together. Air drainage must be taken into consideration as well. A mixed orchard containing different sized trees will require a different placement for different kinds of trees. All this, however, will come after the system has been decided upon. I would warn the grower not to accept any device for such important work as saving a valuable crop of fruit simply on the word of any manufacturer. Each grower must figure out what, in his opinion, is the best system—one that has been tried and proved equal to the demands. After selecting the system, then select the pot. In doing this the price should hardly be considered. If it is oil you will burn, by all means secure a pot that will give you the largest possible fire. When the occasion comes for the use of the large fire you will appreciate this point. The night labor problem will be one you will have to face, and this will be a serious one. To best avoid labor, get a pot that requires no refilling, one that will burn a long period of time. To meet these requirements a pot that admits of a small fire, with the possibility of quickly and easily increasing it to any desired size, would afford protection against the possibility of having just a few less pots than the occasion demands, with its losses. It also removes the necessity of placing such a large number of devices in the orchard. When you are called from your bed at the small hours of the night to take up the fight against this silent and unseen foe that is coming down upon you and that may clean up a whole year's expectations in an hour's time, it will not be a question then of how cheap can you do it, but how well can you do it.

THE NECESSITY OF BETTER WORK IN SEED GROWING.

Recently Mr. Lester L. Morse gave in our columns an excellent sketch of seed growing, in which he emphasized the necessity of culture selection, etc., to get seed of the highest potentiality in the way of producing desirable types. We find in the Rural New Yorker a severe arraignment of the seed business as it is too often pursued by careless or conscienceless people, from which we take the following:

This season I planted seeds obtained from two of what are known as the four most reliable seed houses (as stated by one of the same) of the United States. Now for the results: Radish seed, 50% fail to produce anything but a seed stalk. From another house, not 10% produced a bulb. Cabbage, an average of 50% fail to produce a head. Seed of this vegetable planted by a tenant on my farm, and bought from a Seattle house, brought forth the wild mustard of our fields. Beets, 25% run up a seed stalk without producing a bulb. Carrots, better. This is detail enough of the facts.

As is well known, the Puget Sound country is doing a good deal in the line of growing certain varieties of vegetable seeds, and I was lately in the field of one of the growers of cabbage seed. This grower has discovered a short cut in the growing of this seed, viz., getting the plants started so late in the season that they would pass through the winter without heading, he was saved the labor of covering to protect from frost (necessary here when the plant heads and ripens). These plants at once on the approach of warm weather in spring would throw up a seed stalk, and he was enabled to get twice the number of same in the rows. How many generations of such plants and the habit of head-forming would be eliminated entirely? We know that our fields here are infested with wild turnip, the progeny a few generations removed from the cultivated variety of our garden. Not one of the plants produces bulbs. The moral is plain. The seed growing business has to go back to the slower, plodding producers of northern Europe. We have the climatic conditions, but alas! have also the "get-rich-quick" American sentiment and practice to offset it.

POLLINIZING ALMONDS.

California almond growers who have been figuring on cross-pollination of almond varieties for many years will read with interest the experience described in the Pacific Homestead of Oregon by Mr. M. W. Pruner of Riddle, in that State, he writes:

Fifteen years ago I set 12 IXL almond trees on the south side of a gravelly hill. Of course, they grew slowly, and when they were large enough to bear they started so early that they were hurt by the frosts; but I would not grub them up. I hoped that sometime they might bloom so late I could get a crop from them.

As they grew older I set Nonpareil almonds next to them, but these too grew and blossomed but bore no nuts to speak of, nor did they help my IXLs. Finally, hearing of some seedling almonds near us which bore, I grafted from them into the IXLs. Some of them grew. They bloomed and bore the next year, and limbs near them bore also. I did more grafting the next year.

The last two years I had good crops from both the IXL and Nonpareils. The scions I used were from hard shell varieties. I do not know that they will stand more cold, but think they were needed for fertilization. The IXLs were large enough to bear a bushel of nuts apiece before I grafted into them, but had never any year borne over a quart of almonds.

[Of course we know in this State that it is not necessary to graft in hard shell varieties to secure pollination, but there are soft shell varieties which are also good pollinizers and can be sold to advantage, as hard shell almonds seldom can, except for the shelled almond trade.—EDITOR.]

The Vineyard.

BISULPHIDE OF CARBON AS A PLANT STIMULANT.

Some time ago a translation of a detailed account of German experiments with the effects upon vine growth of the introduction of carbon bisulphide into the soil was offered to us for publication, but at the time we could not accommodate it. An outline of the claims for benefit as prepared by Mr. Falconer for the Rural New Yorker will suffice to start local experimentation, if any of our readers are disposed to use some of their squirrel-killing medicine in that way:

Recent German publications contain accounts of good results attained by treating the soil of old vineyards with carbon bisulphide, aside from the destruction of phylloxera and other subterranean insect pests. It has especially been noticed that new vines set in old vineyards after treatment of the soil with carbon bisulphide as an insecticide, grew with unexpected luxuriance; also that grain, alfalfa, beets, and garden vegetables showed remarkable growth on soil thus treated. The long established vines in these orchards braced up to some extent, but required extra fertilization to ensure permanent results. Newly planted vines on treated soil come into bearing in three years if supplied with fertilizers, as against five or six years under usual conditions. The theory most favored is that the carbon fumes destroy or alter the vital action of certain harmful fungi or bacterial organisms that tend to increase in soil long cultivated to special crops, but that the useful nitrifying bacteria are more resistant and are not injured to the same extent. Growing plants are thus freed from hindering influences, and soon receive fresh supplies of elaborated nitrogen, enabling them to respond in greatly increased development. Many careful tests have been made, nearly all showing favorable results. The most promising conclusion appears to be that old "vine-tired" soils filled with organisms or excretions harmful to grape vines or other plants may be restored to usefulness without the ordinary long and unprofitable resting period, extending in some instances over ten years, by comparatively inexpensive treatment with carbon bisulphide. From three to eight liquid ounces of bisulphide are used for each square yard of area, pouring it into holes punched two or three feet deep in the soil. Four or five holes are used to each square yard, according to the nature of the soil, porous soils requiring fewer holes than those that are heavy or compact. The liquid is poured into the holes, getting an equal quantity in each, and the holes are immediately sealed with clods or sods forced in, as when the chemical is used as an insecticide. The treatment should be given at least six weeks before planting, and one authority applies the carbon bisulphide in July or August and does not plow until the following spring.

EXPERIMENTS WITH SHIPPING GRAPES.

In the PACIFIC RURAL PRESS of September 19 we gave a full outline by Mr. A. V. Stubenrauch of the important experiments in packing, shipping and storing California table grapes as conducted by Mr. Powell's group of fruit handling experts during the shipping season of 1907. This work was continued during 1908 by Messrs. Stubenrauch of the U. S. Department. We find a brief statement of the work, of which fuller details will come later. This statement is that their experiments in packing and cold storage of grapes prove that by the new methods of handling the fruit can be kept any reasonable length of time and placed upon the market when desired. We quote from one report as follows:

The men have worked in overcoats in a room of the Pasadena cold storage plant for years in a temperature never greater than 32 degrees above zero. Grapes of every variety, handled in many ways, have been studied under all sorts of conditions and with a success which has practically solved the problems of transportation.

Most of the injury to the grapes has, according to Mr. Stubenrauch, come from mould which developed two or three days after the fruit was packed, under the old methods, and usually at the point where the stem joins the grape itself.

Sixteen different varieties, most of them from the Tulare Experiment Station of the University of California, were secured for the purposes of investigation, and as the use of cork dust, such as the Spanish growers use in packing their product, meant the importation of dust, the experimenters tried different kinds of wood dust.

Most useful for their purpose was the dust of redwood, which was found to be even better than the cork. The delicate Verdal grape, which will only keep a month in ordinary crates, and but little over three months in cork, was lifted from this redwood packing after 130 days in excellent condition.

The Almeira grape, imported into America in large quantities, will keep three months in an open crate, four or five months in the cork packing, and 170 days in the redwood sawdust.

Details of the experiment are contained in the following table of days keeping:

Variety.	Open crate.	Cork filling.	Sawdust.
Flame Tokay	40 to 60	65 to 100	...
Muscat	30 to 40	90 to 100	110
Malaga	30 to 35	90 to 115	120
Black Prince	20 to 30	70	...
Black Ferrara	40 to 60	90	...
Purple Cornichon..	45 to 60	80 to 140	150
Verdal	20 to 25	100 to 110	130
Pizzutella	20 to 35	70 to 90	110
Almeria	80 to 100	95 to 150	170

PERMANENT WORK FOR GRAPE INTEREST.

A bill to provide for a perpetual appropriation for viticultural work on the part of the Agricultural Experiment Station of the University of California was introduced in the legislature by Senator W. F. Price and has passed the senate. The bill is one of the projects of the Grape Growers of California.

The bill carries an appropriation of $15,000, and it is provided that in the future the act shall be a part of the general appropriation bill. The director of the Experiment Station is directed by the bill to pursue researches and to publish bulletins pertaining to all phases of the viticultural industry.

"The grape and wine industry of California represent an investment of more than $100,000,000 and are capable of a very great expansion," said Secretary Stoll of the Grape Growers of California recently. "We hope to accomplish as great results for the viticultural industry by means of the experiments of agricultural stations as have been accomplished for agriculture."

AGRICULTURAL REVIEW.

With the Citrus Growers.

Texas is buying orange nursery stock from California in quite considerable quantities this year. R. M. Teague of the San Dimas Nurseries has made several shipments, one of the last being 5000 Satsumas on trifoliata stock.

George C. Power has purchased 240 acres of land from the Thompson ranch, near Ventura, and will set it all out to lemon trees. This is one of the best locations for lemons, and Mr. Power's grove will doubtless make as great success in time as the famous Limoneira grove near Santa Paula.

Norman Sinclair is preparing to set out 50 acres to oranges near Porterville, which will double the present size of his grove. Mr. Sinclair states that 375 acres just south of Plano belonging to himself and J. J. Vosburg is to be set out to oranges also.

The Imperial Valley News says that owing to the great demand for citrus nursery trees, the price has gone up till $1.75 per tree has been offered for valley setting.

The citrus growers of Lindsay organized a Protective Growers' League, having eighty members to start with, last week.

Fruit and Vegetable Items.

Much to the surprise of melon growers in other sections, there will be about 6000 acres planted to cantaloupes in the Imperial valley this season. Planting is now in progress; in fact, much has already been done. It was thought the acreage there would be very light this year owing to the disastrous results of last season.

The Georgia Peach Exchange is a new organization just perfected, which claims to represent over 90 per cent of the coming crop. The prospects now are that the Georgia peach crop will be a good one.

Arekalian Bros., who have large vineyards in the Imperial country, have placed orders for 30,000 Malagas and 20,000 Thompson's seedling cuttings to plant this spring.

As the season passes the wine makers are gradually disposing of their surplus stock. During the past month considerable has been shipped to New York, several heavy shipments have gone by water to various places, one being to South America, and quite a quantity has been stored in San Francisco. The market has gradually stiffened, though the price is not yet satisfactory.

J. W. Armstrong, the Covina nurseryman, is planting at Ontario this week four tons of peach pits, which he estimates will grow 100,000 trees ready for the market in two years.

Agricultural Notes.

Twelve cars of beans from Los Angeles county were shipped by steamer from San Diego for New York last week.

Reports from Sonoma county state that hop growing contracts are being made on basis of 9½ and 10 cents per pound for the coming season, 11 cents for the second and 11 cents for the third year.

The members of Petaluma Grange are preparing to entertain the Pomona Grange February 27. An all-day program has been arranged, including literary and musical numbers as well as a great dinner.

It is announced that Durst Bros. of Wheatland, the great hop growers, will plant 100 acres to sugar beets this season to test which crop pays best per acre.

Stock and Dairy Notes.

Seventy-eight head of hogs, weighing an average of 266 pounds, sold for $13.30 per head or $1037.50 for the lot, near Willows last week. Not bad for a few porkers.

A dispatch from Portland, Ore., states that wool speculators in that State and in Idaho, Utah and Montana are buying wool on the sheep's backs. The further statement is made that through the West fully 30,000,000 pounds have already been contracted for.

The annual horse show will be held at Livermore Saturday, February 27. All animals entered must be in line at 1 p. m.

In the Third District Appellate Court last week the Lassen county ordinance charging a license tax of 5 cents per head on sheep pastured in that county was declared oppressive and burdensome and consequently void. This is a great victory for the sheep men.

Shasta Forest Grazing Permits.

W. B. Rider, the supervisor of Shasta National Forest, will receive applications for grazing permits at Sisson till March 15. Permits will be issued for 15,000 head of cattle and horses, 20,000 sheep and goats and 500 hogs, the charge being 30 cents per head for cattle and 40 cents for horses, for the season, from May 1 to November 30. Charges for hogs during these months will be 15 cents, and for sheep 8½ cents and for goats 9½ cents. An extra permit for earlier grazing may also be secured. Grazing permittees are required to salt their stock regularly at least once each month.

Cloverdale Citrus Fair.

The seventeenth annual citrus fair was held at Cloverdale, Sonoma county, from last Friday to Monday inclusive. The displays of oranges raised in that locality were better than on previous years, and the attendance was very good. Many of the exhibits were in the form of designs, such as the American flag, map of California, gondola, water wheel and bucket, the old bear flag, etc. Thousands of oranges were used and visitors who came from long distances were well repaid for their trip. As an advertising proposition for the orange section in the northern part of Sonoma county this annual fair has always proven a great success.

El Dorado Seedling.

W. H. Taylor of El Dorado county announces that he has originated a new variety of apple which gives great promise. The new apple seedling is described as producing a large, red fruit, coming in very late in the fall, and he says that it has proven a most excellent keeper, the fruit remaining in good condition under favorable circumstances until the first of May. It is a fine bearer, producing crop every year, and begins to bear much sooner than is usual. It blooms the first year from the graft and has ripe fruit before two years of age. At three or four years the tree attains a growth and productive capacity not reached by ordinary apple trees under five or six years.

Lower Priced Eggs.

For the first time in months in the cities around the Bay eggs sold at 25 cents last week. During the past fall and winter eggs have averaged from 50 to 60 cents retail. Last week at Santa Rosa eggs sold to commission houses for 17½ to 19½ cents. At Stockton last Saturday eggs were quoted at 20-22 cents, while at Petaluma the same day the highest price quoted was 20½ cents. At the meeting of the Egg Exchange in the latter city Saturday a salesman was hired to represent it at San Francisco. Dealers there believe that lowest prices have been reached.

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For Better Roads.

On the 16th of March the taxpayers of San Joaquin county will vote upon the proposition for the county to issue $1,890,000 of bonds to be used in building good roads. It is proposed if the bonds carry to build nearly 240 miles of roads in such a manner as to be of permanent value. At present the county is spending about $50,000 per year to keep the roads in repair, and it is thought that the cheaper way will be to build good roads than to repair poor ones.

A Record Chick Order.

A. E. Bourke of Petaluma is credited with having the largest order for newly hatched chicks yet received at one time by any breeder on the coast. Last week Mr. Bourke received from the East an order for 15,000 White Leghorn chicks, all to be of one hatch and all to be shipped at the same time. The eggs are now being gathered and being placed in the incubators, and the little chicks will be shipped in a specially prepared freight car early in April. Petaluma people one way or another seem to be keeping in the limelight as the greatest poultry center of the country.

San Diego and San Bernardino Irrigation Schemes.

The San Bernardino Sun says the Muscoy Water Co., owners of a large ranch north of that city, will at once commence the building of a large conduit for a water supply to irrigate 5000 acres of their mesa land. A pipe line two miles long is to be built to deliver water from El Cajon creek to the highest point of the land to be irrigated.

Word comes from San Diego that H. E. Huntington and associates, who own the big Warner ranch in San Diego county, will at once commence the construction of a big reservoir to cost a half million dollars. The water is to be used for irrigation along the San Luis Rey river and along the coast from Oceanside to Del Mar.

State and County Fairs.

At the annual meeting of the State Agricultural Society, held at Sacramento last week, H. A. Jastro of Bakersfield was elected president to succeed Senator B. F. Rush of Suisun; Frank H. Burke of San Francisco was elected vice-president, and J. A. Filcher secretary. C. W. Paine will be superintendent of race track and Fred L. Martin will be in charge of buildings and exhibits. The dates set for the fair are from August 28 to September 4, though racing will not commence till the 30th. Last year the trotting and pacing purses amounted to $10,000, and this year it is stated this sum will be increased about $5000.

The Chico Association is arranging for a big meeting the week before the State Fair.

The Monterey County Association has decided to hold a fair the coming fall. This association did not have an exhibit nor races last year.

Mrs. Mowatt Sells Raisins.

It is announced that Mrs. V. A. Mowatt, who has a large ranch near Sanger and who has been prominently identified with the pooling movements during the past season, has now gone to New York and established a depot there for selling raisins to the retail trade. She has one carload there and another being prepared to forward, and will continue her campaign till she has disposed of her crop.

A PACIFIC RURAL PRESS representative at Fresno telephoned to her ranch to secure the address of Mrs. Mowatt in New York, for information of our readers, but was told that for the time being the location would not be given out here. Our informant states that the lady is meeting with good success in selling her raisins and is cutting the regular retail prices there, though is making more than if she had sold to the brokers here.

Growers at Selma have combined to share the expense of sending a salesman through the East to dispose of their raisins. Three cars have already been sold in this way, netting the growers 3½ cents.

At a meeting of the Farmers' Union held at Hanford last week the news was given out that an offer had been made through Eastern connections for 100 cars of raisins.

Grain Crop Reports.

In Yuba and Sutter counties the wheat crop is reported in poor condition, owing to too much rain. Many farmers have most of their acreage yet unsown and the chances are that the spring planting will be light. From San Luis Obispo county the news comes that grain farmers are looking for the best year in their history. From the southern part of the State grain crop reports are very flattering, a large acreage has been sown and bumper crops are promised.

Cheese From Ewes' Milk.

The Kern County Echo is authority for the statement that four or five Greeks have been milking a herd of goats belonging to Miller & Lux and making goat's milk cheese, the first shipment being sent out last week. The cheese is said to be very mild and white as milk, but does not seem to be lacking in richness. While the market may be somewhat restricted at this time, yet the makers claim they can get 25 cents per pound for all they produce.

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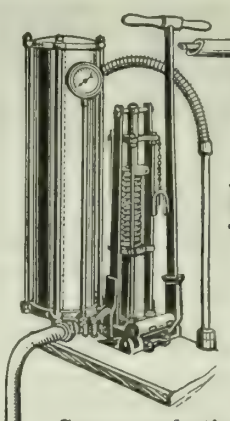
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Citrus Fruits.

Some Principles and Facts in Orchard Irrigation.

Written for the Pacific Rural Press By Mr. T. C. Wallace.

The Riverside Y. M. C. A. have a monthly lecture course during the winter, the subjects presented being those relating to the soil and orchard management. The lectures or papers read are seldom long, the object of brevity being to encourage discussion. The committee of the Y. M. C. A. have certainly done themselves proud in thus helping to bring before growers the thinkers and students in the subjects that interest them, and in encouraging exchange of ideas and experiences. The February number of the winter course was given to "water and irrigation," with Mr. E. A. Chase as the lecturer. Mr. Chase's paper dealt mostly with the history of water development for irrigating this great valley whereby an ample never failing supply has been obtained, He gave the greatest credit to Matthew Gage, promoter of the great Gage canal, and to whom he paid a splendid tribute for his bright genius and untiring energy under the innumerable difficulties that invariably surround the intrepid man who scales unmeasured heights or attacks unsolved problems. Mr. Chase did not go into detail of orchard irrigation, leaving that for the assembled growers to discuss. Unfortunately the discussion did not develop importantly, despite the efforts of the chairman. This is to be regretted, as it would seem like a good chance lost. The discussion drifted somewhat into cultivated methods, on which opinions seem almost as hopelessly divided as on the much mooted fertilizer problem. Viewing the meeting from the back benches it seems that we are justified in laying before our growers some of the facts and principles governing orchard irrigation, particularly as in it lies the very basis of production in this semi-arid country.



Gage Canal, Riverside, Near the Headgate.

Water is the only carrier of soil food to the plant; it alone is the basis of the solution in which the mineral salts reach the leaf of the tree where they are joined by the organic elements from the atmosphere. Here still in the leaf, which we may symbolize as the laboratory or kitchen, water is still the chief ingredient of dilution, in which the sugars, starches and proteids are cooked to make plant food for distribution throughout the tree, enabling it to build wood and fruit. Without this food thus prepared in sufficient water to keep it in solution until it travels back down to the roots, new roots and rootlets cannot be built. This shows us quite clearly why such an enormous amount of water as 300 pounds are required to make one pound of either fruit, branch or root; when we add to this the unqnown quantity lost by evaporation in our climate, irrigation stands forth pre-eminently important. It would seem that this knowledge must be the very primmer lesson of every educated or thoughtful grower, and our apology for thus reiterating it as a preface to this discussion is that it underlies every phase of orchard work, in which are included pruning and fertilizing, as well as its importance in dealing with evergreen trees.

Supplying the Water.—The first care of the irrigator is to get water deeply into his soil without flooding or puddling the surface. It is not after all so much a matter of the number of miners' inches used as the deep diffusion of the water through the soil to the full depth of the natural rooting of the tree. In this dry climate, if the first two or three feet of the soil are quickly saturated with water, perhaps sufficient for six feet of healthy moisture, and then the irrigation stopped, the rapid evaporation from the surface soil will promptly arrest the downward seepage and the capillarity will be upward, so that none will go into the subsoil. The subsoil will then gradually dry out and harden, and each repetition of this operation will aggravate the subsoil condition until a hardpan is formed into which the water will not seep readily, and this results in the lower roots of the tree being encased in hard, dry soil to become inactive or even die. Another evil of this condition is that at each irrigation the air is driven out of the upper soil so that the roots in it are smothered, followed by such evils as gum disease, die-back, paling foliage and fruit dropping, for we see the tree unable to obtain sufficient water to properly dilute the food elaborated in the

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J. W. BAIRSTOW, Hanford, Cal.

leaves, or keep it in proper solution for distribution throughout the tree, and carry it to the root for the work of root extension and mineral solution. All attempts to remedy this by the application of manures and mulch to supply dissolvents, or such delicately soluble salts as nitrates to stimulate the solution, are only temporarily beneficial and in the long run bring on greater complications.

What then are the precautions which must be observed to ensure substantial irrigation?

First—The irrigator must study his soil and note how rapidly or slowly water sinks into it.

Second—The irrigation furrows must be deep (about 6 inches or more) to prevent tne water spreading too rapidly through the surface soil and exhausting the air from them; to allow the soil to act as natural side sponges to relieve the puddling under the stream so as to carry air as deeply as possible with the water, and to minimize evaporation.

Third—The careful examination of the soil for several feet deep to ascertain if the water is penetrating deeply or simply puddling the first few feet of soil.

Few irrigators know much about how water acts in their soil, as they only see the surface, and warrant the criticism of Wilcox that "unskilled labor has a penalty of 25 to 50 per cent attached to it in the application of water, and unfortunately this class is too prevalent in the irrigating fields." One of the mistakes often observable on heavy soils is the running of five or six furrows between each row of trees, whereas three or four were sufficient. The furrows should be no nearer than sufficient to allow the water of each to sink in independently, fanning out to meet below. If streams are so close that they mingle in their downward course a foot or two below the surface they cause a puddling of the soil and consequent driving up of air, which in a short time arrests the downward action of the water, making it seep more and more slowly, until a practical standstill occurs. The result is generally hardpan.

As irrigation is usually practical but one way through the orchard a deep subsoil track or tunnel should be run halfway between the trees transverse the streams. This can be done with a small tool on a subsoil-plow shank big enough to make a track about the size of a gopher run at a depth of 15 to 20 inches. The benefits accomplished by this are the dissemination of water all around the trees, the more rapid spreading of the water without driving out the air, as in the deep furrow, and the carrying of the air deep down into the soil, thus assisting irrigation. This may be objected to as a root pruning operation, which it certainly is, an on this account it is not practical at all seasons. This is to be regretted because it is a great advantage to irrigation. However, this plan of cross cutting deeply is quite safe from November to January, or even February, unless in case of an extremely early season, when February is late. After the trees have commenced vigorously to throw new roots into the soil and put out new growth of top or fruit symbols such sub-cutting should not be resorted to, as it tends to arrest vital processes of the tree and cause shock, which may take years to recover from. In the fall and winter season the object of the orchard irrigator should be to store deeply in the soil a reservoir of water to practically carry his sub-soils through the summer. It is not practical to do this storing during the specially active season of the tree, but while it is in partial, or sluggish, dormancy the operations necessary for this can be carried on safely. Some judgment must be used, as seasons are prolonged or cut short by climatic happenings, so that no arbitrary dates for such work can be safely anticipated. One important advantage of this off season storage of water is that gentler irrigation, that does not exhaust the soil air, will suffice for the active seasons when a crop of young fruit can be caused to drop as a result of an irrigation exhausting the soil air. Growers will find that if the principles and facts we have endeavored to explain and describe are adhered to they will have less reason to complain of the results of their fertilizing.



Gage Canal One Mile Below Headgate.

Mulch Cultivating.—It is not the intention of this article to deal with cultivation, as it is such a wide subject, but one phase of it is so akin to irrigation that it seems incomplete without reference to it. An important point is to conserve the water after getting it into the ground, and this can only be done by what is known as the dust-mulch obtained by cultivation. The deep furrow which prevents the soaking of the soil surface allows the orchardist to go on the land with team and break in the furrows promptly after the water is turned off, say, within

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a day on many soils. This can be quite promptly followed by thorough cultivation to make the mulch, the object of which is to cut off the capilliary tubes of the soil and thus prevent the water rising to the surface and evaporating. Soils differ so much in texture that it seems impractical to lay down a rule as to whether this cultivation should be repeated in 10 or 15 days, or await another irrigation, say, in 30 or 35 days, but if it is found that the soil dries below the mulch the only practical method is to put on the mid-month cultivation to keep the mulch loose and so check evaporation. This second mulching should be about an inch deeper than the main cultivation, so as to break up established capilliaries at that point. There is much difference of opinion as to the depth a mulch should be made, because there are so many soil types and physical conditions found, but if conditions are such as should prevail in an orchard, the depth should be from four to six inches, according to the nature of the soil.

THE RIXFORD: A NEW TYPE OF SMYRNA FIG.

(Continued From Page 161.)

A dozen or so Smyrna figs and a score or more of caprifigs growing in the Maslin seedling orchard are under observation, and some of them will doubtless be worthy of notice at some future time. I have been fortunate in securing the collaboration of Dr. Gustav Eisen in the study of the edible varieties, and of Mr. G. P. Rixford in working out the relative value of the caprifigs in this orchard.

It is clear from the unexpected favorable outcome of Mr. Maslin's experiment that the Lob Ingir or Commercial Smyrna is not a very highly-bred variety, since many of its seedlings equal it or are even of superior worth. This shows us that we can expect to originate right here in California new varieties of drying figs (and new caprifigs to support the blastophaga) especially well adapted to the soil and climatic conditions as they exist here.

It is with this end in view that the effort is being made to induce every fig grower to set out a few seedlings grown from seeds of the best imported and California grown figs of the Smyrna type in the hope that some of them will turn out to be even more valuable that the Rixford and the other new varieties originated by Mr. Maslin.

DISEASE FOR COYOTE KILLING.

Some time ago we alluded to an undertaking to destroy wolves and coyotes by contagious disease. Results are appearing. A Wyoming rancher recently wrote to the Breeders' Gazette as follows:

"Recently I shot a coyote that I found lying down in a hen coop in the midst of the remains of two pullets. It appeared to be a pup, only a little more than half grown, and having a very bad case of the mange or scabies or some similar disease. I have heard that the Department of Agriculture inoculated some coyotes with the mange and turned them loose in Montana, but have never heard of such a thing being done anywhere near here. Do you suppose it possible that the disease has spread this far, or are experiments similar to that one in Montana being conducted here or near here? The skin of the animal I shot appeard nearly black and partly swollen, quit scabby and about 90% hairless. The tail, sides and legs were almost wholly bare. A little hair was left on top of the shoulders, neck and head. Today I saw another one in a similar condition.

Commenting on the above, in the same journal, Dr. M. E. Knowles, State Veterinarian of Montana, writes:

"The report well describes sarcopic mange of the coyote. It was the State of Montana that made the experiment of inoculating coyotes and wolves with this disease for their destruction. The work was placed under the department of the State Veterinarian, and about 200 wolves and coyotes were inoculated in various counties of Montana, the nearest to Wyoming being at Bierney, Rose Bud county, under the charge of Capt. Joe Brown, recently deceased.

"It is quite possible that some of these infected coyotes infected others, which found their way into Wyoming. I am constantly receiving reports from all over the State of Montana of stockmen finding dead or badly diseases wolves and coyotes, that are easily killed, many of them being destroyed by a blow from a club, being so poor as to be unable to get out of the way. During the past year I have had verbal and written reports of several hundred diseased and dead wolves and coyotes that have succumbed to the mange, evidently induced by original inoculation made by the State Veterinary Department at Helena, Montana."

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TULARE GRANGE MEETING.

Tularge County Pomona Grange held its first regular session in Tulare on the 30th ult., the guests of Tulare Grange. Seven new members were initiated and obligated.

The regular meetings for this year were set: Dinuba, April 30; Visalia, July 31; Orosi, October 30.

There was no general or special program. Members generally brought up subjects of general importance and such as would promote the good of the order. Of such, the most important is a bill now before the Legislature enabling the members of any fraternal order to agree among themselves to share among themselves each other's losses by fire. The bill contemplates rural risks; no risk to exceed $7500 nor more than three-fourths of the value of the property at time of insurance, and no risk to be assumed until applications for $75,000 have been received and incidental fees thereto paid. Correctly speaking, it is not an insurance bill as usually understood by the term. It is not in opposition to or in competetion with any fire insurance company or association. No fraternal order need adopt it as an incident or a feature of its order, and no member of a fraternal order is under any obligation, expressed or implied, to include his property in such agreement. If a fraternal order does, however, adopt it as a feature of its organization and provides by-laws and rules under which such mutual agreement can be made, then those of the members of the order who approve of the by-laws and rules so formulated by their order may mutually agree among themselves to share each others' losses by fire of the property specified to the amount of three-fourths of its cash value. This will be co-operation in the true sense of the word. Only those co-operating can be benefited by it. The system has been in operation in sixteen States under the by-laws and the management of the Granges of those States for as long as thirty-five years in some and to the amount of over $100,000,000 in the State of New York. During all that time every loss has been amicably settled and promptly paid. For reasons manifest of themselves, the Legislature of each State should encourage and promote such a system of mutual insurance. What it has done for other States it will do for California. The Grange asks the members of the committees of the Senate and the Assembly to whom the bill has been referred their unbiased consideration. The bill is copied after the California law authorizing fraternal orders to insure the lives of their members. There is no question of its beneficial results in that case, or of the wisdom of leaving to the order availing itself of its provisions, of adopting such rules and regulations as will insure its safety and its benefits for its members. The special law of Kansas authorizing the Grange of that State to have a similar mutual fire insurance for its members only is drawn in a very similar way. The Grange unanimously approved the bill and asked Senator E. O. Miller and Assemblyman G. W. Wylie to give it their earnest support.

Other measures now before the Legislature for its consideration were discussed, also the bill introduced by Hon. A. M. Drew, in the Assembly, prohibiting any alien from holding title to land. The State Grange in 1907 adopted a resolution against any alien holding land in the United States and against the sale of coal or coal oil lands.

The Grange was in session until late. There was a good attendance of members from Dinuba, Orosi and Visalia Granges. Everything was harmonious and all were pleased. J. T.

VINEGAR MAKING.

The North Carolina Experiment Station gives the following suggestions on vinegar making: Take sound barrels or any suitable sized vessels of wood or earthenware or glass—never iron, copper or tin. Clean thoroughly and scald. Fill, not more than half full, with the cider stock, which should have fermented at least one month. To this add one-fourth its volume of old vinegar. This is a very necessary part of the process, since the vinegar restrains the growth of chance ferments which abound in the air, and at the same time it favors the true acetic acid ferment. Next add to the liquid a little "mother vinegar." If this latter is not at hand, a fairly pure culture may be made by exposing in a shallow, uncovered crock or wooden pail a mixture of one-half old vinegar and one-half hard cider. The room where this is exposed should have a temperature of about 80 degrees Fahrenheit. In three or four days the surface should be covered with a gelatinous pellicle or cap. This is the "mother vinegar." A little of this carefully removed with a wooden spoon or stick should be laid gently upon the surface of the cider, prepared as above described. Do not stir it in. The vinegar ferment grows only at the surface. In three days the cap should have spread entirely over the fermenting cider. Do not break this cap thereafter so long as the fermentation continues. If the temperature is right the fermentation should be complete in from four to six weeks. The vinegar should then be drawn off, strained through thick white flannel and corked or bunged tightly, and kept in a cool place until wanted for consumption.

If the vinegar remains turbid after ten days, stir into a barrel one pint of a solution of one-half pound of ising glass in one quart of water. As soon as settled, rake off and store in tight vessels. Usually no fining of vinegar is needed. No pure cider vinegar will keep long in vessels exposed to the air at a temperature above 60 degrees Fahrenheit. "Vinegar eels" are sometimes troublesome in vinegar barrels. To remove these, heat the vinegar scalding hot, but do not boil. When cool, strain through clean flannel and the "eels" will be removed.

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Live Stock and Dairy.

Some Stock Troubles as Brought Out by the Demonstration Train.

Written for the PACIFIC RURAL PRESS By LESLIE W. SYMMES.

The Farmers' Demonstration Train which recently completed its schedule through the San Joaquin valley is the third train of its kind operated in this State for the benefit of the farmer and stockman.

I believe that the results attained by these trains will be better appreciated after some of the suggestions and recommendations for better methods in our farming operations have been tried and found successful. This "show me" method of taking samples and exhibits to the farmer's own door is a new one to California. It has been successfully carried out in the Middle Western and Southern States, and has been productive of better methods, the use of better seed, and better stock, and hence increased production.

The old saying that in union there is strength is well illustrated in this train service. When such a combination as has been represented in this new method and practical instruction work together something good is certain. This combination of the Southern Pacific Co., the University of California and the State Commissioner of Horticulture, working together for the benefit of the State's agricultural interests, is one of the important steps in California progress. The Southern Pacific Co. deserves considerable praise for this new movement, because, without their assistance this valuable work would be impossible.

During the last trip of this Demonstration Train, which was through the San Joaquin valley, the amount of inquiries made concerning certain troubles of stock seems to be so general that I shall take up some of them for the benefit of our readers who were unable or had not the opportunity of visiting this train.

One of the most important things which seems to be causing considerable trouble and loss among dairymen is abortion or slinking the calf.

ABORTION.—Abortion in cows is either contagious or non-contagious. It does not necessarily follow that all cases which are apparently due to contagion is the sole cause. There may be several existing causes for abortion, and we must first of all correct all the harmful conditions.

CAUSES.—Poor condition, weakness, and a too watery state of the blood is often a predisposing cause. This may be the result of poor or insufficient food, from the excessive drain upon the udder while bearing the calf, from the use of food deficient in the nitrogenous constituents or albumenoids, from chronic diseases, from worms, unhealthy buildings, or excessive loss of blood. Putrid or stagnant water may often be the cause, and abortion has ceased in such instances when pure water was supplied. Ergoted grasses, rust and smut have been known to be the cause of widespread abortion in cows. Ergot and smut lose some of their deleterious properties when fed with abundance of water. Ergot and smut are more common in wet years, and hence the prevalence of abortion is greater also. Unsanitary conditions surrounding the barns and corrals have much to do toward causing abortion.

CONTAGIOUS ABORTION.—Any one of the above conditions may concur with the contagious form. This contagious abortion is perpetuated and transferred from cow to cow or herd to herd. It is simply a case of bringing into the herd an infected animal. The bull is an important means of disseminating the disease. Mere living in the same pasture or building does not convey the infection.

PREVENTION.—Weakness and bloodlessness are to be avoided by generous feeding. The ravages of worms can be abated by avoiding infested pastures, ponds, streams, shallow wells, or those receiving surface leakage. The feeding of salt freely is destructive to most young worms. Avoid spoiled or unwholesome food and putrid stagnant water.

TREATMENT.—Separate the animals and use germicides or disinfectants freely. For the cleaning of stalls the use of 5 ounces of sulphate of copper (bluestone) in one gallon of pure pater is advisable. Scrape and wash the back part of the stall and gutter and then water it with the above solution. Repeat this cleaning and watering once a week at least, to all stalls where an aborting sow has stood, and those adjacent. It is better to treat them all, as it is impossible to tell how many of the cows harbor the germ. In one to three years, if an aborting cow is kept on, she becomes insusceptible and carries her calf to full time. Therefore a cow that no longer aborts may be infecting others.

Wash the pelvic region every morning, particularly around the root of the tail and back of the hips, with a solution of the following: 1 dram corrosive sublimate, 1 ounce each of alcohol and glycerine. Shake this up in a gallon of water. Use this also for an injection as well as a wash. A 1 per cent solution of carbolic acid is a good substitute.

Remove the foetal membranes which have occurred from a case of abortion, without delay, and destroy by burning or boiling, or burying very deeply. Use the copper wash freely around gutter and stall. The use of the disinfectant on the other non-pregnant cows of the herd as a wash should be attended to daily.

The question as to how soon after a cow has aborted could she be bred was brought up a number of times. Not before two or three months, seems to be the best practice, and then the use of a separate bull is advisable, carefully using the carbolic-acid solution before and after.

It must not be expected that abortions will cease immediately, but by keeping up the treatment the trouble may be got rid of the following year. A cow which continually aborts is best fattened and sold and the treatment applied to the remainder.

Particular attention must be given to clean surroundings and frequent use of the copper solution. I realize that treatment such as the above, and recommended by Dr. James Law, is a rather big job, but the disease is also a big proposition and carries heavy loss to dairymen, as was evidenced by the large amount of inquiries on this subject.

WARTS ON TEATS.—That these are often very troublesome is evidenced by questions as to how to get rid of them. They may be greatly benefited or entirely removed by smearing them thickly after each milking with pure olive oil. If they persist, they may be cut off with a sharp pair of scissors, and the sore touched with a stick of lunar caustic. They should then be oiled and the caustic repeated as necessary to prevent renewed growth.

GRUBS IN THE SKIN—BOTS.—These bots or grubs represent the larval stages of the heelfly. The adult fly resembles a bee in appearance. They appear during warm

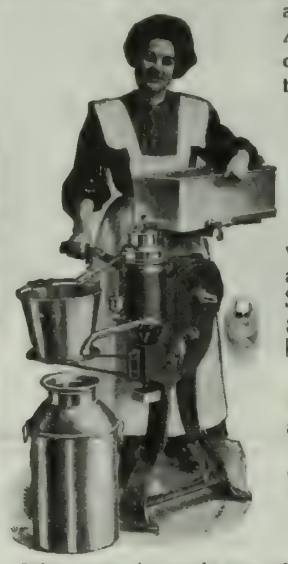
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weather and lay their eggs, especially in the open, upon cattle. The best authorities maintain that the cattle lick the eggs from the skin, so that the infection is through the mouth. Hence they come from the inside of the animal, and they appear under the skin about this time of the year, growing until March, April or May, forming the well known lumps. When mature, the bots work their way out, fall to the ground, and remain in the ground for about a month, until the adult fly issues. The general impression is that this bot or grub burrows into the skin, but it is a case of being taken inside and working itself out. The adult fly does not bite the animals. Bots weaken animals, cause a disease of milk and flesh and reduce the value of the hide.

TREATMENT.—Early in the season inject into the swelling a few drops of kerosene, using a machinist's oil can. This is a simple remedy and easily applied to dairy stock; or, the grubs can be pressed out and destroyed. Other remedies are recommended, such as a mixture of spirits of tar, carbolic acid, sulphur and linseed oil, applied along the back, two or three times a season.

An interesting case of the sloughing off of the entire udder was spoken of as having happened to two dairy cows in different parts of the valley. This was probably due to the worst type of inflammation of the udder, from congestion of the udder very likely, or from exposure to wet or cold, or standing in a drafty barn. It may have been originally caused by injury to the udder from stones, or a projecting nail, or even from overfeeding with rich albuminous foods, such as oil cake. In the worst types of the disease gangrene may set in, a quarter or half, or even the whole udder, may lose its vitality and slough off, if the cow can bear up against the depressing influences. This is generally the result of infection, and sometimes rapidly causes death. As has been said, gangrene is often fatal. It demands antiseptics, and Dr. Law recommends the use of chloride of zinc, 1 dram to 1 quart of water, applied frequently to the affected part. Antiseptic tonics may be given four times daily—a tincture of nitrate of iron, 4 drams to a quart of water.

I shall discuss other apparently important troubles on the dairy and stock ranches in further editions.

The readers of the PACIFIC RURAL PRESS residing in the southern and coast sections of the State will shortly have the opportunity afforded by a Demonstration Train to make their troubles known and have them answered. It is a chance that no farmer should overlook, and may be the means of saving him considerable money and trouble. Personally I believe in it, and think that the railroad company has shown a very generous spirit in sending out these trains. They naturally expect to haul more farm products from these some regions in the future. We know that increased yields bring increased returns, and they are looking for increased production throughout the State to result from this train service. There is another point which is of more than passing interest at this time—and that is, the confidence these railroad officials have in the scientific and up-to-date methods of farming. The University professors have been too often looked upon as theorists and impractical men. This is occasionally voiced from the halls of the legislature, without a thorough knowledge of what the agricultural colleges have accomplished and are accomplishing for the benefit of the farmer and stockmen. Let us look at one instance that every dairymen knows if he is alive and up to date: The Babcock test was the work of a professor of one of these agricultural institutions, and this test has practically revolutionized the dairy industry. The farmer can get valuable advice from the University if he will ask for it, and it is worth asking for if there are any troubles on hand.

WATERING HORSES.

We find in an English exchange, the Farm and Home, some data credited to an American Experiment Station which we cannot at the moment locate, but which will be interesting to our readers nevertheless. The account is as follows:

The generally accepted theory, as well as the most common practice, is that horses should be watered before feeding, but some time ago there was published one of those bulletins from an American experimental station which so frequently upset our preconceived notions concerning the feeding and management of the animals on the farm, dealing with the subject of horse feeding, including the time at which the animals should be watered in relation to their meals. These experiments went to show that no one method of watering was better or worse than the other. A Dr. Tangl made a series of experiments extending over a considerable period, and with various rations made up of maize, oats, hay and straw. In some of these the horses drank before, and in some after eating; and in others the grain portion of the ration was eaten before the hay. It was claimed that these experiments showed that the time of drinking had no effect on the digestibility of the ration of grain and hay. When hay only was fed there seemed to be a slight advantage in watering before feeding. The conclusion arrived at was that, in general, horses may be watered before, during, or after meals without interfering with the digestion or assimilation of the food. All these methods of watering were held to be equally good, and each of them might be employed according to circumstances, but it was recognized that it is not desirable to change unnecessarily from one method to another, because some animals appear not altogether indifferent to such a change. In Dr. Tangl's experiments it was found that whenever a change in the plan of watering after feeding to that of watering before was made the appetite fell off for some days—not that the horses did not consume the whole of the food given to them, but for some days they did not eat with the same avidity as before, and they took longer to consume their rations completely. A similar effect was not observed when the change was from watering before to after meals, or from watering after to watering during feeding, or when the change was in the opposite direction to the last. It was considered possible that the method of watering before feeding, until the animal became accustomed to it, produced a certain feeling of satiety. But while he found little to choose between the times of watering, Dr. Tangl came to the conclusion that there are circumstances in which both watering before eating and after eating are useful. "After severe loss of moisture, such as occurs as a consequence of long, severe work, the animal should always be allowed to drink before he is fed, as otherwise he will not feed well. If there are signs of the horse being slightly bound, watering after meals will make him somewhat more loose. The quantity of water which a horse takes is also slightly increased when it is given after feeding."



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As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

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At present we are offering a fine lot of **Young Bulls and Heifers** at very attractive prices. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co. now owned by the

OAKWOOD STOCK FARM
LATHROP, CAL.

FOR SALE
FOUR THOROUGHBRED AYRSHIRE BULLS, Aged 12 to 20 Months.

If you don't want tuberculosis, breed the Ayrshires.

J. W. & J. D. McCORD,
Phone Red 123. Hanford, Cal.

FOR SALE Jerusalem Artichokes, the great winter hog feed. Address Fancher Creek Nurseries, Fresno, California.

A SUCCESSFUL CREAMERY.

The following manager's report of the business of the Danish Co-operative Creamery of Fresno, for 1908-09, has been sent us by Mr. E. G. Webb of the El Guernsey Rancho. The PACIFIC RURAL PRESS would like more of these reports sent in for publication:

The creamery has never before been on as good a financial basis as it is at present. While the price paid for butter fat in 1908 was not as high as the previous year the amount of business was much greater, as the secretary's report shows over one million pounds of butter made, besides over $14,000 worth of cream sold.

It is not very many years ago when we only received one million pounds of milk for the year's business and thought we were doing well. I think the day is not far off when we can say we did one million dollars worth of business.

We have now twelve wagons gathering milk and cream covering a territory of about twelve miles square. We have two wagons delivering butter and cream in Fresno. One double team and one short-order wagon. There is hardly a train going out of Fresno that has not a shipment of Danish Creamery butter for some of the towns throughout the valley. We are supplying about 125 grocery stores in this valley with butter, besides what is shipped to Los Angeles.

The average person uses about half a pound of butter a week, so that there are about 25,000 people with Danish Creamery butter on their table every day of the year.

However, we must not be like the Romans of old, who thought that they were infallible; for I think that in times of peace we should prepare for war. I think your directors have been very wise in accumulating a sufficient sinking fund to meet any emergency which might come up. If we were to have a fire, we could never build and equip a new plant with the amount of insurance on the old plant.

The prospect is very flattering for the dairy business next year. The supply of cold storage is all gone, and I can see no reason why the present year should not be a prosperous one for the dairyman.

The demand for good butter seems to be increasing all the time. I predict a great future for the dairy business in this valley. We are in a business that is able to take care of itself and we are not concerned as to whether a low or high tariff rules. We have the whole world for a market, as butter can be produced cheaper here in the San Joaquin valley than in any other place under the sun.

Fresno county produced over 3,000,000 pounds of butter last year and the value of her dairy product was over $1,500,000. The day is coming when the raisin man will have to take his hat off to the great dairy business of Fresno county, California.

J. R. MURPHY, Manager.

BEST RECORD FOR HER AGE.

Mr. R. M. Gow of New York sends us an account of the deeds of Mr. George H. Sweet's Jersey cow which has made the very best record for a cow of her age: Rosaire's Olga 4th's Pride, whose test was begun January 25, 1908, at the age of four years and six months. During the 366 days of her test she produced 14,104 pounds 13.6 ounces milk, averaging 5.934 per cent fat, making the estimated fat yield for the year 836 pounds 15.8 ounces, equivalent to 984 pounds 11 ounces butter 85 per cent fat. If we compute her yield in the same manner as was used at the St. Louis Exposition test, by the use of the over-run for this quality of milk, which is 118.3, and which allows for the losses of fat in creaming and churning, it would have churned 990 pounds butter 83 per cent fat.

ANGORA GOATS IN CALIFRONIA.

Two California Angora goat men give the Oregon Agriculturist some points of their experience which it is interesting to read nearer home, and so we give our California parishioners sight of it.

Mr. S. D. Pruden of Manton, Tehama county, says his goat business is improving. He dipped the goats and thinks it pays. He continues: "I sheared 200 less than I did a year ago, and got as much mohair as I did from the whole band before I dipped. My goats are wintering well, and it seems to take much less feed, and the herd is better than when they were lousy.

"I noted some time ago of a writer speaking of trimming his goats' feet. We are not troubled with that here, as the rocks trim them, if anything, a little too fast.

"It seems to me that we ought to do something so as to get a better price for our mohair. I always shear with a machine, and try to put my mohair up in good shape, but never yet have received a good price. However, I am not yet discouraged in the goat business, and I think the goat has a bright future.

"I put my bucks in in the middle of the winter last year, and have raised about 60 summer kids, a trick that I will not repeat again. The kids are so much smaller than the ones born in April, and were too young to shear in September. Now, as it is in the middle of the winter, their hair is too long to follow the rest of the band, so I am keeping them up and feeding them."

Williams Bros., of Bella Vista, Shasta county, outline their experience in this way: "We have been in the business some ten years, and of course have had considerable experience in that length of time. We run anywhere from 1200 to 2000 head, which shear nearly 4 pounds on an average for the old stock, and about 2¼ pounds for kids, per year.

"We have always sheared once a year until the last three years, since when we have been shearing twice, the first shearing being in the latter part of November, and the second in April. By shearing at these dates, one gets one clip nearly equal to a year's clip in weight, though not quite as long; the next clip, which comes in April, of course is very short—about 3 or 4 inches—but it pays to shear. The first clip has brought us as much per pound as the year's clip sold for.

"Shearing has always been quite a risky business, and naturally quite a drawback here in northern California, until we commenced shearing at the above given dates, which is practiced by others of late; though let me say here before I go further, that we do not believe it best to shear the kids but once a year, as their hair is not grown out as well as the old goats, and in the second place, they hold their hair much better in the spring, shearing them in March. It has been our experience that goats sheared in November winter much better than when sheared in February, which has been the custom here. The reasons are as follows:

"First, they are fat, and their hair is in its best growing condition; three or four weeks puts a nice covering on them again.

"Second, it rids them of their lice, which saves dipping.

"Third, they grow a good fleece which protects them from the cold spring rains, and are feeding where otherwise they would be standing in a wet nasty shed, and consequently are in good shape for kidding."

800 POUNDS IN ONE YEAR.

In an experiment to ascertain the cost of raising a calf, Professor Shaw of Michigan station took a dairy calf and kept an accurate account of the expense of feeding for one year from its birth, says the American Farmer. The amount of feeds used in that time were 381 pounds of whole milk, 2568 pounds of skim milk, 1262 pounds of silage, 219 pounds of beet pulp, 1254 pounds of hay, 1247 pounds of grain, 174 pounds of roots, 14 pounds of alfalfa meal and 50 pounds of green corn. The grain ration consisted of three parts each of corn and oats and one part of bran and oil meal. At the end of the year the calf weighed 800 pounds at a cost of $28.55 for feed. The calf was a Holstein.

GEO. A. SMITH, CORCORAN, CAL.

BREEDER OF THE BEST.

JERSEY CATTLE, POLAND CHINA HOGS, MAMMOTH BRONZE TURKEYS.

Top Notchers at Let-Live Prices.

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Wait for the Next BIG SALE, Tuesday, March 2,



If you want good, sound, well-broke horses.

Five car loads, 150 head, of the famous Double Square brand, mares and geldings, weighing from 1100 to 1600 pounds. These horses are gentle and ready to go to work.

E. Stewart & Co.
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THE
LIGHT RUNNING EMPIRE

The Empire Cream Separator is pronounced the lightest running machine on the market. In all of the gearing there is only one shaft that causes any friction. The Oregon Experiment Station says of it: "Out of seven different makes, none excelled the Empire in light running."

This is a very essential feature in a cream separator that is going to be run by hand.

EMPIRE CREAM SEPARATOR CO., LTD.
95 NORTH SIXTH STREET, PORTLAND, ORE.



Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

The Fresno Scraper



Send for Raisin Machinery Catalogue.

FRESNO AGRICULTURAL WORKS
FRESNO CALIFORNIA.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

AN ALFALFA DAIRY AND FRUIT FARM.

Mr. J. S. Nesbet, of Kings county, is operating a dairy and fruit farm on a basis of alfalfa and apricots with a minimum of hired labor and a maximum of machinery, and his work thus far, as he describes it for the Dairy Review, is very interesting and suggestive. We shall take what seems to us the most interesting paragraphs.

We have 160 acres of land, but it is only under reconstruction and we only farm it as it is checked and leveled for irrigation. This work is going on all the spare time we have, and as soon as the land is in shape it is put into alfalfa. Land which a few years ago was practically worthless, now produces in the neighborhood of $100 per acre per season. On a full stand of alfalfa I figure on one-half acre supporting a cow during the summer months, and if that cow is of the proper calibre she ought to average $10 per month, although on account of the poor ancestry of the average cow now in use, very few reach this average. My own herd does not average it but several individuals surpass it and I am building up. Thoroughbred Holstein bulls are used and we find nearly all the young heifers will make very much better cows than their dams.

HANDLING THE STOCK. — About 30 acres of alfalfa divided into small fields supports the herd, averaging 30 cows, during the summer months, or from March to November. After that time they are allowed to run over the hay land as well as pastures until next spring when they are again confined to the pastures. They are in alfalfa pasture in day time, but at night they are kept in a yard and fed alfalfa hay in feed racks along in front of stanchions. Racks are filled with hay each day just before milking time. At night they are turned loose in the yard, but have access to feed racks which they usually clean out pretty well by the following morning. No mill feed of any kind is fed; no silage or root crops. If silage was available in winter we could do much better. Such will come later on. Every day during the entire year cows are turned out to pasture all day. About 80 acres in all are in alfalfa. This supports the herd in addition to 9 work horses, 2 colts, 3 bulls, also the calves and young heifers which are raised to increase the herd. The hogs also use alfalfa hay as well as running on an alfalfa pasture of about 4 acres. We usually keep from 50 to 100 head. To them and the calves are fed the warm skim milk fresh from the separator.

HANDLING THE ALFALFA. — During the summer we can cut each pasture just as soon as cows are through with it. This keeps down weeds, keeps the young alfalfa shoots coming up smooth and even, and by the time it is ready for cows again, usually 3 or 4 acres, it looks as nice and clean as any hay field. This also prolongs the life of the alfalfa. I have fields pastured for 7 or 8 years steadily, never have been resowed and are fine alfalfa stands yet. We use the fields about 6 times, or 6 crops of nice cow feed each season, and we mow them that often. Of hay we make 5 crops, letting the sixth crop go for the cows to pick up when the pastures are too short.

This year we are disking and resowing, using 7 to 8 pounds seed to the acre. This cultivates the old alfalfa and the resowing will thicken it very much and thus increase the crop, both in quantity and quality. We put in all our spare time, in winter especially, leveling land, thus each season sees us with more land in crop, and we propose to increase our herd and also our fruit crop. Incidentally I might mention that last season the crop of apricots off about 500 trees sold for gross $1500. Apricots were low in price, only bringing 5½ cents per pound (dried) against as high as 23½ cents the previous season. I may say, in passing, that this was an unusually heavy crop, partially due to the fact that a great deal of the manure from our dairy herd has been spread in the orchard for a few years past. This increases the yield of fruit, improves the size and quality as well as prolongs the life of the tree.

LABOR AND MACHINERY.—For help I have one hired man; wages $35 per month and board. Occasionally we hire an extra hand for a short time, as in pruning orchard or setting out young trees. I have 2 boys, one 8 and one 13 years. The youngest goes to school, but also assists in milking, and in summer works in the fields. The oldest boy is regularly at work on the ranch. My own time is very much taken up in looking after affairs pertaining to ranch, and cattle in particular, but what time I can give is put in on the ranch. We use the B. L. K. milking machines and this enables us to do all our milking, leaving the hired man to attend to work in the fields.

We have 2 gasoline engines which do our milking, separating, feed grinding, wood sawing, and before I get through with them they will do a great many more things. The second engine is just installed and is put in so that if anything happens to one engine the other can be hooked on without delaying the work under way and the other fixed up at leisure.

HOW A GREAT DAIRY COW WAS FED.

"I note that the Holstein-Friesian cow Katy Gerben produced 18,573.4 pounds of milk and 723.85 pounds of butter as a 3-year-old. I would like to know how she was fed."

To the above very important question Prof. A. L. Hoecker gives in the Breeders' Gazette the following suggestive answer:

The heifer Katy Gerben received the following ration during her yearly test: For winter feed, 30 pounds corn silage and what alfalfa hay she would consume out of rack. This I checked up occasionally by weighing out and feeding in stall and found it varied from 10 to 14 pounds. The corn silage was fed twice a day—in the morning and the last thing at night. She also received a grain ration varying from 14 to 19 pounds per day. This ration was composed of four parts ground corn, two parts bran, two parts oats and one of oil meal, the grain all mixed thoroughly and weighed out in three rations fed at milking time, morning, noon and night. During the summer she had the same grain ration, but the hay and silage were replaced with good blue grass pasture.

We were careful not to fatten the cow, but just simply to supply what she needed in her great work. I believe the secret of good feeding is to supply animals with palatable, balanced nutritious rations in accordance with their needs. While Katy Gerben was fed as much as a large fattening steer, she gained during the year only about 130 pounds, but she produced over 2100 pounds of food nutrients minus water, which is about ten times as much as a good steer could produce with the same food. This shows the wonderful conformation and digestive powers of an animal close to perfection. Katy Gerben could not have made this record if she had lacked the constitution and temperament to make use of a large ration in the way of milk production. You cannot get something out of nothing, and all the food nutrients produced in the milk had to be supplied in ration, but we were careful to supply it in as near a balanced condition as possible, that is, to furnish in all cases just what was needed to make milk.

USUAL CROP OF CREAM SEPARATOR SNARES AND TARES

If actual merit alone prevailed the DE LAVAL cream separator would be the only one made, sold or used.

But the dairy farmer with his dollars is an alluring proposition to those who "need the money," so that every season brings with it a new crop of separator fakes and fables, with some of the old conjurers over again and always a few fresh ones.

Last year the new and improved line of DE LAVAL machines literally swept the field. This year everybody has a "new" machine, which is the one thing they universally harp upon in their talk and advertising. But it is mostly bosh and nonsense. There is mighty little new to them. No more DE LAVAL patents have expired, so that there is nothing else "new" that they can lay hold of this year.

There's the usual crop of fakirs appropriating the facts of DE LAVAL separator use and the endorsements of DE LAVAL separators have received, and quoting them as though they applied to their own inferior imitations of the standard cream separator.

There's the concern which makes an inferior disc separator and speaks of the "disc" separator being "the machine which has won out universally in Europe, the home of the disc separator." True, but it was the DE LAVAL that has done the winning out in Europe, as it has in America.

There's the political separator concern, with the new "year" or "cents" trademark, whose claims it is to be hoped nobody ever believes, and which manifestly practices the circus man's theory that the great American public ever likes to be fooled.

There's the only concern which has stuck to the abandoned DE LAVAL "hollow bowl" of 30 years ago, but will this year desperately join the procession of 10 year back DE LAVAL imitations with a "disky bucket bowl" machine.

There's the "Trust", striving to complete its monopoly of dealer and farmer, harvesting much costly separator experience, largely at the expense of buyers-for-use, through trying to build a cream separator like ordinarily made farm machinery.

There's the "mail order" outfit, with their cheaply made machines, bought here and there, not made by themselves or sold under the real manufacturer's name, all claiming the earth, and many of the things that should be below it.

But the merry lot changes and dwindles every year. They gradually drop out and leave their unfortunate patrons helpless with trashy machines. More will fade away this year. The dairy farmer, like the creameryman, is coming to know something of separators. He doesn't swallow mere "claims" so easily. 98% of the world's creamerymen use DE LAVAL MACHINES. The percentage of farm users content with nothing else is always increasing.

There isn't a single reason why every man who buys a cream separator this year should not buy a DE LAVAL. There are many reasons why he should. The best costs no more than the various grades of inferior imitating machines.

A DE LAVAL catalogue may be had for the asking. A DE LAVAL machine may be tried for the asking.

DE LAVAL DAIRY SUPPLY CO.

108 So. Los Angeles St.
LOS ANGELES
42 E. Madison Street
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General Offices:
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107 First Street
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1016 Western Ave.
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Box 1052
VANCOUVER, B. C.

The Poultry Yard.

CULLING THE CHICKS.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

Weed out all cripples, diseased and weaklings. This is where the beginner is sure to err; he tries to bolster up the deformed and weakling and doctor all ailing chicks. Often this is largely through mistaken kindness. The little creature with the crooked feet, sprawling legs or bent bill tries so hard to live—in truth to kill one of these downy chick babies is almost like hurting a human baby! It is much easier to dispose of them after they have outgrown this singularly infantile look. To allow such chicks to live, however, only prolongs their misery and is neither the part of kindness nor good judgment. Chicks are often hatched which show no deformity at first, but in a few days their wings begin to spread apart and one notices that their body seems short compared with the others, cut-off chicks, one of our family dubbed them, and that aptly describes them; nearly always they are hatched with diarrhea or a tendency that way; they will sometimes live for weeks with good care, but always yapping and unhappy. Put the poor things out of their misery at once, together with all other drooping and diseased ones. You cannot doctor chicks; but if you wish to try, put them by themselves; it will be better for them and better for the well ones.

Later on when the chicks are from a month to three months old there are often a number which apparently have no ailment; they move about and eat fairly well, in fact sometimes have an abnormal appetite, but they do not grow; take them in your hand and you find them as "light as a feather." Many poultry raisers cannot believe that such chicks will not outgrow their weakness and take a start, but soon or late they drop by the way. Cull them out at once.

The culling process should go on even after all this class of chicks are disposed of. The weaker chicks, those that always come up in the rear, should be separated from the lusty ones—the hustlers which get there with both feet at feed time. Quite a large flock of such hustlers may be kept together, but the weaker ones have no showing in such a crowd. This is one reason why the cockerels should early be separated from the pullets. They are always stronger and more greedy and are sure to get the most and the best of everything, besides climbing over and tramping on the weaker ones. When giving the chicks more brooder room at about three weeks old, endeavor to cut these lusty fellows out in bunches by themselves. At six weeks old in the Mediterranean class, all cockerels should be separated from the pullets, and the youngsters again divided into market and breeding stock. Even in pure-breds there will be but a small proportion of the cockerels fit for the latter purpose. At this early age we cannot be sure that a cockerel will be fit for a breeder, but we can be sure of a goodly number that will not be fit. The comb is sufficiently developed by this time to show whether it it straight, smooth and well set on the head; one may see if the shape and carriage are graceful; the legs yellow and supple in the Leghorn and the plumage pure white in the white breeds and free from ticking and off-colored feathers. In cockerels of the Mediterranean class saved for breeders, great care is required that they do not develop too rapidly and grow coarse, running to comb and wattles. They should be kept on range and given little meat and no rich mash. Plenty of hard grain and green feed should be their main diet.

The cockerels for market should be yarded in small yards which should be kept clean and mellow; they should be given all the wheat and cracked corn they will eat and plenty of green feed; once a day they should have all they can stuff of a rich mash by boiling rolled barley, coarse corn meal with potatoes, if the later are on hand, and fat meat scraps or cracklings and such things, then mixing dry with shorts. It is more profitable to sell them in a bunch as broilers than to keep them a month longer for the difference in price.

The slow growing and runty pullets should be separated from the others and either sold as broilers or kept by themselves. Give all the pullets as much range as possible; feed them the same as the cockerels for breeding stock; let them have plenty of hard grain and green feed but no rich forcing mashes. When a pullet lays at four months old don't be proud of it, but be sure something is wrong either in your treatment or her make-up. The quickest maturing breed of fowls, the Leghorn, should not lay before five months old. A flock of Leghorns should begin some at five months and the others gradually drop in till at six months all should be laying; a flock of Wyandottes comes next, some strains laying almost as soon as Leghorns; Plymouth Rocks should lay from six to seven months of age and Minorcas the same, while still larger breeds require more time to mature. .

The building up of a vigorous strain of fowls is the very corner-stone of success with poultry. To do this the weaklings must be culled out all along the line, and the stock of layers and breeders grown to produce strong frames and vigorous digestive organs instead of being forced for too early maturity.

THE WET WEATHER AND THE MAD HEN.

A wet hen has the reputation of being a mad hen. Why so, we cannot say, unless it has reference to a ducked hen, in which case she has a perfect right to be a mad hen. But a wet hen that is out on a clean range where the grass is sprouting and the angleworm is coming up to enjoy the shower, is as happy as a clam at high tide. This has been one of the cheerful sights in the weeks of sou-easters just gone by—watching our hens duck their tails and sally forth in the rain after game. Often some of them would remain out in the drifting wind and rain until almost too dark to find their way back to the perch—too busy and happy to note the flight of time and light. But they had a dry, comfortable perch and house to go to and dry off and preen themselves—that's the secret.

The poultry keeper who has dirty, drafty houses, with leaky roofs and small yards, ill-drained and filthy, will not have mad hens, but he will have woebegone wet hens that will not pay for their keep, even such as it is. Another point which this long rainy spell should impress upon the poultry keeper is not to face the south or east with open-front houses. For six weeks the winds and rains have beat against the south and east sides of the writer's poultry house, while the north side, the upper part of which is open, has never been even wet.

To bring fowls through such long spells of wet in a robust condition and secure eggs meanwhile, they must have houses set up from the ground, with tight board floors and a tight roof; they should be partly open on the north end, but entirely free from cracks and drafts. At such seasons, if no other times, the houses and perches should be cleaned daily, dusted with lime and sprinkled with sand. In the yards trenches should be dug to carry off the water from the filthy puddles, and lime scattered over such places. If possible, the fowls from small yards should be let out a while each day upon a clean range. Be careful that the feed does not become damp and mouldy or sour.

In short, give the biddies a clean dry shelter, good sweet grain and a chance to pluck some tender grass and hunt a few worms, and the wet hen will be a healthy, happy hen.

POULTRY NOTES.

Mrs. A. D. Cleveland of Portland, Oregon, writes us that she has a trap-nested Barred Rock hen that has lead 292 eggs in 13 consecutive months. That's coming some for biddy.

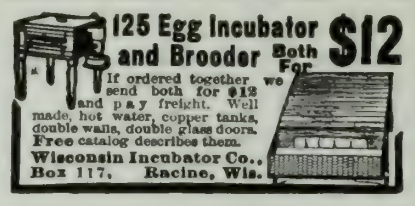
The State Poultry Association had its final meeting in December last to wind up its affairs. A motion was carried that the old association amalgamate with the Alameda County Association.

A movement is on foot among the twelve leading restaurants of Chicago to wipe turkey off their menus, as a result of the high prices now being asked for the meat. Practically no turkeys are now offered for sale. Turkey growers, get busy this year lest we forget the taste of the noble bird! —The Standard.

It is more important to know the breed of a chicken than to know the conjugation of a Latin verb; at least to the man who raises chickens. The State of Wisconsin offers ten thousand opportunities to its citizens to translate chickens and wheat and potatoes into money for every one chance it gives to a lad to make board and lodging translating dead languages.—American Magazine.

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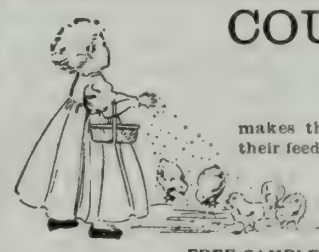
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I've found a joy in sorrow,
  A secret balm for pain;
A beautiful tomorrow
  Of sunshine after rain.
I've found a branch of healing,
  Near every bitter spring;
A whispered promise stealing
  O'er every broken string.

I've found a glad hosanna
  For every woe and wail;
A handful of sweet manna,
  When grapes from Eschol fail.
I've found a Rock of Ages,
  When desert wells were dry;
And, after weary stages,
  I've found an Elim nigh.

An Elim with its coolness,
  Its fountains and its shade!
A blessing in its fullness,
  When buds of promise fade.
O'er tears of soft contrition
  I've seen a rainbow light;
A glory and fruition,
  So near!—yet out of sight.

—Jane Crewdson.

Iroquois Story of Creation.

A recent bulletin of the New York State Museum publishes some interesting myths of the Iroquois Indians, whose reservation is in that State. First among which is the account of creation:

When the official story-teller of the settlement finds an audience or wishes to call one he exclaims, "Ha-nio!" whereupon the audience reply, "Hey," an ardent request to proceed. From time to time during the recital they should also cry, "Hah," otherwise the narrator will stop and ask what is the fault with his story. To fall asleep is not only a breach of etiquette on the part of a listener, but an omen of evil to the guilty one. If one must sleep he should ask that the story be "tied," then he can hear the rest when he wakes up; otherwise the story must be told each time from the beginning through to the end. According to their story of the creation, the Indian ruler of a great island which floats in space sent Ata-en-sic, the Sky Woman, to take life and light to the cloud sea down below. The light enveloping her alarmed the birds and animals down there.

"Where can it rest?" asked the duck.

"Only the oelida (earth) can hold it," said the beaver, "the oelida which lives at the bottom of our waters. I will bring some."

But the beaver was drowned and so was the duck, as well as many others who tried. At last the muskrat succeeded in bringing up a little earth in his paw. "It is heavy," he said, "and will grow fast. Who will bear it?"

The turtle offered to bear it and so became the earth bearer. Whenever he stirs the sea rises in great waves and when he is restless the earthquakes yawn and devour.

Having prepared a place for her they brought down Ata-en-sic to the turtle's back and she gave birth to twin sons, Spirit of Good and Spirit of Evil. At the birth of Hah-gweh-di-yu (Spirit of Good) his Sky Mother died, and grieving over her death, he created the sun from her face and placed it in the sky.

"You shall rule here where your face will shine forever," he said. But his evil twin put Darkness in the west to drive the sun down behind it. Thereupon Hah-gweh-di-yu drew forth the moon and the stars from the breast of his mother and led them to the sun as his sisters who would guard the night sky.

To the earth he gave his Sky Mother's body and from it springs all life. The brothers at last fought a duel with the thorns of the giant crabapple tree, and Hah-gweh-di-yu was victor and banished his wicked brother to a pit under the earth, whence he cannot return; but he carries on his destructive work through Sevors, half beast and half human, who assumes any form he commands.

According to the myths of the constellation, the Pleiades are a group of brothers dancing in obedience to the chanting of the sky witches. Their ceaseless dancing set the stars whirling till the moon transformed them to a group of fixed stars and gave them charge of the New Year of the red man, commanding that for evermore they must dance over the council house during the days of the New Years' feast.

The Milky Way the Indians regard as a procession of stars, each guiding a soul to the Happy Hunting Ground. Sometimes a soul strays from its path, but its star always searches for it and returns it to its proper course.

In the Great Bear the Iroquois find three hunters and their faithful dog, Fi-yeh, who while pursuing an elusive bear were caught in an invisible net and made to roam the broad skies forever. The myth of the celestrial bear chase is one of the most widely distributed in America, and while at first it may seem remarkable that to both the white man and the red man this constellation suggested a bear, yet as the editor of the bulletin explains in a footnote, it merely shows that to human minds in the same cultural stage, though separated by space and time, the same factors suggest the same ideas or combination of ideas.—N. Y. Sun.

THE HOME CIRCLE CHAT.

An All-Around Good Home Dinner.

Suggestions for the following substantial and inexpensive dinner are taken from the New England School of Cookery:

Menu.—Tomato soup without stock; braised beef with horseradish sauce; escalloped potatoes; steamed squash; dessert; baked Indian pudding.

Tomato Soup.—Stew together for 20 minutes one can of tomatoes, one pint of water, four cloves, a slice of onion, a bit of red pepper pod, and half a bay leaf; strain through a colander. Add two full teaspoons of sugar and a level one of salt; let boil and stir into it three tablespoons of flour worked into a smooth paste with two tablespoons of butter. Let this boil briskly several minutes, stirring constantly; serve with crotons or small square crackers.

Braised Beef.—Use about three pounds of solid meat from the face of the rump. Fry two thick slices of salt fat pork or bacon in a heavy iron spider; when well fried remove the scraps, wipe the beef and sprinkle with pepper and salt and dredge with flour, and brown the meat crisply in the hot fat. In turning the meat in order to brown it on all sides, use a spoon so as not to pierce it and let out the juices. After well browning on all sides, put it into a granite kettle with a tight lid, and place around the meat a quarter of a cup each of carrot, turnip, onion and celery, cut in dices, and three cups of boiling water, with a sprinkling of salt and pepper over the vegetables. Cover tightly and bake four hours in a slow oven. Turn it after the second hour and baste every half hour. One secret of the goodness and tenderness of braised beef is never to allow the liquid around it to boil.

Though not called for in this recipe, we would always serve the braised beef with a nice brown, rather thin, gravy, and we consider it the most delicious part of the dish. To make: Lift the meat onto a hot platter and strain out all the bits of vegetable; set the kettle with the liquid on the hot stove and let boil; stir in a tablespoon of flour mixed smooth with a tablespoon of butter; boil hard and stir constantly for a few minutes. The secret of good gravy is to cook quickly; also it should be well done, smooth and not greasy.

Escalloped Potatoes.—This is an easy and rather novel way of cooking raw potatoes. Wash, pare and let lie in cold water a half hour. Wipe and cut into thin slices; put a layer into a buttered baking dish; sprinkle with salt and pepper, dredge lightly with flour and dot with bits of butter; cover with more potatoes and repeat till the dish is full; pour enough boiling milk over to show through the top layer; then bake till the potatoes are done.

The Side Dish.—Pare squash, remove the seeds and stringy portions, cut in pieces and cook in steamer over boiling water till tender. Mash well, season with pepper, salt, a sprinkling of sugar, and a spoon of butter. If dry, add a little rich milk or cream.

Horseradish Sauce.—This is an excellent relish to go with an beef dish, and also with fish. To grated horseradish seasoned with salt, cayenne and mixed with vinegar, add an equal amount of thick cream beaten stiff; serve immediately.

The Dessert.—Indian pudding stands at the very head of wholesome, easily prepared hot desserts. Cook one-third of a cup of white meal with five cups of sweet milk for 20 minutes in a double boiler; add one-half cup of New Orleans molasses, teaspoon salt, one of ginger, and a half teacup brown sugar. Pour into a buttered pudding dish and bake in a slow oven for two hours. If the oven is hot the pudding will whey. Serve with hard sauce or cream.



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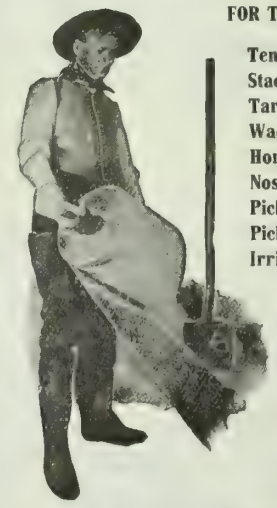
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THE MARKETS.

San Francisco, Feb. 24, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

Wheat continues to advance in all the Coast markets. Foreign shipments have practically ceased, and the firmness is apparently caused entirely by the inadequacy of stocks remaining on hand to satisfy the current requirements of the domestic trade. Offerings are light, both here and in the North, though receipts from the latter quarter have been fairly liberal. The local milling interests were making rather large purchases last week, but little trading is being done at the present range of prices. Practically all grades have advanced, the change amounting to about 5 cents over last quotations.

California White Australian	$1.95	@2.05
California Club	1.85	@1.95
California Milling	1.95	@2.00
California lower grades	1.65	@1.80
Northern Club	1.82½	@1.90
Northern Bluestem	1.95	@2.05
Northern Red	1.80	@1.85
Turkey Red	1.85	@1.95

BARLEY.

With prospects for an unusually large crop, handlers are not disposed to buy very far ahead. The spot market is about steady, a fractional reduction in choice feed being the only change, and the current demand is moderate for several weeks past.

Brewing	$1.45	@1.47½
Shipping	1.45	@1.47½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.40	@1.41¼
Common Feed	1.35	@1.38¾

OATS.

White oats are again quite firm, at an advance of about 2½ cents, and the supply is little in excess of immediate needs. The market is still quiet, though there is sufficient demand to take up about all that comes in. Offerings of red oats are more liberal, causing some easiness. Black are steady as last quoted.

White, per ctl.	$1.85	@2.00
Gray		Nominal
Red, seed	1.85	@1.90
Feed	1.65	@1.80
Black, seed	1.65	@2.00

CORN.

Arrivals of Western grades have been larger than for some time, but while there is no great demand the prices are unchanged, depending on the Eastern market. There are now some offerings of California small yellow, held at $1.80 to $1.85. White Egyptian is firmer.

California Small Yellow	$1.80	@1.85
Western State Yellow	1.60	@1.65
Mixed, in bulk		1.54
White, in bulk		1.57
Egyption White		1.80

RYE.

This grain is very scarce locally, all supplies being firmly held at the high prices last quoted. The demand, however, is limited, and with buyers holding off there is no movement of any consequence.

Rye	$1.80	@1.85

BEANS.

The demand remains about as at last report, and there has been no material change in values, prices being firmly maintained on all varieties. Pink beans are still the leading feature, being in good demand for shipment, and while prices at the moment are somewhat irregular the local dealers expect a further advance. The Eastern market on white beans is very strong, as the crop is short and the price of the foreign article is advancing. Little demand has developed for limas in the East, as the recent declines have caused buyers to limit their purchases. Supplies, however, are not excessive, and prices are likely to be firmer before the new crop is available.

Bayos, per ctl.	$3.25	@3.30
Blackeyes	3.00	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.50	@2.00
Small Whites	5.00	@5.25
Large Whites	4.10	@4.25
Limas	3.75	@3.90
Pea	4.75	@5.00
Pink	2.45	@2.60
Red	4.50	@5.00
Red Kidneys	3.25	@3.50

SEEDS.

The seed market is rapidly taking on an appearance of activity. Inquiries have been large this week, covering nearly all varieties, and shipments are rapidly going out. Prices remain steady to firm at the former quotations.

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy		Nominal
Yellow Mustard		Nominal

FLOUR.

California millmen have announced another advance of 20 cents on all grades, and the present figures are very firmly held, owing to the scarcity and high price of wheat. Oregon and Washington grades have also advanced, and rye flour is also higher.

Cal. Family Extras	$6.00	@6.60
Bakers' Extras	6.00	@6.25
Superfine	4.80	@5.10
Oregon and Washington	5.00	@5.75

HAY.

Hay shows a marked advance on all grades. Both dealers and consumers now realize the shortage, and the demand both in San Francisco and the country is heavy. Arrivals for the past week have been about the same as the week previous. Many consumers are now endeavoring to secure supplies for the rest of the season on contract, and the general outlook is for further advances. Local purchasers have recently secured large lots in the country at top prices, which tends to bring a more rapid advance. Prices show a very small range, as the cheaper grades have been in the strongest demand and are very scarce, stock hay being the only grade of which there is any considerable supply on hand. Dealers express the opinion that before the new crop is available shipments will have to be made from the neighboring States.

Choice Wheat, per ton	$23.00@24.50
Other Grades Wheat	21.00@22.00
Wheat and Oat	21.00@23.00
Tame Oat	20.50@23.00
Wild Oat	20.00@22.00
Alfalfa	17.00@19.00
Stock	13.00@16.00
Straw, per bale	50@ 85c

MILLSTUFFS.

Alfalfa meal and mealfalfa are $1 per ton higher. Otherwise values remain as last quoted, though the leading lines are decidedly firm. The demand for bran, shorts and middlings is rather lighter than it was a few months ago, but supplies are limited owing to the fact that the mills are not running to full capacity.

Alfalfa Meal, or mealfalfa, per ton	$25.00@26.00
Bran, ton—	
White	29.50@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Middlings	33.50@35.50
Mixed Feeds	28.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	28.50@30.00
Shorts	31.00@32.50

VEGETABLES.

Arrivals of onions from Oregon are becoming more liberal, and the local market is now well supplied. The demand is about up to the average, but the price is considerably lower. Miscellaneous vegetables are becoming more plentiful, rhubarb and asparagus both showing a marked decline on liberal receipts. String beans are also easier. Tomatoes, however, are scarce and higher, and choice lots of green peppers from the South bring an advance.

Onions, ctl.	$ 1.75@ 2.00
Garlic, per lb.	8@ 10c
String Beans, per lb.	15@17½c
Green Peas, per lb.	10@ 15c
Cabbage, per ctl.	1.50
Marrowfat Squash, per ton	20.00@25.00
Tomatoes, crate	2.00@ 2.25
Green Peppers, lb.	25@ 40c
Cauliflower, doz.	65@ 75c
Celery, doz.	40@ 50c
Asparagus, lb.	9@ 13c
Rhubarb, lb.	4@ 7c

POULTRY.

Arrivals of poultry are decidedly light this week, only one car coming in from the East during the first few days, while the California receipts consisted of only a few coops. With a fair demand, everything is quite firm, nearly all lines showing an advance. Broilers and fryers are particularly firm, all offerings moving readily at stiff prices. There are practically no turkeys on hand at present.

Broilers	$ 6.50@ 7.00
Small Broilers	5.50@ 6.00
Fryers	7.00@ 7.50
Hens, extra	7.00@ 9.00
Hens, per doz.	6.00@ 6.50
Small Hens	5.00@ 5.50
Old Roosters	4.50@ 5.00
Young Roosters	7.00@ 7.50
Young Roosters, full grown	8.00@ 9.00
Pigeons	1.25@ 1.50
Squabs	3.50
Ducks	6.00@ 8.00
Geese	2.00@ 2.50
Turkeys, live, per lb.	Nominal
Turkeys, dressed, per lb.	Nominal

BUTTER.

Butter has maintained about the same level of prices all week, extras showing a fluctuation of 2 cents during a day or two of scarcity. The market has been fairly active, but receipts are ample for all immediate needs, and the Dairy Exchange quotations are the same as a week ago. The feeling among local dealers at present is one of weakness.

California (extras), per lb.	36 c
Firsts	33 c
Seconds	30½c
Storage Ladles, extra	23½c
Cal. Storage, extras	32½c
Eastern Storage, extras	31½c

EGGS.

Shipments of eggs have been large all week, and as the outlook favors increased production for some time, and there is no longer any shipping demand, a general pressure is being exerted to keep supplies as small as possible. Prices have accordingly gone downward steadily, reaching bottom at 20½ cents for extras. The reduction has stimulated the demand, and the price is now a little firmer, but there is no prospect of a continuation of the high values that ruled earlier in the season.

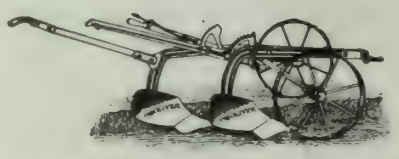
California (extras), per doz.	21½c
Firsts	21 c
Seconds	20 c
Thirds	19 c
Fresh Cal. Pullets	19 c

CHEESE.

Cheese continues to show increasing firmness, as considerable buying is going on, and supplies are only moderate. California flats of both fancy and first grade are higher, and Eastern cheddars have gone up to 17½ cents. Local Young Americas are a little easier.

Fancy California Flats, per lb.	15 c
Firsts	14 c
New Young Americas, fancy	16 c
Oregon Flats	14½c
Oregon Y. A.	16½c
Storage, Cal. Flats	13 c
New York Cheddars	17½c
Storage, Oregon, Flats	14½c

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POTATOES.

Local dealers regard the potato outlook as very strong, though prices show only a slight advance over last week. It is estimated that there is a shortage of about 700,000 sacks, which must be shipped to the Coast from other markets, which can only be done at higher prices than are now prevailing. At the moment, supplies on hand are liberal, and buyers are not providing for future requirements. Sweet potatoes are lower.

River Whites, ctl.	$ 1.00@ 1.40
Lompoc, Burbanks, ctl.	2.00
Salinas Burbanks, ctl.	1.65@ 1.85
Oregon Burbanks, ctl.	1.60@ 1.75
Early Rose	1.75@ 2.00
Sweet Potatoes, ctl.	1.35@ 1.50

FRESH FRUITS.

Liberal shipments of storage apples are being moved to Eastern points, as there is a strong demand in that quarter. The local market, however, is quiet, little attention being paid to the lower grades. Prices are firmly maintained on both apples and pears, but no advance is quoted.

Apples, fancy	90c@ 1.75
Apples, common	60@ 85c
Pears, box, Winter Nelis	$ 1.25@ 1.50
Other varieties	50 @ 75c

CITRUS FRUITS.

The fair weather for the last week has stimulated buying in the citrus market, which is more active than for several weeks past. Oranges, however, are plentiful, with no change in prices. Other lines are rather scarce. Limes are still held at high prices, which stimulates the demand for lemons.

Choice Lemons	$2.00@ 2.50
Fancy Lemons	2.75@ 3.00
Standard	1.25@ 1.50
Limes	6.50@ 7.00
Oranges—	
Fancy Navels	2.00@ 2.50
Choice	1.75@ 2.00
Standard	1.50@ 1.75
Tangerines	1.25@ 1.75
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The Eastern demand for California dried fruits shows some improvement, and buying is more liberal than it has been for some time past. The greatest demand appears to be for prunes, which have been offered at decidedly low prices, considering the scarcity in this market. The movement of peaches is also a little more liberal, though buyers are still acting conservatively. While apricots are in small demand, owing to the high prices, the scarcity of stock prevents any tendency to easiness. Apples are also rather scarce, and prices have been advanced. While there is still no strong demand for raisins, the feeling of the market is firmer, owing largely to the attitude of growers. Local packers are buying in small lots of both fruits and raisins in the growing districts, and quote the following prices on their purchases:

Evaporated Apples	4@ 5½c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	7@ 10c
Peaches	2½@ 3½c
Prunes, 4-size basis	2¼c base
Pears	2½@ 6c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

The market is quiet at present on all varieties of nuts, though a more active demand is looked for. Scarcely any almonds are now being bought from the growers, as little is offered, and the packers have little surplus. Walnuts are fairly plentiful. No change is reported in prices.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c
WALNUTS.	
Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Packers are still quoting former prices on honey, but the quotations to growers are practically nominal, as there is little moving. Supplies on hand are more than ample for the demand, which is unusually light, and sales are occasionally made at a reduction.

Comb, lb.	10 @13 c
Water White, extracted	7½c
White	6¼@ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

No movement of any consequence has developed in hops, as the growers who have any on hand are disposed to hold out for higher prices. The market remains fairly firm at unchanged quotations.

Hops, per lb.	6@ 10c

WOOL.

No quotations are yet given on the new spring clip, but figures will be made in a short time. The market is quiet, as most of the fall clip has been moved and the buyers are taking little interest in the scattered lots remaining.

Red Bluff (f. o. b. Red Bluff) free	7 @ 9 c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 6 c
Mendocino, free	7 @10½c
Defective	6 @ 8 c

MEAT.

Some changes appear in dressed meats, beef and mutton being lower, while a slight advance is quoted in veal and lamb. Live stock is practically unchanged. A rather lower range of values is expected during the next month.

Beef: Steers, per lb.	8½@ 8¾c
Cows	7 @ 8 c
Heifers	7 @ 8 c
Veal: Large	9 @ 9½c
Small	9½@11 c
Mutton: Wethers	9½@11½c
Ewes	9 @10 c
Lambs	12 @13 c
Hogs, dressed	9½@11 c

LIVESTOCK.

Steers, No. 1	5¼c
No. 2	4¾c
Cows and Heifers, No. 1	4 c
No. 2	3½c
Bulls and Stags	2½c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5½@ 6 c
Ewes	5 @ 5½c
Lambs, lb.	6½c
Hogs: 100 to 150 lbs.	6½c
150 to 250 lbs.	6¼c
250 to 325 lbs.	6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

George Gardner of Columbia, Placer county, is arranging to establish a big turkey farm. He has a flock of 80 to start with.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., Feb. 23.—The orange market is in very good shape and shippers express themselves as surprised but satisfied at such an outcome, as it was expected that the heavy shipments from California at the time when the Eastern weather conditions were bad would cause a slump or at least a severe depression, but nothing of the kind occurred, though buyers in general acted as though they were also looking for it. However, everything went through all right and today the market is in fine shape. At yesterday's New York auction sale there were no very high prices, $2.75 for a North Pomona brand being the top figure, but the average was good and there were no low prices except on some frosted stock. Other markets were about the same and there is the same feature noticeable at every auction point and that it that the available cars are closely cleaned up after each sale, showing that there is no oversupply of fruit now out.

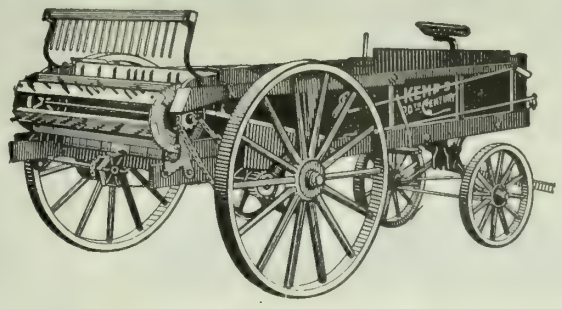
The first car of Malta Bloods was sold in New York on Monday and brought $2.65 for the fancy grades. This is a good figure. Shippers are beginning to figure on seedlings at this time, and though it will be a month before there is much movement, prices are already being quoted and $1.35 was named for Alhambra fruit and 20 cars of northern seeds have been sold at $1.20. Sizes are very good and if the navel sizes increase and become too large, the seeds will work in finely and perhaps command a premium.

Since the rains there has been a little puff noticed on the fruit from the early districts and this will probably grow more pronounced as the time goes on. There are advantages in being in a district that produce early fruit and there are also disadvantages. This kind of stock must be shipped as soon as possible no matter what the market conditions are, as it begins to deteriorate after the first of March and cannot be held for the fine prices which usually come later. The advantages lay in getting the big prices of the early season.

The shipments to date are nearly 1000 cars behind the figures of last season, but as it is generally supposed that we are at least that much short of last season, and probably more, we will not have to make up this loss.

Since the storm ceased the output has been lighter than expected, in fact, up to Thursday of last week it was no heavier than for the stormy days. At that time 216 cars were shipped, but at this writing it is not possible to get later figures, no doubt between 500 and 600 cars went out for the four days from Friday to Monday inclusive. Shipments will be heavy from now on, as the fruit is fully mature and some districts must ship at once.

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PUBLISHER'S DEPARTMENT.

THE NEW "CALIFORNIA FRUITS."

From the publisher's standpoint, the new edition of Prof. E. J. Wickson's book, "California Fruits," is a great success. During the past week we have supplied orders for eighteen copies sent to England, fourteen copies to British Columbia, twelve copies to Japan, one to India, besides taking care of the local demands. It would seem that the foreign fruit growers were anxious to learn of California the latest practices in fruit culture.

While we are speaking of the book we wish to acknowledge the handsome compliment paid the book recently by the California Fruit Grower, which was in part as follows:

Prof. E. J. Wickson's book, "California Fruits and How to Grow Them," is a standard work well known to most of the older horticulturists of California. It was with much regret that it was learned after the San Francisco fire of 1906 that all the plates of the book were destroyed, and the new edition which was promised subsequent to that time has been eagerly anticipated. Recently this new edition, which is the fourth of the work, has come from the press, and the volume in its new and enlarged form retains its position as the best treatise on California fruits and their culture available to the public.

Prof. Wickson, who is dean and director of the College of Agriculture and Agricultural Experiment Station of the University of California, and author and editor of agricultural and horticultural publications, has been identified with California agricultural and horticultural interests for more than a quarter of a century, and is highly qualified to give complete and authoritative information and instruction on the themes covered in "California Fruits."

The contents of the book is arranged in ten parts. Part one treats of fruit growing in California in a general way, the six chapters in that division being entitled, "The Climate of California and Its Modifications," "Why the California Climate Favors the Growth of Fruit," "The Fruit Soils of California," "The Wild Fruits of California," "The California Mission Fruits," and "Introduction of New Fruit Varieties." Part two deals exhaustively with cultural methods in vogue in California. Part three is devoted to orchard fruits; part four to the grape; part five, semi-tropical fruits; part six, small fruits; part seven, nuts; part eight, fruit preservation; part nine, fruit protection, and part ten, miscellaneous subjects.

Those engaged in fruit growing in California will find Prof. Wickson's book invaluable help at every stage of the business from the choice of a location and soil, the selection of kinds and varieties of fruits to grow for commercial purposes, plants, cultivation, fertilization, the combatting of diseases and pests, pruning and all other details explaining how to get the best results from orchard or vineyard in California.

"California Fruits" is issued from the publishing office of the PACIFIC RURAL PRESS, San Francisco, the mechanical work on the edition having been done, however, by the Kruckeberg Press, Los Angeles. It is beautifully gotten up, attractively and substantially bound in art buckram and is a worthy addition to any library. The price of the book has been fixed at $3 net.

A new advertiser in our columns this week is the P. K. Wood Pump Co. of Los Angeles. This firm has been in the field for some years with a pump worked on the turbine principle, which is pronounced a success for deep well pumping.

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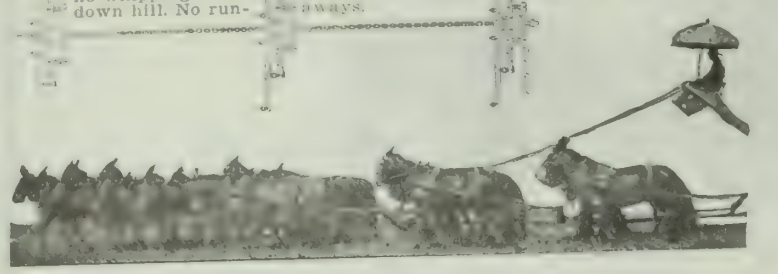
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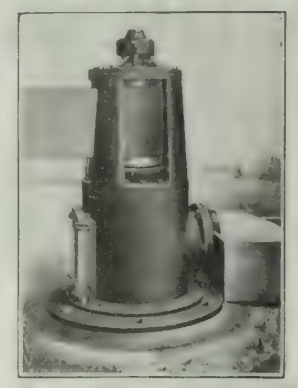
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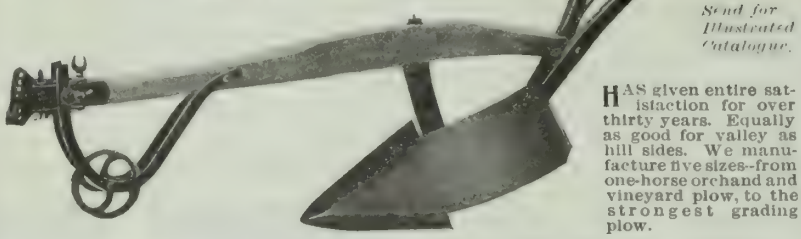
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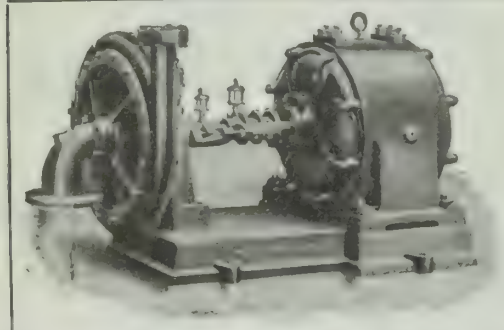
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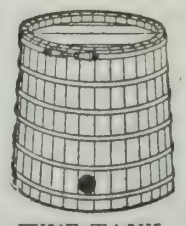
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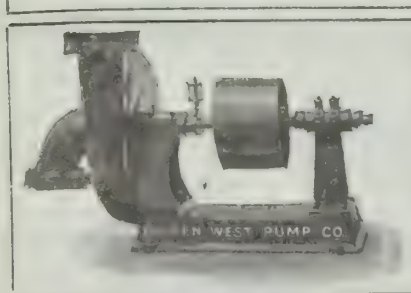
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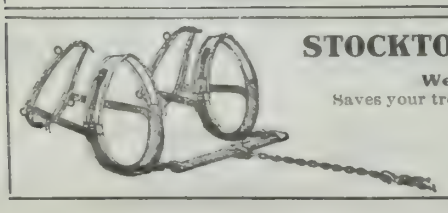
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN.

Vol. LXXVII. No. 10. SAN FRANCISCO, SATURDAY, MARCH 6, 1909. Thirty-ninth Year.

CALIFORNIA HOGS.

Written for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

There are few ranches or farms today but have a few hogs of one breed or another. They can be reared in almost any country ouside of the Arctic Circle, so that a farm without swine of some kind is a rarity.

In California the swine industry has been increasing very rapidly in recent years. As the larger grain ranches are subdivided and irrigation projects make alfalfa production possible on these lands the number of hogs has greatly increased. But as yet the supply is not equal to the demand.

Hog raising is recognized as a profitable industry, and the term often applied of "mortgage lifters of the farm," is very apt, and gives the standing that hogs have on the farm in America.

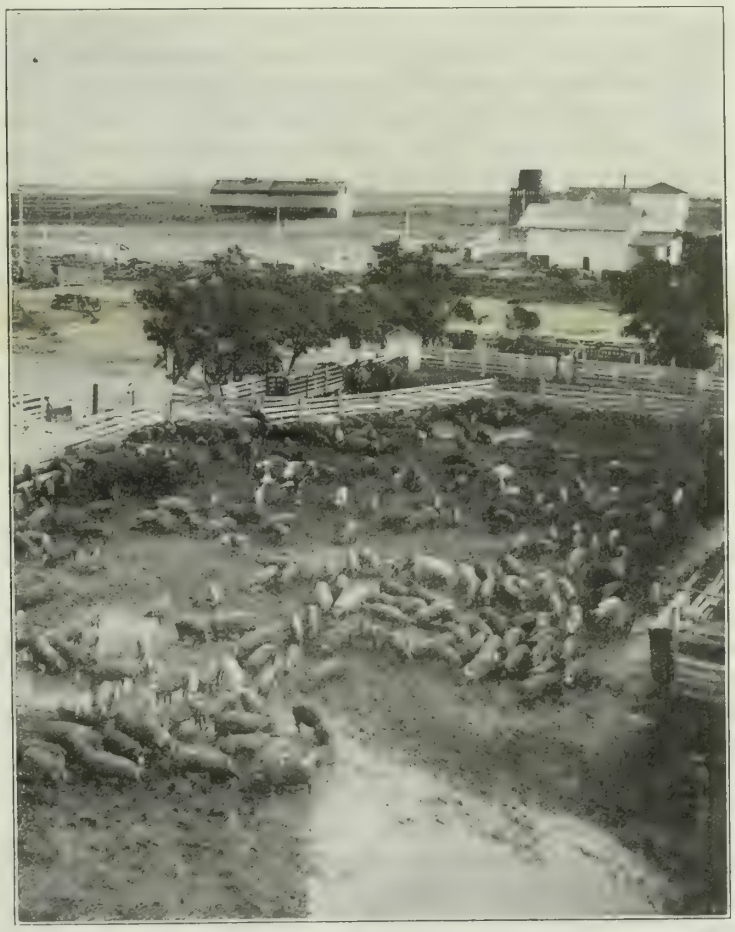
Swine have been known to exist in a wild state on the continents of Europe, Asia and Africa ever since the dawn of history. With certain variations they are also found wild on this continent and the islands of the Pacific.

There are various species of swine, but in general they possess certain points of resemblance in a greater or less degree, such as the shape of the head, neck, limbs and skin. They are fond of plants, and especially the roots of these, though they also eat flesh. They naturally resort to watery places to wallow, and they produce a number of individuals at one birth. Their senses of smell and hearing are peculiarly acute, and the voice is very similar.

It is generally conceded that our domestic varieties are descended from the wild species. But under domestication certain changes have taken place, both in form and habits. The domestic hog has been known to revert to the wild state, but they do not show the same fierceness nor solitary habit of the true wild hog. We have examples of this reversion in a number of places in California.

The originals of the swine in the United States were brought from various countries in Europe by early settlers, but more especially from Great Britain. The purely American varieties are the Poland-China, Chester White, the Duroc-Jersey or Jersey Red, the Cheshire, and the Victoria.

Many of the breeds found in the East and the Middle West are not very common in California, still all of the more important ones are found in the State in more or less numbers. The larger proportion of the hogs are of the popular breeds, such as the Poland-China, the Berkshire, and the Duroc-Jerseys.



A Corral-full of Beauties in the San Joaquin Valley.

Probably no other British breed has been exported to foreign countries more extensively than the Berkshire, and their prominence is notable in the United States and Canada. They are distributed throughout the Union and are numerous in California. None of the British breeds has been found more useful nor used so much for crossing as the Berkshire, as they are of great value in refining the coarser breeds.

The Poland-China breed originated in Ohio, and for many years was called by various names, such as Magie, Miami Valley, Poland, Great Western, and many others. Poland-Chinas can be found in nearly every State in the Union, and in the Central, Western, and Northwestern States they are more numerous than any other breed.

The Duroc-Jerseys are apparently the outcome of the union of two classes of swine, knows as the Durocs and the Jersey Reds. The sandy color is the distinguishing point of the breed from the Poland-Chinas and the Berkshires. Although not quite equal to them in size, the Duroc-Jerseys resemble them in form. Like the Berkshires, they have proved themselves adapted to sections where good rustling qualities are desired. In general characteristics they are not much different from the Berkshires, except that they are a little smaller and are not yet quite so well adapted for bacon production.

In comparing the Poland-Chinas with the Berkshires we do not find much difference. In producing meat with a small percentage of offal, the Poland-Chinas may have some advantage, but for stamina, rustling qualities and prolificacy the Berkshires probably have some advantage.

We have only mentioned a few characteristics of these three breeds, because they are largely raised in California. Whites are growing in number, but as yet are not equal in number to any of these three breeds.

California, while eminently adapted to the raising of hogs, can not, or better, does not, furnish its home demand at the present time. A short time ago, while in the southern part of the State, I had the pleasure of visiting all of the large packing houses in Los Angeles. The statement from the manager of one of these large establishments that they were importing hogs from Kansas to fill their local trade, was rather surprising, but nevertheless true. We were also informed by the same good authority that the hogs from Wichita, Kansas, shrank less than half as much as hogs shipped from the San Joaquin valley to Los Angeles. There is considerable difference in the time consumed en route from Kansas and that from within our own State, and yet the hogs arrive in better shape and with only one half as much shrinkage. This is worth thinking about, and the cause or reason is not hard to get at. As we would expect, the Kansas hogs are corn finished, or entirely corn fed, with the resulting firmness of flesh. California hogs are, generally speaking, alfalfa or grass fed, with no grain finishing.

The natural reply to such statements as to why the California hogs are not finished is simple enough—if the hogs can be marketed without expensive grain finishing, a man would be foolish to spend time and money in finishing unless the buyer would pay a better price for such stock as against the unfinished. There are a great many hogs that are fairly well finished in California, and I know from my own experience that I could not get enough more for the grain finished hogs to pay for the extra trouble and cost. With too many buyers a hog is a hog, and the finish is put in the background when it is spoken of by the raiser.

California does produce good pork, however, and there are plenty of hard finished hogs put on the market each year. This is particularly so when wheat or barley is off in price, as the farmer finds it better to feed it to his hogs than to sell it on the low market. The more general improvement in the way of finishing hogs for the market is coming before very long. The buyers can do much toward getting better pork from California farms if they will make it known generally throughout the State that they will pay a proper

(*Continued on Page 194.*)

Pacific Rural Press

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PACIFIC RURAL PRESS CO. - - - PUBLISHERS

Advertising rates made known on application.

E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., March 2, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.T	38.96	32.02
Red Bluff	.00	26.01	17.86
Sacramento	.00	19.46	14.13
Mt. Tamalpais	.00	31.95	16.76
San Francisco	.00	22.30	16.71
San Jose	.00	15.43	10.24
Fresno	.00	8.57	6 58
Independence	.00	7.57	6.44
San Luis Obispo	.00	27.30	14.35
Los Angeles	.00	16.08	11.16
San Diego	.00	6.86	7.27

The Week.

The greatest event of the week in California is certainly the millionization of Luther Burbank. The current reports are, and we presume they are substantially correct, that three men who are in possession or command of millions (to wit: Messrs. Hartland and Herbert Law of San Francisco, and C. E. Dinner of the East) have secured the sole right to handle all Mr. Burbank's products, excepting, of course, the few which have already passed into other ownership. These parties have formed a company to be known as "The Luther Burbank's Products, Incorporated," but presumably Burbank Products Distributors, Unlimited, would more fully describe the nature and function of the incorporation, because they are to have control and sale of everything of Mr. Burbank's doings which can in any way be put in the form of a commercial commodity, while the Carnegie Institution has by virtue of its endowment the right of possession of anything it can find of scientific moment in his works or ways. The arrangement is ideal, because Mr. Burbank can now give his whole time and thought to doing things, and need never worry a moment whether the results of his doings are to be flopped by the old line florists and nursery trade or impeached and flouted by the certified purveyors of science. It will certainly give glorious freedom from all kinds of worry and anxiety to be thus financed and scienced. Nestling cosily on the crossed wings of Science and Finance—these twin angels of progress—Mr. Burbank will now ride aloft, above the clouds, into the empyrean of achievement.

We count it especially fortunate that this new arrangement for handling Mr. Burbank's products has been attained. It will have ample means for their world-wide exploitation. The brothers Law are princes at publicity promotion. They made their wealth, according to popular report, by handling proprietary medicinal preparations in novel and effective ways, and such business has almost become a synonym for successful advertising and other promotive pushing among patrons who are disposed to enjoy high claims and content to verify them in their personal experiences. Mr. Burbank's plant creations are for the most part of a surprising, sometimes even of a startling, character. Their values and adaptations are beyond determination by a single district or State. Some of them are proving valuable in California, but for others nothing less than a world-wide verdict will declare the truth. In this respect very many of them are still in an experimental state, and what the large commercial propagation shall be, or where it shall be, may not yet be known for years. Many of them will probably find place nowhere in the world; others may be universally famous and valuable. These facts should explain why ordinary commercial nurserymen have only been safe in handling them sparingly. Such nurserymen are held by their patrons to a pretty strict accountability for quick and direct money-return, and so their main business must be in the propagation and sale of staple varieties, for which both growing conditions and selling quality have been quite definitely determined. If our commercial nurserymen did not hold very closely to such requirements our whole horticultural industry would be apt to go a-glimmering in a cloud of uncertainties, or if the people should refuse to be led into such a horticultural fools' paradise, as they certainly would, then the nurseryman's business itself would go a-glimmering. It thus becomes very clear why our leading nurserymen are forced to deal sparingly in Burbank's creations, as in other novelties whose local values are not determined, and why their connections are not the channels for the distribution of the Burbankian achievements. Again, as these achievements invite world distribution, their handling is both too large and too small a business for nurserymen who are handling staple stock, largely in the local trade. Negotiating a sale of a novelty in bulk to a government on the other side of the world, or sending a single plant to anyone anywhere on the globe, are transactions either too large or too small for ordinary nursery trade. We presume the Burbank distributors will be equipped for such undertakings: both with silver-tongued salesmen to beguile governmental functionaries or with leather-tongued stamp-lickers to minister to the mail-order business, to the end that the whole world may be served according to its several tastes and funds for investment. It seems to us very clear that this business will be a very great one, because it has capital enough to undertake all kinds of advertising and promotion and because Mr. Burbank certainly has new things enough to keep it going indefinitely. The only way to do this is to organize a distribution agency, as has been done, and a few millionaires will be very handy to have around as the undertaking advances.

There is one particular thing which we hope will be secured by an incorporation with ample funds, and that is a great deal more truth and accuracy in the accounts which are published of Mr. Burbank's creations. This is not only for the better information of the public, but in order that intelligent people may not be tempted to denounce the man and his works as unworthy of confidence. On the basis of the most common published statements such conclusions are almost irresistible: the new company should strive to banish such things from public prints, because they are impeachments of their business. Even the announcements of the new business combination in the daily journals are full of exaggerations, sinking at times to absolute falsehood, ignorantly uttered by writers of good intent. Let us cite one or two for the sake of definiteness. We read, in one place, "The 'sugar cactus,' it is hinted, is capable of a development that will give the sugar cane and the sugar beet a hard race for commercial supremacy." Now the fact is that the "sugar cactus" cannot get into the race at all, simply because the sugar in the fruit is not of the right kind. The world's sugar is "cane sugar," whether it comes from the cane or the beet or some other plant, and though the cactus may have twelve per cent of total sugar, or though Mr. Burbank may teach it to reach twice as much it will still be, not cane sugar, but fruit sugar, which cannot be substituted for cane sugar in any of the common uses which the world makes of its sugar supply. One can no more make commercial sugar out of the cactus than he can out of the prune, which may have nearly twenty-five per cent of sugar—such as it is. Nature puts cane sugar in some plants and fruit sugar in many other plants—and there you are. What then is the impression upon a technically intelligent reader of such a claim, that cane and beet will be closely pushed by cactus?

Another gem of imaginative writing which has just gleamed forth is that: "The Burbank potato has revolutionized the tuber planting industry of the United States. * * * Last year 14,000,000 bushels of Burbank potatoes were produced all the way from Plymouth Rock to the Golden Gate and from Duluth to the fan-like, muddy delta of the Mississippi." Now as the potato product of the United States is about 300,000,000 bushels, the amount of Burbanks is only about one-twentieth of the crop. If the writer had claimed for the potato what justly belongs to it that is, eminence on the Pacific slope, he would have done well, but the deadly disposition toward exaggeration forced him to flight over the whole United States, and stamps falsehood upon his utterance as it comes to the attention of potato growers in other parts of the country where the Burbank potato has been shown to lack local adaptations.

But we cannot pursue the category of false statements and unwarranted inferences which cause Burbank's work to suffer. We hope the new company will fill the air with such loud truths that these discordant cries will be no longer heard. Now that Mr. Burbank's work will be richly capitalized, those who are deeply interested cannot brook the misrepresentations which are causing so many, for the lack of truth about him, to denounce him as a faker.

We are writing, of course, from an agricultural point of view and about people who like to get the value and suitability of plants down to hard facts because one has to do so to make money out of or with them. Possibly with the general public, which knows no more than do these writers, these fairy tales may serve for ephemeral exaltation, but such exaltation is not worth having. Fortunately, there is abroad in the community a genuine appreciation of Mr. Burbank and his work which is a true sentiment, and it is finding adequate expression. There is now in the hands of the Governor of California a bill which passed both houses in the legislature, on February 25. The measure provides that "all public schools and educational institutions are directed to observe Bird and Arbor Day, not as a holiday, but by suitable exercises having for their object instruction as to the economic value of birds and trees, and the promotion of a spirit of protection toward them."

In response to this distinguished honor, Mr. Burbank has made the following fitting response: "Nothing could be more pleasing to me than to have my birthday the official bird and arbor day

in this State, and I cannot think of a more pleasing manifestation of confidence and esteem. That my life work may be worthy of such marked recognition while yet I live is most pleasing."

Here we have Luther Burbank receiving on his sixtieth birthday not only honors for what he has done, but a better environment than he has ever had for doing more. At an age when many retire he is just getting ready for his greatest work. Long may he live to pursue it!

It seems too bad to banish the Burbank boomers whom we hope his new arrangements will displace, from all opportunity to exercise their peculiar talents, and we are glad to be spared the pain of casting them into outer darkness. Fortunately we receive this week the following frantic appeal from one of the leading publishing firms at the East:

"We want a born editor, progressive, keen-edged; a man with ability to visualize the future, with imagination, and above all with optimism. He need not necessarily be a technical man nor a scientific expert, but he must be able to edit an editorial page as never before in a farm paper, securing such contributions as will make it forceful, useful, comprehensive, and above all readable—an editorial page that is a power. There is a wave gathering off under the horizon and we can assure this fashion of man a safe trip on the crest of it far up on the shore-line. Do you know him?"

We surely do. He has been serving as a Burbank booster. The above call to greatness is so like him that he must have written it himself!

STATEMENT FROM MR. BURBANK.

The following letter from Mr. Burbank, just before going to press, explains his position in the recent business deal, and we are pleased to give it to our readers:

Mr. Frank Honeywell, Manager,
The Pacific Rural Press,
San Francisco.

Dear Sir: In reply to yours of March 1st, just received, it is true that the Law Brothers of San Francisco have purchased the control of all my novelties not already sold, and also of all future products in this line, they taking the business and distributing end of the enterprise which I have carried on for the past forty years, thus giving me greater opportunity to pay attention to the production of these new fruits, trees, flowers, vegetables, etc., which have so deeply influenced the agricultural and horticultural interests of the world in the past, and are a thousand-fold more deeply to influence them in the future.

My work has proved to be a cumulative process, increasing in geometrical ratio, and novelties of world-moving values have been piling up of late quite rapidly, for want of time to properly distribute them. The present arrangements are to properly do this part of the work, which has been for many years neglected for want of time.

Very few people, except those immediately connected with the work, have had the faintest conception of the magnitude of the establishment or of its far-reaching significance.

To thoroughly organize this great distributing business will require two or more years, and will thoroughly cover the whole earth.

Yours very truly,
Luther Burbank.

Queries and Replies.

Bottom Heat for Sweet Potatoes.

To the Editor: The available manure for hot-beds to start sweet potatoes seems to be all taken. Would it be practicable to heat the bed by hot water? Would it be sufficient to have two pipes, with a sectional area of four square inches, making a circuit to the heating tank and entire length of the bed, which is four feet wide and 500 feet long?—Grower, Merced.

It is perfectly feasible to start sweet potato slips with bottom heat of any kind—hot water, steam, or any other agency which can be cheaply applied. You must be careful, however, not to get too high a temperature. Only a little forcing is required, and sometimes very good results are obtained by simply using a cold frame, sufficient sun heat being concentrated by the glass to start the shoots actively. In fact, we use far less bottom heat than in the East, because our normal winter temperature during sunshiny days only has to be raised a very little.

Almonds in Alfalfa.

To the Editor: I am tempted to trouble you once more with a question. Do you think almond trees planted in good soil and at the age of four years would do well if I should sow alfalfa seed between the rows and irrigate instead of cultivate? Will they do well and bear profitable crops?—Enquirer, Yolo county.

Whether you can successfully grow alfalfa between your almond trees will depend upon whether the soil is so deep and free that there will be no accumulation of water from your irrigation of the alfalfa. The almond is one of the most sensitive trees we have to injury from standing water; otherwise the presence of the alfalfa, if the irrigation supply is just enough for thrifty growth of the trees and never too much, would be of advantage to the tree.

The Lady Apple.

To the Editor: In this mail I send an apple sold in the market as "Christmas apple." I have asked several growers what its right name was, but none seem to know any name but "Christmas apple" for it. Will you kindly give me its name?—Reader, Stockton.

We are surprised that a gentleman of your fine tastes and discrimination should not know by intuition the name of the fruit which you send, because of its beauty. Its true name is "The Lady," and it is a very old variety, chiefly valued for decorative purposes. We leave you to conclude for yourself whether its name is justified in the light of its services.

Franquette Seedlings.

To the Editor: I have some young walnut trees grown from Franquette nuts which I planted. Now can I depend on them to bear true to name—that is, to bring just such nuts as I planted?—Planter, Chico.

You cannot absolutely depend upon having no variation in your Franquette seedlings. There will probably be some, though walnuts come truer than other seedling fruits. The way to proceed would be to let them come into fruit and then graft over any inferior trees with scions from the best. In this way you can bring them to a uniformly high type. This is the best you can do, unless you desire to graft all over with selected Franquette scions.

A Question of Root Condition.

To the Editor: We have an orange grove, purchased a little over a year ago. Some of the trees did not fruit well last winter. The foliage turns yellow and the fruit is small and yellow. This year the foliage has become very thin on the tree and fruit very small and poor. I understand that the former owner cultivated very little, pruned not at all, and kept a small but almost constant stream of water running on them. We have pruned them; last summer we kept the disc going after every irrigation; and this winter we have given the ground a thorough coat of well rotted stable manure. Now do they need any other fertilizer, such as potash, etc.?—M. F. S., Stanislaus County.

You have done the best you could and you have done enough in the way of fertilizing. You have to determine what your soil conditions are. Your trees may be over hardpan and the constantly running stream, though small, may have kept the roots in the mud until they nearly rotted off, or you may be over gravel and the little stream never adequately moistened the roots. Or you may be over a lime subsoil which puts trees in that shape in some places along the Sierra foothills. If you have hardpan you must provide drains to remove surplus water. If you are over gravel your better way of irrigating and cultivating may bring the trees to better condition. If other things are wrong below, there may be other remedial measures. The first thing to do is to see what is the matter below. We apprehend that there is some radical defect or your rational treatment of the last year ought to be resulting in some signs of improvement. You must get farther down into your conditions.

Lima Bean Growing.

To the Editor: Will you kindly give some information with reference to the requirements for growth of Lima beans? Do you think we could grow them on the red upland of the Rogue River valley?—Farmer, Oregon.

We do not know any way in which you can determine the suitability of your district for lima bean growing, except by experiment, which, of course, need not be on a large scale. The lima bean product of California is made close to the ocean in southern California, where there is equable temperature, the absence of high heat and dryness, and the success of the plant evidently is promoted by the moisture in the ocean atmosphere. The bean does not do well behind a range if high hills which shut off the ocean influence, although this protected valley is only about fifteen miles from the place where they reach their highest perfection. Lima beans are not an interior product in California anywhere, except in market garden practice, where by constant watering and protection, in thickly set areas, green limas for local sale are produced to some extent. This does not, however, constitute at all what we consider commercial production. We cannot tell how far this limitation of California adaptations of the lima beans may apply to your district. This is a matter which must be determined by local experiment.

University Seed Distribution.

To the Editor: Will you please publish in the Pacific Rural Press the prices of the different kind of seeds—also where to send—that the Agricultural Department of the University has for distribution? I read in one of the daily papers that there are many new and valuable kinds we may get that way, but do not know where to send.—Subscriber, Ukiah.

We have already published this information in detail, filling two columns in our issue of January 2. The distribution is practically closed for this year. The offering consists of a limited number of varieties recently introduced, in order that their local value or worthlessness may be determined. It is not intended that such introductions shall take the place of standard varieties in the regular planting, nor do they take the place of the seed trade in any way. They are merely to be tried on the side, to see if any of them are worth planting for regular supply. The circular is issued in December of each year.

Horticulture.

IS THE PLEA FOR SEEDLING ENGLISH WALNUTS TENABLE?

To the Editor: Referring to Mr. A. A. Mills' article, "A Plea for Seedling English Walnuts," in the February 6, 1909, issue of your paper, I do not infer that Mr. W. A. T. Stratton's several ten-year-old trees are necessarily grafted.

In Mr. Mills' comparison, he has not cited a single orchard or group of grafted walnut trees. He tells us very little of his personal knowledge and observation of grafted trees, but says, "We are digging up walnut orchards here, both seedlings and grafts." If the gentleman who dug up his grafted trees sold them at $5 each to cut up for grafts, we surmise that the other gentleman cut his seedlings up for stove wood.

Why should grafted walnut trees be "erratic bearers, being very tender and therefore subject to frost, excessive dampness, heat and blight," when all other varieties of grafted and budded fruit trees are not? Is it not an old established fact, proved by many years of practice, that all scions and buds transplanted on wild or other cultivated stock do not materially change the fruit, if at all, in color, shape, season of maturing, susceptibility to blight or frost? Mr. Mills is "strongly of the opinion that the soft-shell root is the best to graft or bud on," but why should it be best to graft on at all, if the northern California Black is the best for uncongenial soil?

All progressive nurserymen and planters of experience concede that the California Black walnut root is the hardiest and most durable stock to graft on, and plant in any soil. Felix Gillet demonstrated many years ago that the native Black walnut is as easily grafted as the English stock.

Regarding Pollination of Nuts.—The photograph (see p. 104, P. R. P., Feb. 6, 1909) accompanying Mr. Mills' article, gives, to quote in part, "a most striking illustration of the effects of pollen on nuts. These nuts were grown in Mr. Hartung's back yard at Anaheim. The Klondike is a very large nut, with deep corrugations, making it exceedingly rough. The pollen from the tree of Group III smoothed down the roughness of the Klondike. * * * The size, too, is considerably decreased, as can be seen. * * * It should be noted that the nuts of Group II are not what is commonly called a cross or hybrid of the two varieties, but were growing on the same tree, as Group I, and at the same time. This demonstrates that pollen from another tree will and does affect growing nuts, as well as the nuts of the future generation." It would be interesting to know if Mr. Hartung fertilized those nuts artificially. It is a well known fact that warmth and sunlight cause many changes in different localities, in both fruits and vegetables. Many fruits grown in the shade or in the interior of the trees, conspicuously apples and peaches, vary greatly in form, color, size, and saccharine matter. Why make an exception of the walnut?

In my opinion, Mr. Mills has not fully demonstrated that pollen from another tree will and does affect the growing nuts, any more than the mating of a large Asiatic hen with a small white Mediterranean cock would change the color of her eggs.

Has Mr. Mills ever heard of the noted Vrooman grafted Franquette nut grove near Santa Rosa, California, as "a money getter"? There are many of the Franch varieties of walnuts grafted on California Black stock, about ten years old, near San Jose, that have borne from 20 to 30 pounds of A No. 1 nuts per tree.

Suppose then, that these trees remained at their present size, they could easily be planted 20 feet apart, or 108 or more to the acre. These average 25 pounds per tree, and would yield a total of 2700 pounds or more per acre of large nuts of uniform size and color.

In speaking of seedlings, Mr. Mills says, "Where conditions have been suitable and care moderately good, the yields often go more than a ton to the acre, for 17 trees, single trees giving as high as 500 to ——? pounds." Is that not very erratic?

If Mr. Mills has any doubt that there are blight immune walnuts of the French strains, we would be pleased to entertain him, or any other interested persons, about the middle of next October, when the walnut trees will be at their best in fruit, and show the blight, if any exists.

I respectfully refer you to Mr. J. L. Crane, Santa Paula, California, for information in regard to my immune variety. R. Wiltz.

16 Lucretia Ave., San Jose, Cal.

HIMALAYAS AND OTHER BLACKBERRIES.

To the Editor: I have read the interesting article on "The Himalaya Blackberry," in your issue of January 30. If you will permit me I will give some comments on the article that may possibly help some of our newcomers to avoid making a mistake, as I am a berry-grower also and have several varieties of berries that I grow for shipping.

The description of the "Himalaya berry," as given by Mr. B. S. Kennedy, is correct as to immense growth and culture. They surely grow an immense amount of vine and yield quite heavily. They are also good canned and make a fine jelly. Now I have granted all their good qualities, I think I hear the reader say, "What is the matter with them, then?"

The especial fault of the berry in question lies in its lateness. Mr. Kennedy says his "began bearing July 10." Here in Stanislaus county they begin somewhat earlier, but even then they are too late to sell profitably.

I find from my accounts kept the past season that I began shipping loganberries May 25. Some growers near here who had Mammoth blackberries shipped before I did. We ship to commission houses, and the prices I give are net, express and commission deducted. The berries sent in May and the first of June run from 8 cents a pound net to about 6 cents, then 5 cents, till by the time the Himalayas were bearing we were not netting 3 cents a pound, and the picking had to be paid for out of that.

The fact is, everybody, broadly speaking, gets tired of canning and eating berries by the time the Himalayas begin. People want a change. The apricots are on or gone and early peaches and plums are to be had by that time. It is only occasionally a belated housewife has any desire to can berries so late.

The party who first grew them in this neighborhood was quite enthusiastic at first, but after trying to realize on them last year by shipping, I notice he is getting rid of the vines. I very much doubt if any canneries would bother with berries late in the season, as they are too busy with peaches and other fruits.

If a person wants a canning blackberry I think the common bush blackberry can be grown more economically, as it requires no posts nor wires and bears a larger berry than the Himalaya; also it comes during the berry season when people want berries. They do not begin to have as ugly thorns and are not nearly as hard to prune and handle as the Himalayas. Do not write for plants, as I have none to sell.

One question I would like to ask: Three or four years ago a party went around here selling what he called "The Vincent" blackberry, especially recommending it on account of its "earliness, good quality and extreme productiveness." Around here it has not been a success. Though it is true it is early and the bushes grow well, and they bloom very full, they do not seem to fertilize properly, as only a few berries fill as they ought to. On the remainder only a few cells on each berry fill out, making the berries as a whole worthless for market. Do you or any of your readers know any more about them? Or could anything be suggested to make them fertilize properly?

Let me make another suggestion: If any of the readers wish to set out the common bush blackberry, as I spoke of, try if possible to go to some one's patch in the bearing season and see for yourself that it is a variety that does well and bears good large berries in your locality. When starting here six years ago we put out two varieties. One variety was worthless as a market berry; on the same land with the same culture it would not bear berries of any size or quantity to pay. The others have grown better each year.

Mrs. W. O. Caulkins.

Ceres, Cal.

TREATMENT OF A WALNUT GRAFT.

To the Editor: I have a walnut tree that I grafted last spring. The graft grew about six feet. Would you let that graft grow as it is, or would you cut it back and let it branch out?—Grower, Napa County.

If we could see the walnut graft we could give a more intelligent opinion about it. If it was grafted low down and you need a long growth of this graft, partly for trunk purposes, we should not interfere with its growth, but wait for its branching, which will take place during the coming season. If it is grafted high up, and you wish to lower the tree, part of the new growth should be removed, being careful to cover the end well with paint or grafting wax, because the wood is pithy and liable to center rot. If the graft is not likely to make the tree too high, we should prefer not to cut back, for the reason given.

The Vineyard.

HOW TO CHOOSE SULPHUR FOR VINES.

Written for the Pacific Rural Press
By Prof. F. T. Bioletti.

Sulphur varies in price according to quality, the state of the market, and whether it is bought in small quantities from a drug store or in large quantities from a wholesale dealer. The price may be anywhere between 10 and 1½ cents per pound. The price is, however, little or no indication of its value to the vine grower, for the control of mildew. Some of the most costly sulphurs are almost useles for his purpose, and some of the lowest priced among the best. Little reliance can be placed on "brands," as many of them are variable and some misleading.

A little account of the various sulphurs found on the market, with simple directions for choosing a suitable one, should be of interest to the vine grower.

Sulphur is used for the control of vine mildew, and is the best and cheapest means of control if applied properly, in accordance with the directions of Buletin 180 of the Berkeley Agricultural Experiment Station. To be effective the sulphur must be in the form of a fine dust. The finer the dust the more effective. If the sulphur is in large particles it is useless, and the expense of putting it on the vines is wasted.

Practically all the sulphurs sold to vine growers are of two kinds: 1. Sublimed. 2. Ground. There are good and bad samples of each.

Sublimed Sulphur.—If sulphur is heated to a certain temperature it evaporates or turns into vapor, very much as water does. If this vapor is allowed to cool, it condenses again into solid sulphur, which will be in the form of round particles. These particles may be compared to hail, which is the solidified water vapor of the air. A sublimed sulphur is seen under the microscope to consist of minute spherical particles. These particles will vary in size according to the conditions of time and temperature under which they were formed.

Some of the coarser kinds consist of particles so large that they can be seen without a microscope. Such sulphurs have a granular appearance and do not have the clear deep sulphur color of finer samples. If a little is rubbed in the palm of the hand it has a distinct gritty feeling. These sulphurs are almost useless for our purpose, however pure they may be.

Flowers of Sulphur.—The sublimed sulphurs which consist of only the minutest particles are called "flowers". These sulphurs are the most effective, and usually the cheapest in the end.

But here is a caution. If a sulphur is labeled "Sublime" or "Flour," look out for it. These names are misleading and, so far as my observations go, are never placed on either "flowers of sulphur" or "sublimed sulphur." They usually indicate a coarse ground sulphur, which, however good for some purposes, is useless to the vine

grower in the control of mildew. The more finely divided a sulphur, the more bulky. A hundred pound sack of real flowers of sulphur will be nearly twice as large as a sack of coarse sulphur of the same weight.

Ground Sulphur.—Grinding and screening may be used instead of evaporation and condensation to reduce sulphur to the condition of a fine dust. The finest sulphurs of this kind are called "powdered," but this term is also abused. If a ground sulphur feels very gritty and if the particles can be seen with the unaided eye, or even with an ordinary pocket magnifier, it is too coarse for effective work. Even fairly good samples of powdered sulphur will sometimes feel a little gritty, owing to the presence of a few large particles among the fine powder which constitutes the bulk. The fineness of the powder can be judged also by the size of the sacks, which, as in the case of the sublimed, are the larger the finer the sulphur. The color is also an indication of fineness, but in the reverse way to that which occurs with sublimed sulphur. The more finely powdered a sulphur the lighter yellow it is, the finest samples being almost white.

Directions for Choosing Sulphur for Vines.—

1. The largest sacks of the same weight are the best.
2. Sulphurs which appear granular to the unaided eye are almost useless.
3. Those which feel smoothest when rubbed in the palm of the hand are the best.
4. A sulphur which is bulky, deep yellow and feels as smooth as talcum powder is a good sublimed sulphur.
5. A sulphur which is bulky, whitish yellow, and shows very little grittiness when rubbed in the hand is a good powdered sulphur.
6. A sulphur which is deep yellow and feels very gritty is a poor sample of ground sulphur.
7. A sulphur which is light yellow and feels very gritty is a poor sample of sublimed sulphur.

Forestry.

WINDBREAKS—AN INSTANCE AND AN EXHORTATION.

Written for the PACIFIC RURAL PRESS
By MR. ALBERT F. ETTER.

Eel River valley, one of the most fertile pieces of land in all California, has undergone some remarkable changes during the third of a century I have known it. In its primeval wildness Eel River valley was almost everywhere covered with dense and tangled brushwood, interspersed with alder and spruce trees and an occasional redwood. Generally these were growing in open park, but sometimes in dense groves. Some of these spruce trees were perhaps the largest of their kind in the world. Now we have not even a photograph to tell us of their former greatness. After a short third of a century, what a change has taken place! The original forest in all its grandeur and beauty is represented by a few remaining blackened stubs and remnants of stumps, mute reminders—like tumbled-down gravestones in a neglected cemetery. While once the land was amply protected from the north winds, gradually, slowly and surely such protection has been removed, until today the valley floor is almost a treeless plain. Even the groves of alder and willow that naturally lined the banks of all streams are scrubby and stunted compared to what they were twenty-five years ago. Today we have rich dairy lands, under what experts say are the most ideal conditions to be found in all the world. But I am told by people, who ought to know what they are talking about, that they are not getting by 20 or 30 per cent as much from their lands today as they did in former years. This statement is well justified by my own observations in comparing the open wind-swept valley with a protected area within its borders. On the place of my mother, Mrs. W. Etter, in the central part of Eel River valley, everything grows as well now as it did twenty-five years ago. And this brings me to my own experience as a tree planter.

Planting a Shelter Belt.—Realizing, even as a schoolboy, what must inevitably come to pass in Eel River valley when all the timber was removed and the level valley opened to the full sweep of the cold northwest winds, fresh from the very breakers along the ocean front, I was happy in being able to carry out my plans as a boy of sixteen. During the next three years I planted a blue gum and Monterey cypress windbreak that today is quite 100 feet high and an example of the type of windbreak that there ought to be many miles of in Eel River valley, not to mention other parts of the State.

The planting of these eucalypts was designed not only as a windbreak, but to supply fuel for the ranch and to bind the loose sandy banks of the slough and Salt river. In a sandy alluvial soil charged to its capacity with water during flood times and with a drop of the flood-water in the river of ten or twelve feet in less than twenty-four hours, it is not strange that the outflow of the soil water, carrying the sand with it, would cause the banks to slip and settle. My experiment effectually demonstrated how admirably adapted to hold soil the blue gum is in a situation like this. By the rapid growth and immense root system, the roots being almost of the strength of a cable, the trees have laced the sandy banks incomparably better than could be expected of alder, willow or cottonwood. Where they were filled about with sediment to a depth of fully six feet they were practically uninjured by it.

A Calculation of Cost and Compensation.—In my experiment, approximately four acres in thirty-five were put to forest. However, two acres of this was of no practical use for any other agricultural purpose. Still, in my argument, favoring the negative, we will consider the whole thirty-five acres as being good tillable land. Still further extending the open hand of liberality, we will not consider at all the benefits this tree shelter has on adjoining property. With four acres in thirty-five in tree growth, 11.42 per cent is lost to cultivation. If the remaining thirty-one acres now produce 30 per cent more than it would without the shelter afforded by the trees, it is still capable of producing as much as 40.3 acres would produce without the windbreak. Or you may cut the rate of increase down to 15 per cent and still be .65 of 1 per cent to the good. Then consider the pleasure and comfort of a home out of the wind and you ought to be happy. Add to this the fact that on this four acres of forest land there is enough fuel now grown to serve the ranch for about sixty years, and that cordwood in Eel River valley is worth from $5 to $8 per cord. On this ground it is not possible to consider for a moment that forest land is non-productive land, even where the land is valued at from $200 to $300 per acre for dairy purposes.

Effect on Crops Under Protection.—When we speak of promoting the growth of ordinary field crops by sheltering them from the wind, we might as well also consider that many people do not know that a plant that is hardy enough to grow in the open field will as readily respond to improved environment through shelter as will tender garden truck. It is a common practice to shelter an orchard, and we know of the beneficial results thereof by common observation. But when we consider the benefits to be derived by ordinary field crops—well, we have little information on the point. As a practical observation on this point I can say the fruit trees in Eel River valley today are nothing compared to what they used to be, on account of the wind, while on my mother's place, where it is effectually sheltered, the fruit is as good as the fruit in the valley ever was. This observation holds true also with vegetation of every description. Indeed, the only thing on the place I have noticed so far that is not benefited by the forest protection is the windmill.

A Protected Pasture.—A single illustration will go far to illustrate how the hardy Italian rye-grass, red and white clover will respond to comfortable shelter. My brother was stall-feeding twenty-one head of steers. These cattle were each day from January 1 to March 1 turned into a two-acre lot seeded with the above mentioned grasses, for exercise and water. It was raining and very wet all through January and February of 1908. As might readily be inferred, when the steers were turned off March 1, the lot was practically tramped into a mud. No one with a memory that serves its purpose need to be told that the north wind blew in California last April and May, and Humboldt county was not excepted.

When I looked upon this lot on the first of June it was covered with a thick stand of grass and clover that would compare favorably with the best fields which I saw in other parts of the valley, that were under far more favorable conditions other than shelter. The whole secret of the success was in the slightly warmer atmosphere and the conserving of the soil moisture, both of which were accomplished by shielding the surface of the soil from the north wind which everywhere throughout the State rapidly dissipates the moisture from the soil.

Where Windbreaks Are More Needed.—I said forestry was one of the most important problems before California agriculture today. If here in Humboldt county, with 60 inches of rainfall per annum, cool summers and abundant fog, we cannot afford to dissipate our soil moisture by the north wind, which here is moist and cool, directly off the ocean, then how can the agriculture of the interior valleys afford to do so, where the rainfall is only half as great as here, the wind drier and the temperature higher? Nothing is so essential in promoting plant growth as soil moisture near the surface and a calm atmosphere. Nothing can promote such conditions like forest shelter systematically applied. Don't think you are wasting land by planting forest trees, but study the question and go in for results.

Necessity for Systematic Planting.—The very fact that the planting of large growing trees on a small scale, especially by small land-holders, is often a nuisance and fails to yield the benefits sought for, is too often used as an argument against planting them at all. Small growing species are substituted that never can be effective. System and extensive planting is essential to the fullest measure of benefit in a proposition like this. If forest trees are to be planted at all they should be placed in the best position to serve their intended purpose, and as such they are as much entitled to recognition as community property as is our highway system.

Three rows of eucalyptus planted eight feet apart each way make an admirable windbreak, far better than a single row even though closely planted. A belt of timber such as this every half mile would on a level country do a great deal toward screening the wind from the surface of the earth. A triple-row eucalyptus windbreak does not require much more ground than does a single row. The advantage of the triple-row system is: they will grow somewhat taller and can be thinned or cut back from time to time for fuel purposes or timber, an item of considerable importance. They also hold the foliage much nearer the ground. This, with occasional thinning, will keep the windbreak always in good form. Where cypress grow well, they are useful to plant between or alongside of the eucalyptus for a bottom filler, but in a triple row are not necessary.

A State Question.—Possibly I am a little advanced on the subject, but in my mind, if results elsewhere are as pronounced and beneficial as I seem to have found them, then it is something the State itself might properly and most efficiently and systematically carry out. Some of our Eastern States are already doing a little in this line of work, and getting waste land into productive forest. We can use, and should first use, waste land where we can, and then good land where necessary, and thus build up a system of protective forestry to get the greatest results from our cultivated lands, and forever provide for an abundant supply of household fuel for our ever increasing population.

Planting eucalyptus forests for timber alone is commendable, but planting it with such forethought and system as to greatly benefit our agricultural areas and to beautify, or to make it possible to grow many other trees and shrubs around our country homes—growths which will not now thrive under existing conditions—is like killing two chickens with one stick of stovewood. The whole subject is like reclamation work. Much can be accomplished with a thorough system and a definite object in view, but comparatively little if every land-holder does something or nothing as he sees fit.

Briceland, Humboldt county.

AGRICULTURAL REVIEW.

Agricultural Notes.

The ranches in the Pajaro valley are trying out the spineless cactus this year to determine its value as a stock food.

Martha S. Nash of Santa Ana has a thornless or spineless cactus, said to be over ten years old, which is perfectly free from spines.

Flour was advanced again in price this week. With wheat selling for two cents per pound, flour is only doing its best in keeping up with the advance.

One hundred and twenty-nine bales of hops were sold for 7 cents per pound by Arnold Ford of Ukiah last week. This is the highest price paid for last season's hops.

Over 1700 acres of land near Kerman, Fresno county, have been put under irrigation and will be cultivated for the first time this season. Over 1000 acres will be sown to alfalfa.

On the big San Joaquin ranch near Santa Ana, 17,000 acres will be planted to lima beans this season. Bean growing is a comparatively new product for Orange county, but during the past few years it has been a profitable crop.

Judge Hutton at Los Angeles last week decided that the farmers of the Yucaipe watershed had the right to use 225 inches of water. The decision is against the Yucaipe Land and Water company, the original owners of the water, but which Judge Hutton holds lost its rights by allowing the statute of limitation to expire before attempting to enforce them.

According to a commission firm of San Francisco there is a potato shortage in this State which will continue till the new crop comes in. The firm claims that after getting all the spuds that Oregon can send us that 2800 cars must be shipped from other places to furnish the normal supply. As the rains retarded potato planting, the new crop is expected to be two weeks late this season.

New Alfalfa Fields and Mill.

From Tehama county the news comes of the completion of an alfalfa mill which is to commence grinding this month. About 500 tons of last year's crop of alfalfa hay are on hand ready to supply the needs of the mill till the new crop is ready. The E. Clemens Horst Co. is planting 850 acres to alfalfa near Tehama, which is to be used in supplying the mill.

Peter Bouchet of British Colony has perfected the invention of a well boring apparatus with which he has bored a well 200 feet deep in nine hours. Mr. Bouchet has contracts for boring a number of wells in the artesian belt which is located in this vicinity.—Merced Express.

Heavy Acreage of Sugar Beets.

From various parts of the State we learn of contracts being made for a very large acreage to be planted to sugar beets this spring. In Ventura county it is stated that fully 16,000 acres will be planted this year, as against 11,700 last season. Around the Hamilton sugar factory, in the Sacramento valley, the acreage will run upward of 10,000 acres, some of which will be farmed by the sugar company. The Alameda mill is said to have made large contracts and will also farm a big acreage on their own account.

California Producers to Incorporate.

Six hundred delegates representing local branches of the Farmers' Union from over the State, met at Kingsburg last Saturday, for the purpose of discussing the advisability of forming a commercial body to market farm products of all kinds.

After the meeting the news was given out that it was decided to form a State organization, which will be a joint-stock concern, to include all local unions and to be known as the California Farmers' Union, Inc.

It is claimed that one of the local unions sold 1500 tons of raisins in one week to Eastern brokers at a much larger price than was offered by local buyers.

With the Fruit Growers.

The Chamber of Commerce of Lincoln, Placer county, wants a cannery established there.

Reports from Sutter county indicate a light crop of almonds this season, as the bloom on the trees is lighter than usual.

M. Alguire and F. M. Borden have bought 100 acres of land at West Riverside, and it is stated will set out 90 acres of it to lemons this season.

It is stated that the planting of apple trees around Beaumont is so heavy that the nurseries in the south have sold all their apple nursery stock.

C. W. Buswell, who has a nursery near Porterville of 90,000 trees, has purchased 300 acres of land and will set out 300,000 more trees, which will make one of the largest nurseries in the State.

The work of bottling the grape juice at the Turlock factory is now in progress and orders are being received. An addition to the factory of 50 feet has just been completed and the business seems to be prospering.

G. Harold Powell of the Department of Agriculture will spend the balance of the season in southern California and continue his work of experimental fruit shipping. Mr. Powell has spent the first part of the season in Florida.

The Santa Ana Valley Walnut Growers' Association has about sold out all the nuts raised by its members last year. The shipments for the season amounted to 1,542,000 pounds, which netted the growers from 10 to 10½ cents per pound.

Articles of incorporation of the Sebastopol Berry Growers' Association have been filed. Capital is placed at $5000 and mutual protection and advancement of the growers are the objects stated. W. I. Newcomb is president and I. G. Hambleton is the secretary.

Spraying Now Being Done.

The long continued wet weather prevented the fruit growers from doing much early spraying, but they are now giving the peach trees a thorough dose of the Bordeaux remedy to prevent blight and curl leaf. The trees are now budding and it is a good time to get the spray on. The soft condition of the ground has delayed work considerably. Some are using the Rex spray as well as the Bordeaux and claim good results.—Sutter County Farmer.

Doings Among the Dairymen.

The creamery at Turlock is to have an addition built to the factory, and other improvements made to better handle its growing business.

At the annual meeting of the Western Yolo Consolidated Creamery and Ice Co., held at Winters last week, the annual reports made showed that $22,985 worth of butter and $3224 worth of ice had been sold and that the institution was in good financial condition.

A writer in the Salinas Index says the dairymen of the Santa Rita district are manufacturing cheese extensively, claiming that it is more profitable than making butter or selling cream, as cheese brings 14½ cents per pound. At the Crowell

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Imperial Dairy Association.

Last week the dairymen of the Imperial valley formed a permanent organization, with D. G. Whiting as president and E. H. Sherman of El Centro as secretary. The next meeting of the association will be held at Holtville, March 9, commencing at 10 a. m., when every dairyman in the valley is expected to be present. It is claimed that there are nearly 6000 head of milk cattle in Imperial county.

Live Stock Items.

The home ranch of the late Governor Sparks, comprising 317 acres near Reno, Nevada, was sold at sheriff's sale last week to the Farmers and Merchants Bank for $46,709, the amount of its mortgage.

The Santa Clara Valley Poultry Association has set the date for the next show for November 9 to 14, 1909. The show will embrace, besides poultry, a department for cats and another for dogs.

The famous trotting mare, Berta Mac, 2:08, was recently sold by Worthington Parsons of Salinas to C. K. G. Billings for $8000. The mare has been delivered at Pleasanton, where the Billings "string" is kept.

It is claimed by agents of the Prevention of Cruelty to Animals Society that nearly 3000 head of cattle kept on Grizzly island, near Antioch, are starving to death, owing to the floods covering most of the grazing lands and no other food being given them.

Shearing 50,000 Sheep by Machinery.

The Hanford Sentinel tells of a big sheep shearing job now on at the Pleasant Valley stock farm at Stanley, near Coalinga. Seventeen men, operating as many machines, will shear the 50,000 sheep kept there, and they expect many more head to be driven to them from surrounding ranches. The machines are operated by gasoline engines, and each one is supposed to shear 150 head per day.

Breeders' Day at Livermore.

Last Saturday afternoon, February 27, the many horse breeders in and about Livermore held their annual show and parade of mares, stallions and colts of the different breeds and classes of horses. The two most prominent grades presented to the horse-lover's inspection were the fine Percheron stallions and racing stallions and mares. There were 22 Percheron stallions in the parade which California can be proud to possess. We often see pictures of this type of horse raised in the central part of the United States and of those raised in Europe, which we very much admire, but there are stallions in Livermore which can hold up their heads among the very best of Percherons. The racing stallions had 12 members represented that possess long pedigrees and have had relatives in many of the best races upon the Pacific coast.

The balance of the parade was made up of mares of the different classes, draft horses and ponies. The horses were well groomed and handsomely decorated with red, white and blue colors. It was a pretty sight and the people of Livermore, with their friends from the neighboring towns, turned out in large force to see the parade, besides quite a number of people were there from San Francisco, Haywards, Oakland and San Jose. Everywhere one heard the parade pronounced a big success.

As each stallion passed the grand stand the parade stopped long enough to have his pedigree and history read.

Each year for many years past Livermore has held these shows and parades, and always has invited breeders of horses from all sections of the State to be represented with their stock. Such annual meets have done much to promote interest in the horse raising business in the Santa Clara valley and we would like to see more of them held in different parts of the State. We know that they would do much in raising the standing of all kinds of horses.

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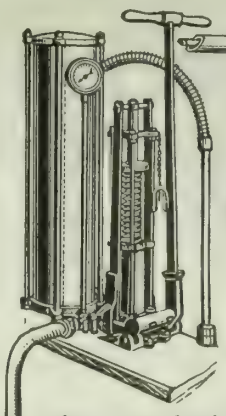
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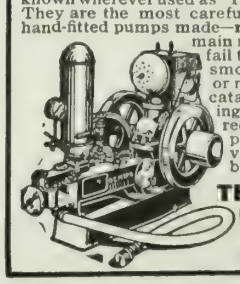
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Citrus Fruits.

THE SEALED PACKAGE.

Written for the PACIFIC RURAL PRESS
By MR. E. S. THACHER of Nordhoff, Cal.

The most notable recent development in orange-growing is Mr. Powell's successful demonstration of the importance of keeping absolutely uninjured the protecting covers of the fruit. And the ready and cordial acceptance of the instruction thus worked out before our eyes is the best possible assurance of the California fruit grower's future. For it is proverbial the world over that the farmer hates to be shown new things that might disturb old practices, and when a whole community of farmers has its head well above that sort of resistance to light and leading, you may safely lend your money on its prospects.

We have learned, then, that every healthy orange and lemon is put up sealed, and that, if this sealing is nowhere interrupted, it is prepared to undergo many vicissitudes and deliver its contents in good order to the distant consumer.

It becomes at once a prime object with every grower who takes any trouble for success to protect his fruit from puncture abrasion; and the enemies most clearly in sight are long stems, that are sure to injure other fruit in boxes, in grader or in sizer, careless use of the clippers, causing cuts and grazing, and the sharp edges of boards against which fruit may strike, whether on picking-boxes or on any part of the packing-house apparatus. Further observation discovers in the fingernails a frequent offender, and these weapons of destruction are now very generally sheathed in cotton gloves, worn by pickers, graders and packers.

It is evident that continual carefulness on the part of pickers and other handlers is the chief thing to be secured, and that this can be done only by constant inspection of their work. Remarkable improvement has been very promptly gained by a system of inspection on arrival at the packing-house—each picker being dealt with separately by means of numbered tickets put in the boxes; a sample box of each picker being daily subjected to a minute examination and a record made of the number of long stems and clipper-cuts.

Some aid may be given to the careful worker by improvements in the form of the clipper, to facilitate close cutting and diminish the risk of contact with point of edge; and experiments are continually being made to this end. As a moral assistance, picking by the box is being generally discarded and the growers are showing comparative unconcern as to slowness of the picker's work, if they can see a compensatory increase in carefulness. But it is common experience in all trades that good work steadily followed will develop by practice a reasonable speed.

If we had to double the whole labor cost of picking, grading and packing, in order to secure a substantial improvement in the matter of the uninjured skin, it would still be a most remunerative investment.

We were told last spring, at Whittier, by one of the largest and most successful of our orange growers, that by faithfully following Mr. Powell's suggestions he had in that season saved almost the whole of the usual cost for refrigeration, his fruit going through to New York un-iced under weather conditions that would formerly have made icing indispensable.

It is probable that the emphasis which has thus been laid, among the orange and lemon men, on the value of nature's sealing process and the necessity of keeping it intact, will at once be extended to other fruits, to the great benefit of all who deal in them. There is nothing new in the idea, and practical fruit men have always made more or less effort to keep their product somewhat protected from rough usage. But these investigations have brought out effectively the relative importance of the entire skin, as compared with care against bruises. They have showed us, contrary to moral precepts, it is the sound exterior that we should chiefly look to and that injury to that will expose the heart to ruin.

Indeed, my neighbor, who has been a surgeon many years longer than he has been growing oranges, remarked that the orange was just like the rest of us in the matter of skin protection. We too, he said, are covered with an armor that is almost impervious to the entrance of disease, and we too are at once exposed to manifold dangers if any break in our envelope leaves us open to the germs that crowd the air. We could not live a week unsealed and we should expect nothing better of our fruit.

The fruit-grower's problem is but half worked out when the product hangs in perfection on the heavily laden drees. It has still to find the consumer and please him. And that means the endurance of a journey without loss of condition. For this trial it has one invaluable provision, a perfect covering. The touch of a thumbnail, or of a clipper point, so slight as to be invisible, may have destroyed that immunity and danger is at once made tenfold greater. It is for the fruit-grower to protect the protection that has grown for him with the ripening fruit. And Mr. Powell and his helpers, and the men who have heartily taken up and applied his suggestions, have made the necessity apparent and pointed out the way to meet it.

The Field.

IMPROVING SEED POTATOES.

As the potato planting season (which, taking all regions together, is nearly a year long in California) is now on, the selection of seed is interesting. There is general accord among potato experts that the best selection of seed cannot be done after the crop is gathered, but ought to be done during the gathering. What is said below is perhaps rather a suggestion for harvest than for planting time.

Mr. A. G. Craig of the Washington Experiment Station gives this outline of progressive points in potato production:

When large tubers are selected from the bin part of them are sure to have grown in poor hills. When small tubers are selected from the bin, part of them are sure to come from good hills, but the largest per cent come from poor hills. Therefore, it is not a good practice to plant small tubers taken from the bin; select your seed from the field.

Not a few are interested in the improvement of our potatoes. This has been brought about from the fact that farmers frequently get a variety that gives good satisfaction for a few years and then the yield decreases and the tubers lose their uniform appearance.

There are almost as many theories advanced for this running out and remedies given as there are growers. A few of the remedies given are: Plant when the moon is "right"; always plant large tubers; never plant "seed ends"; always leave one or two eyes to a piece as the case may be; exchange seed, etc. None of the above remedies will prevent varieties from running out. The changing of seed may be beneficial, provided the person from whom the seed is gotten practices good methods of selecting seed. The benefit derived is

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not derived from the mere fact that the seed is changed from one farm to another. Varieties run out when the seed is not properly selected from year to year. The place to select seed is in the field.

If the variety is a good one to start with, any farmer with the proper knowledge can maintain its productiveness and quality with comparatively little time and expense and the careful farmer can increase its productiveness and improve its quality.

As we dig potatoes or look at them in the bin, we cannot but note the remarkable lack of similarity or the tendency to vary that is exhibited. It is a noticeable fact that some hills will have a large number of tubers, uniform in size and shape, while other hills grown under the same conditions will have a few ill-shaped tubers or one large tuber and a few small ones. A tuber grown from the vigorous productive plants, although it may be the only small tuber in the hill because it started late and did not have time to develop full size, would possess and transmit the characteristic of its tuber from the poor hill in which it alone attained marketable size, and would transmit the tendency of the hill. We see that inspection of the individual tubers alone will not enable to judge whether it is desirable for seed or not, but the whole hill must be examined.

The unit for selection is the plant, and therefore the place to select potatoes for seed is in the field, where the whole plant can be examined.

There are few plants under cultivation that are more susceptible to variation than the potato. The more a plant varies the greater is the chance for improvement with proper methods of selection and also a corresponding tendency to deteriorate when poor methods are practiced.

In 1907 we planted on the experiment station farm at Pullman two plots each of twelve varieties of potatoes. One plot of each variety was planted with seed selected from the best hills (large and small of the hills were planted). The other plot was planted with seed selected from the medium or poor hills. As near as it was possible the two plots of each variety had the same kind of soil and treatment. The results were interesting. The average yield of the plots planted with tubers from medium to poor hills was 6100 pounds (sixty-one sacks). The average yield of the plots planted with tubers from the good hills was 8100 pounds (eighty-one sacks), or a gain of twenty sacks per acre. The crop from the good hills was not only larger, but the tubers were more uniform in size and appearance than those from the medium to poor hills.

Correspondence.

AGRICULTURAL CONDITIONS ON MAUI, HAWAIIAN ISLANDS.

To the Editor: It is needless to indicate here the importance of the Hawaiian Islands to the United States. There are, however, many very false ideas regarding them; so I give some facts from an agricultural point of view, which will, I believe, be interesting to the readers of the PACIFIC RURAL PRESS.

Hawaii usually calls to mind palms, ferns, luxuriant tropical vegetation, extremely fertile and easily exhausted soil. The reason for this is that most views and accounts of the islands are taken from the most picturesque parts, or from the things most striking to the eye of the observer. Another reason is that visitors, as a rule, see but little else than Honolulu and the volcano region, which have a much more tropical climate than much of the rest of the country. The parts of the islands exposed to the moisture bearing winds are tropical without doubt. Most of the rest of the country is not especially so.

The one thing that is noticeable is the uniformity of temperature. The sameness of the climate prevents many plants which like changes of temperature from thriving. The absence of a low humidity prevents others from doing well. With those exceptions, almost any plant that would be successful in central California should do well in many large districts here. For instance, the temperature in most places here does not come within 15 to 20 degrees of the heat of the interior California valleys on occasions. What, then, is to prevent plants that grow there from growing here, unless it be those two reasons above noted—absence of occasional low temperature and a higher humidity?

It would doubtless surprise many people to know that grapes, which are supposed to require a dry hot summer and a much cooler winter, are common features in gardens. The markets are well supplied with table grapes, and wine has been very successfully produced.

Nearly all the California vegetables do well. The seed runs out in a short time, but plants raised from imported seed do very well. Many California fruits also bear plentifully. The quality may fall far short of excellence, but it all goes to show that the climate is not as different as is generally supposed.

Cattle raising is hardly a tropical industry, but an island cowboy was well enough trained to surpass all competitors in tying up steers in the cowboy tournament held this summer in the Middle West. In many other ways it can be seen that we have almost a temperate rather than a tropical climate. It must be understood, however, that localities differ greatly among themselves, and what is true in one place may be untrue in another.

In many places the humidity is not great. Of course, being so near the sea, in no place is the air especially dry, but when we consider that in about half of the arable land the planters would be almost hopelessly lost without long-continued irrigation, we can see that the air cannot be noticeably moist and sultry.

As stated, irrigation is extensively required. It would probably surprise a person, who expected to see rich tropical verdure, to see instead brown, sandy stretches, with hardly a shrub or tree upon them. Such places are more or less rare, because irrigation water is supplied. Side by side, however, with rich green cane fields are patches of barren soil, to which conditions made it inconvenient to supply water. Instead of the feathery palms so often displayed in photographs, we look across wide expanses of sugar cane, with no trees except those planted in villages and around the cottages.

Climate like that will not give a humid, easily exhausted soil. Cane has been grown continuously, year after year, without any great falling off in the crops. Fertilizing was resorted to because the returns far surpassed the expenditures, and not because the soil had at last refused to do more.

Irrigation problems are here as well as alsewhere, although water comes in a convenient way. The mountains lift their heads high above the rich dry valleys. While the low lands in their natural state might have been dry and barren, a person may lift up his eyes and nine times out of ten see the clouds enveloping the hills. Little rain in the valleys, almost a continual downfall on the high mountains. There is often not enough water

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to irrigate all the good soil, but what there is usually comes quite steadily down the streams and ditches, without the aid of reservoirs and artificial storage.

Most of the hills are quite steep and have sharp ridges, owing to the very great erosion. Those with a gradual ascent will be cut into by deep canyons. The lower part of the hills may be as barren as the valleys, owing to insufficient rainfall. The middle and upper parts will be so thickly covered with vegetation that a man can hardly force his way through it.

Because much of the soil is semi-arid, it does not follow that all is so, by any means. In written accounts the tropical district has had its innings. It is time for something to be said for the part that can only be called subtropical.

If a person wishes, he may find plenty of palms, tree ferns he can ride his horse under, vegetation so thick that it is work to cut one's way through. All this has been written of before. The prosaic, less striking, but more important, agricultural part has been neglected.

DUDLEY J. WHITNEY.

Waihee School, Wailuku, Maui, H. I.

Mr. Whitney is a graduate of the College of Agriculture of the University of California (December 1907), and is now teaching vocational subjects in the school mentioned. He is excellently qualified for his work. We shall be glad to hear more of the agriculture of his district.

THE CALAVERAS BIG TREES SAVED.

To the Editor: By signing the bill for the creation of the Calaveras National Forest, California, President Roosevelt has completed the legislative act which saves for all time the most famous grove of trees in the world. The people of California, particularly the 500 women of the California Club, have been working to interest the government in this wonderful grove of big trees for more than nine years, but not until now has it been possible to arrange a plan satisfactory alike to the owner of the land and to Congress.

The Senate bill passed by the House of Representatives has just been signed by the President. Everyone interested in the great natural wonders rejoices that as a means of saving the big trees, the way has been paved for a practical exchange of the timber in the groves for stumpage on other forest land owned by the government. The first Calaveras bill was introduced in the Senate four years ago by Senator Perkins of California. Bills for the same purpose were passed in the upper house of Congress a number of times, but always failed of favorable consideration in the House until Senate bill 1547, also introduced by Senator Perkins, was called up by Congressman S. C. Smith of California last week.

Robert B. Whiteside of Duluth, Minn., a prominent lumberman operating in the lake States and on the Pacific coast, is the owner of the Calaveras big trees. After his agreement to the proposals, which are simply a practical exchange of timber for timber, the entire California delegation gave its solid and enthusiastic support to the bill.

The land to be acquired under the bill includes about 960 acres in what is known as the north Calaveras grove in Calaveras county, and 3040 acres in the south grove in Tuolumne county. The north grove contains 93 big trees and in the south grove there are 1380 of these giant sequoias. Any tree under eighteen feet in circumference, or six feet through, is not considered in the count of large trees. Besides the giant sequoias there are hundreds of sugar pines and yellow pines of astonishing proportions, ranging to the height of 275 feet and often attaining a diameter of eight to ten feet. There are also many white firs and incense cedars in the two tracts. A government study of the land was made by a field party under the direction of Fred G. Plummer, United States forest service, in 1906.

The Calaveras big trees are known the world over. The north grove contains ten trees each having a diameter of twenty-five feet or over, and more than seventy having a diameter of fifteen to twenty-five feet. Most of the trees have been named, some for famous generals of the United States and others for statesmen and various States of the Union. "The Father of the Forests," now down, is estimated by Hittel, in his "Resources of California," to have had a height of 450 feet and a diameter at the ground of more than forty feet when it was standing. "Massachusetts," contains 118,000 board feet of lumber; "Governor Stoneman" contains 108,000 board feet, and the "Mother of the Forest," burned in the terrible forest fire which licked its way into a part of the grove last summer, contains 105,000 board feet. Each of these trees named grows as much lumber as is grown ordinarily on fifteen or twenty acres of timber land. The bark runs from six inches to two feet in thickness. Among the other large named trees in the two groves are "Waterloo," "Pennsylvania," "James King," "Old Bachelor," "Pride of the Forest," "Daniel Webster," "Sir John Franklin," "Empire State," "U. S. Grant," "W. T. Sherman," "J. P. McPherson," "Abraham Lincoln," "Connecticut," "Ohio," "Grover Cleveland," "Mrs. Grover Cleveland," "Dr. Nelson," "General Custer," "Dr. J. W. Dawson," "General Hancock," "Knight of the Forest," "Two Sentinels," and "Old Dowd."

CORRESPONDENT.

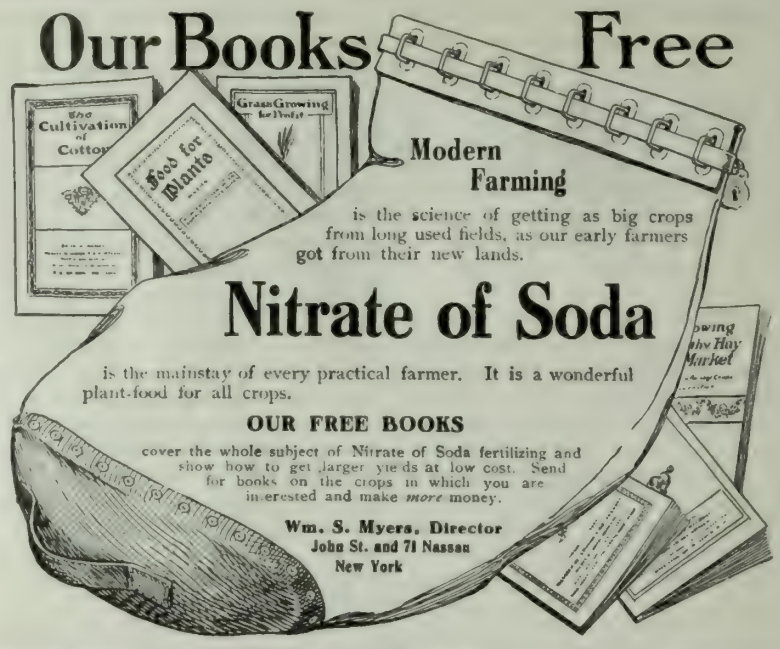
Washington, D. C., Feb. 22.

BOOSTING WOOL PRICES.

According to the Breeders' Gazette, the determination to establish wool warehouses in Chicago and Omaha has developed bullish sentiment in producing circles to a degree of rampancy. The grower has discovered that competition is a good thing. While in the act of subscribing to the warehouse plan his elbow has been jogged by the middleman, recently in the attitude of insisting that he consign his clip to Boston. The aforesaid middleman, having secured a hearing, has proceeded to bid prices that compel the grower to lend an ear. The obvious intention of the middleman is to muzzle the warehouse campaign. What his success will be remains to be seen. That the middleman has performed a useful function in the past admits of no dispute, but his changed attitude suggests that his policy has not been entirely shaped in the producers' interest.

Twenty-cent wool is now the slogan in Montana, a proposition having been made and accepted by a number of large growers to hold for that figure. In Idaho such flattering offers have been made for 1909 clips that woolhouse subscribers have accepted, paying their warehouse subscriptions as an insurance of continued competition. The Chicago idea has injected new life into the trade, and while present conditions are open to the suspicion of being abnormal, due to the desire of the middleman to maintain his position, it is a foregone conclusion that the warehouse campaign will result in eliminating many existing evils, insure competition and place the grower in a position of comparative independence he has not heretofore occupied. The time is at hand when Western clips will sell on their merits, and that is the basis of equity everybody connected with the trade desires.

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W. Herbert Samson, Prop., Corning, Cal.

NEW METHODS FOR BAD ROADS.

California has Mr. Dunne done to a finish in the uprising of Mr. O'Dooley as a speaking substitute for his abbreviated prototype under conditions which demand utterance in this State during the rainiest season we have had since American occupation. The following skit is from the Contra Costa Standard:

"Oi see be the paapers," said Mr. O'Dooley, "that Tidy Rosenfeld, or the Postmasther Gineral or some one or uther has issued an order suspinding free rural mail delivery on all routes where the dipth of the road from the surface of the mud to the bottom, exceeds the width of the roadbed." "Ye don't say," said Mr. Hinnessy, "there's spots in our local route that will come undther the ruling." "Yis," said Mr. O'Dooley, "and thim saame sphots is thicker nor the sthripes on a tabby cat's tail."

"Ye see it's this way, Hinnessy, there's some 87,000 or odd rural mail carriers plugging painfully through the mud at this moment, and the Postmasther Gineral is afeared that wan or more of thim may lose his reason from the tirrible hardships he is daily ixposed to, and may take it into his head to sind him a box of pizen candy or a nithroglycerin cigar. And so ye see, he give thim a chance of gitting out of their difficulties without the disgrace of throwing up their job and bein' called a quitter be their friends and naabors."

"Oi was comin' in from lodge last night," said Mr. Hinnessy, "and there was the mail carrier just gittin' into town from his day's trip, and Oi can till you he luked more dead than aloive."

"Yis," said Mr. O'Dooley, "and ye'll be seein' in another week he'll have to be stoppin' overnight in the middle of his thrip at some shelterin' farm house, or will be carryin' a shmall tint with him and a campin' outfit to match."

"Oi shud think," said Mr. Hinnessy, "that one of these shmart chaps wad invint a way of gittin' rid of the mud."

"They have," said Mr. O'Dooley; "the governmint has a machine called Mudslugomobile which shoots down the road at thirty miles an hour throwin' the mud off to both sides, just like the snowplows ye've seen in the mountains. But the trouble is that it leaves the finces, lawns, garden walls and nearby houses plasthered with two feet or more of mud, and whin it dries on with the first warm days, it takes the divvil's own patience and injinuity to schrape it off."

"And thin there is the submarine mail boat of the Dreadnomud class, which sails smoothly down the country roads with nothin' showin' but a bit of a flag pole, poppin' up for a moment at the mail boxes, givin' and takin' the letthers and ducking out of sight and off agin' in a minnit. But thim machines is naturally expinsive and can only be used in the richest communities, so they are barred out from here. There is, howiver, a simple device which goes far to insure the dilivery of a letther on the worst of rural routes. It is known as the marine invilope and is made just loike a toy balloon. Ye tuck your letter into it, blow it up till it is the size of a man's head, thin tye a sthring around the nick with a postage sthamp or two and ye're safe, for if the postman should capsize in wan of thim mud holes, the litters come floating to the top like so many ducks, and may be skimmed off the mud like so much crame."

"Oi shud think," said Mr. Hinnessy, "that the farmers wud git to work and fix up the roads some way or other."

"The farmers," said Mr. O'Dooley, "are a poor, a proud and an indipindent set of people. They're too poor to sphind money on the roads, too proud to work on them alone, and too indipindent to ask their neighbors to come out and work with thim. And now,' said Mr. O'Dooley, "Oi must be stepping across the road to get the milk for the youngsters; do ye moind where Oi laid thim long rubber boots with the shoulder straps?"

THE CEREAL SITUATION.

The great agricultural priest and prophet has spoken our doom again. Last week in New York city he advanced these propositions, if the wires fitly serve him, and they are very important and interesting:

"Do you know," Mr. Hill asked, "that the value of the agricultural products of this country last year was $7,000,000,000? That is greater than the foreign trade of Europe, about what we hear so much from persons who do not seem to know what is ailing us. Do you know, furthermore, that 70 per cent of our exports are products of the farm, and that proportionately the volume of these exports is decreasing instead of increasing? These facts are of tremendous importance. Primarily they show that production per acre is not keeping pace with home consumption. So there you have the situation in a nutshell.

SCIENCE OF AGRICULTURE.—"The farmer's occupation is the first to exist in a civilized state. It is the basis of all other industry. And only recently we began to realize that it is, or can be, made an exact science. Not until it is practiced by a larger proportion of our farmers as an exact science will we obtain relief from present conditions.

"It is as well assured as anything can be that the population of the United States will be two hundred millions by about the middle of the century, or in less than fifty years.

"For the last three years the consumption of wheat per capita has been either slightly under or slightly over seven bushels. Suppose it is only six and a half bushels per capita, which is certainly within the mark. It will then require, unless we are to fall to a lower scale of living, a total product of 1,300,000,000 bushels of wheat for our bread supply, if we do not export any. Twice only in our history have we exceeded the 700,000,000 bushel mark. It is fair to say that 650,000,000 bushels is our present average capacity.

EXTREME LIMIT.—"We have no longer an unlimited public domain awaiting the plow.

"Twenty-five years or less ago the same amount of capital produced, let us say, twice as much then as it produces at present. With facts like these before them, can't the American people see and understand why it costs them more to live now than ever before?

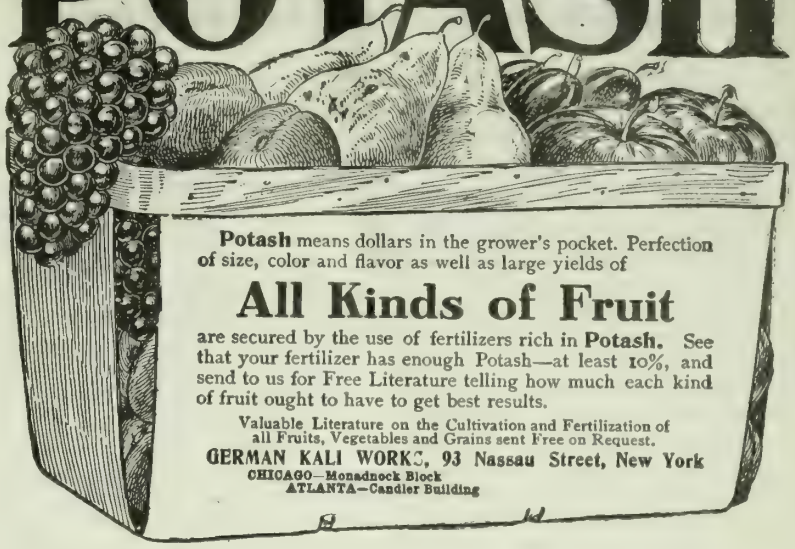
"On the whole it is more likely that the wheat acreage will be reduced than that it will be enlarged. We may perhaps assume that a steady and certain price of $1 or $1.25 per bushel for wheat may raise our total annual production to 900,000,000 bushels, which would be 50 per cent more than its present average. This is the extreme limit of probability.

"The country could, under present methods, do no more unless it took land just as necessary for other purposes and devoted it to wheat raising.

ENORMOUS SHORTAGE.—"Figuring on the present rate of consumption, we shall be left practically with a shortage of 400,000,000 bushels in our wheat supply, even supposing that we consume every grain we raise. This amount we should have to procure from some other source.

"We must be prepared to send abroad about $500,000,000 worth of some commodity in payment for the wheat we will need. We must also make good the deficit occasioned by the cessation of our exports of breadstuffs and provisions. In the year ending June 30, 1908, we exported wheat and wheat flour to the value in round numbers of $164,000,000. That will be cut off, so we shall have to find $700,000,000 in all to pay our food bill."

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Live Stock and Dairy.

An Appeal for Justice for the Sheep and Angora Goat Breeders of the United States to the Committee on Ways and Means of Congress.

By Mr. G. A. HOERLE, No. 512 Wool Exchange, New York.

More just and equitable duties were never passed by our Congress than those which protect, or better, should protect our farmers and stockbreeders, for they do not only form the most numerous class of our population, but they are also the backbone of our country. When our farmers do well every business is prosperous, when they have to struggle along the en tire country is in a plight. If the farmer has money he will make improvements, investments, buy the luxuries of life and set the entire machine going; if he is poor, industries and commerce are dead. The effect of the panic in our farming dis tricts from 1890 to 1895 is still fresh in our memory; abandoned farms all over the West, and proud Kansas City with all her stores closed and, except the slaughtering houses, business at a stand still.

But unfortunately this very backbone of the country is almost in every article he produces without real protection against the pauper labor of the rest of the world! We feed Europe with our grains, our meats, dairy products, etc., but in a few years we will have hard work to fight off the competition of Canada, Mexico, South America, Asia, Africa and Australia. Every trade, every industry is benefited by some duty or other, but what benefit does our farmer derive from a duty on grain, live stock, dairy products, hay or cotton which he produces, but cannot sell at a profit unless the stomach or Europe is larger than our own surplus? The only duty which would really benefit him, were he himself wise enough to concentrate all sales, is the duty on wool and mohair, which alone we do not export but import ourselves. But this the manufacturers begrudge us and make every effort in their power to have it repealed; and, as they are a concentrated power, they will, I am afraid, finally succeed. They pretend that we hardy country folk can paddle out canoes alone, while their poor paralyzed infant industries, like the petroleum trust, the steel trust, oil trust, tobacco trust, meat trust, and all the other manufacturing trusts, need the careful nursing of the nation. These infant industries have been waxing fat for thirty or forty years, have watered their capital again and again and still pay large dividends on their watered shares, but they cannot walk alone unless good Uncle Sam gives them a helping hand. They begrudge our farmers their hard-earned incomes, for the words "live and let live" are not in their dictionary; there we find only: "the whole hog or none!"

Our sheep men fare badly enough by having a low tariff on carpet-wools, which often leaves room for squeezing through wools as high priced in Europe as their own, under the name of carpet-wool, thus depreciating their own wools either directly or indirectly.

Still most all of our sheep produce immensely heavy fleeces of excellent wool, some equal to the very best of any country. Were it not so would we find a ready market for our rams at high prices in South America, South Africa and even in Australia?

Unfortunately our Angora goat breeders are in a much less favorable position. Most all of their flocks are low crosses with our ordinary milk goats. Many do not average more than one pound per head per year, including kid fleeces, and from 2¼ to 2½ pounds for nannies, kids and wethers is probably the average for the entire Union.

Against this the clip of the Cape Colony have increased during the last 20 years from five pounds to eight pounds average. The ordinary flock of W. A. B. Hobson of Martyrsford averaged 10 pounds and the 400 thoroughbred nannies over 12 pounds, kids of that flock shearing near two-thirds of their mother's fleeces, and some of his bucks clipped over 22 pounds. His farm is one of the very best and could carry, before he had completed his irrigation dam, 4000 Angoras and 200 ostriches on about 9000 acres, besides horses, sheep and cattle for house use. South African farms are worth, according to quality, location and carrying capacity, from $2 to $20 per acre. Wages for herders and farm hands vary from $2.50 to $5, and in the interior considerably less.

In Turkey the average clip has increased from 3 pounds to 5 pounds, and the difference in the weight, compared to that of the Cape Colony, is almost entirely made up by the extra quality of the mohair. Not irrigated grazing land is worth from 50 cents to $3.50 per acre, but this as well as farming land is usually owned by the crown and rented at a percentage of the yield. Irrigated farm land sells from $70 to $240 per acre. Herders and day laborers receive from 10 cents to 25 cents per day and harvest hands from 25 to 35 cents, both without rations.

In Australia herding is usually done by whole families and their wages paid according to their ability: for 1500 sheep about $8 to $10 and one full ration for the herder and one half ration for housekeeping. Land is never sold for less than $5, often up to $25 and more per acre. But farther from settled districts grazing land is mostly rented from the government at from $3 to $20 per square mile. The buildings are always erected on purchased land, which is put up at auction whenever settlers want to buy it.

Neither in the Cape Colony, Turkey or Australia are the droughts more severe than in our Western States, while the climate of all these is much milder and changes less sudden. This is a factor which counts strongly in favor of raising the best quality of wool and mohair.

According to a letter which I received from the Department of Agriculture, the thermometer recorded 11° below zero as far south as Corpus Christi, and sudden drops of between 70° and 80° in 16 to 18 hours have been observed by me here, and I remember that in February, 1883, the ground near San Antonio was covered with sleet for five days, starving many sheep and young cattle. On April 1, 1905, thousands of Angoras died in a blizzard in the neighborhood of Silver City, New Mexico, and in Kansas, Nebraska and other States, a summer heat of over 115° and a winter temperature of 38° to 40° below zero now and then, usually at times when breeders are least prepared for it. Extremes for the year exceed therefore 150°.

In the sheep regions of Australia it hardly ever freezes and the summer temperature rarely goes above 110°. In the Cape Colony it varies between 20° and 110° and in Asia Minor between zero and 100°.

The oiliest Turkish and South African mohair shrinks as much as 15 to 20 per cent from gum and oil, but there is not a flock in the United States, with the exception of my own imported Angoras, which shrinks as much as 5 per cent, though many indivudal goat fleeces will shrink as much as 10 and 12 per cent by scouring.

The wool of our oiliest sheep fleeces shrinks as much as 75 to 80 per cent, those of most flocks over 50 per cent and very few below 50 per cent.

With wages for herders and farm hands at from $15 to $30 and $25 to $50, with rations, and the low shearing capacity of our goat flocks together with the severity of our climate and the lower carrying capacity of the grazing land, our goat breeders are surely fighting a very uneven battle, even under the existing duties on mohair.

I don't believe that our goat breeders receive year in and year out more than 20 cents per pound net, but even as high as 24 cents average the income per goat for mohair would not be over 60 cents, whilst the goat breeders of the Cape Colony averaged between 18 and 19 cents per pound, or about $1.44 to $1.50 per goat, or two and a half times the income of our own breeders. To substantiate this I will say that the last spring's clip of Kerr, Gillespie and part of Edwards county was sold by Mr. Charles Schreiner of Kernville, Tex., for 19 cents, the fall clip for 18 cents. The clips of the Nueces Canyon, north of Uvalde, Tex., was sold by several Uvalde merchants for 17½ cents (these clips represent a total of about half a

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COMPARE PRICES AND RESULTS

Analysis (from Bulletin 164, Jan. 1905—University of California.)

DIGESTIBLE PROTEIN IN					
Linseed Oil Cake Meal	24.4	per cent	Shorts	12.2	per cent
Cocoa Cake or Meal	16.4	"	Mixed Feed	9.6	"
Wheat Middlings	12.2	"	Corn Meal	6.4	"
Wheat Bran	11.2	"	Wheat Hay	3.6	"

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million pounds). The Polk county pool clip of 12 months' growth was sold last spring in Dallas, Ore., at auction for 20 cents and resold last fall for 27½ cents and one month later would have brought 32 cents. Other 12 months' clips brought as low as 18 and 17½ cents. The clips of the above mentioned three sections, Kerr and Edwards county, Nueces Canyon and the Polk county pool are not, as you may judge, from the low prices, inferior clips, but there is not a section in the United States which produces better, nay as good, mohair. Either of them would have cost to import between 36 and 38 cents, and the Dallas pool hair as much as 38 to 40 cents. But if the Texas merchants only received 17 and 18 cents, what low prices must the poor grower have received? And if these were the prices of the best clips, what must the others have brought to their growers. I know some mohair was sold in New York for 14 cents and that for other clips not more than 12 cents was offered.

Our wool growers are in that regard not much better off. Last March, during the slump in London, scoured Australian Delaines sold for 90 to 92 cents, or, laid down in New York duty paid, over $1.25 per pound. At the same time our best Ohio Delaines sold in New York for only 85 cents and below; or 40 cents under the import value. Still our Ohio Delaines are fully equal if not superior to the Australians, or the breeders of that country would not pay such enormous prices for our breeding stock—$5000 for our very best bucks is getting to be a yearly occurrence there.

It must be admitted that to a great extent our breeders bear the blame for such conditions, which have existed for nearly fifty years and could have been helped by establishing a co-operative warehouse, selling and banking office in New York, the most favorably located seaport. The policy of such an association would have to be to sell only when prices close to the import values were offered, and to stop selling entirely when offers would go to 2 cents below this latter, and to wait patiently for a more urgent demand.

Though these extraordinarily low prices are not regular, but the exception, still in 1893, before wool was on the free list, Texas clips sold in New York for 10½ cents, or lower than the duty which should have protected us. Prices keep usually half way between the cost of the equivalent in Europe and that cost with the duty added. Corroborating these statements is the fact that the number of sheep of the country has fallen off one-third from the highest mark.

When in Australia I spent over a year on a sheep station, and have been twice in the sheep and Angora districts of South Africa, from where I imported Angoras both in 1886 and 1904. I have raised blooded Angoras and Merino sheep in Texas from 1877 to 1890, and kept my last importation of Angoras from spring of 1904 to December, 1906, when ill health forced me to sell out. Since then I have kept in close touch with both husbandries, and having bred principally blooded stock, I have had quite uncommon opportunities to find out the real condition of our breeders. With the exception of our large sheepmen and not exceeding 50 out of 2500 Angora-goat breeders, or those whose income is from general farming and who keep the goats only as brush cleaners, our Western sheep farmers and ranchmen are in the hands of our local merchants, who control the sales of their entire product and opose every move toward a concentration of all the sales. They care little how their patrons fare as long as they themselves can make large profits and get high rates of interest for their money.

I know quite a number of cases where men of small means bought during boom times several hundred Angoras or sheep, for which they probably only paid one-half or one-quarter cash and borrowed the balance. The flocks did well and everything seemed O.K. for one or two years, when losses during a blizzard compelled the construction of sheds or barns, for which also the money had to be borrowed. Then comes a depression in both the meat and wool and mohair markets, and the storekeeper is compelled to foreclose. In fact I know of one case where over 2000 Angoras, 1500 sheep, several hundred cattle and horses and nearly 1500 acres of land well fenced in a number of partitions, 200 acres under plow and over 200 acres hay pasture, three houses and a number of outhouses and two barns sold at the lowest ebb for $22,000—and brought seven or eight years later over a hundred thousand dollars. If such calamities happen with a duty of 11 and 12 cents on wool and mohair, how much oftener must they occur with a lower tariff or both on the free list.

During 1904 to 1906 my former observations were confirmed. Even firms owning between 5000 and 8000 goats could not afford to buy some of my "high-priced bucks," though they could see the good results of my importation in the flocks of their neighbors and all over the country. "Too much money," or "When times are getting better," or "When mohair brings a better price," was usually the answer to my letters. The prices for my imported bucks varied between $100 and $600. The South African breeders could afford to pay from $350 to $2250 (£450) for much inferior bucks than those I brought over from their own flocks 10 or 25 years later, and they can still afford to pay from $1000 to $3000 for our best Delaine Merino rams.

After the above said, and calling attention to the fact that I am entirely out of stockbreeding of whatever kind, I honestly recommend the raising of the duty on carpet-wool to 9 or 10 cents; on wools in the grease to 12 to 15 cents; washed wools to 25 to 30 cents, and scoured wools to 35 to 40 cents; the duty on very kempy and oily mohair to 12 cents and on mohair free from kemp and oil to 25 to 30 cents.

Since 1849, the year of our first importation of Angoras from Asia Minor, we have gradually worked up the husbandry to about 1,400,000 Angoras, which produce about 4,000,000 pounds of mohair.


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Connell Company	"	187.50	A. Iacopi	"	60.00
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Garden City Van & Storage Co.	"	100.00	R. L. Miller	"	37.00
Pioneer Truck Company	"	100.00	Chas. J. Welch	"	100.00
C. H. Eager	"	135.00	Martin & Martin	"	90.00
Pioneer Truck Company	"	100.00	Sciarini & Baciarini	Collinsville	174.00
Los Angeles Creamery Co.	"	830.00	Tim & Stewart	"	200.00
Llewellyn Iron Works	"	200.00	F. E. Robertson	Denair	40.00
Pioneer Truck Company	"	100.00	Geo. Minges	Ripon	30.00
Eagle Livery & Carriage Co.	"	50.00	J. W. Mack	Marysville	100.00
Eagle Livery & Carriage Co.	"	50.00	W. A. Wedderien	"	30.00
C. H. Fuller	"	100.00	Acme Dairy	Sacramento	23.00
J. N. Osterhoff	"	200.00	John Kelan	"	30.00
Earnest Pendleton	"	100.00	J. W. Smith	Grand Island	13.00
John Stewart	"	50.00	A. Chambon	Riverside	100.00
C. J. Flynn	"	150.00	L. & N. Madonna	Denverton	22.50
J. S. McKee	"	75.00	W. H. Holliway	Oakdale	100.00
C. J. Flynn	"	150.00	Santa Fe Express Co.	Oakland	75.00
Wm. Wilson	San Diego	200.00	G. L. Martella & Son	Salinas	75.00
Siro Tonini	"	150.00	Carl Neilsen	"	150.00
J. A. Teasdale	Mentone	150.00	Peterson & Emmington	Suisun	23.00
Mrs. Helen Hazell	Arlington	150.00	L. S. Hyde	Dixon	75.00
E. D. Morrison	Modesto	100.00	D. A. Raave	"	3.00
Geo. E. Yeakel	"	100.00	Elmer McNair	"	25.00
John Compasso	Napa	100.00	C. F. Hay	"	22.00
Geo. Foster	"	25.00	M. L. Newborn	Manteca	80.00
Geo. Foster	"	25.00	W. L. Burns	Mulberry	10.50
Geo. Foster	"	50.00	Geo. B. McLeod	Nordhoff	125.00
Chas. W. Herder	Craftonville	50.00	J. R. Bonella	Petaluma	180.00
A. W. Bannister	Bakersfield	50.00	J. R. Bonetti	"	120.00
Hong Chong Tai	"	90.00	Raffaelli Bros.	"	40.00
A. Romberg	"	200.00	Chas. McIntosh	"	25.00
Fred Larder	Los Gatos	350.00	R. A. Giggey	"	125.00
Frank S. Kerr	Pasadena	300.00	Bernard Fumasoti	"	50.00
Dolph Barnicott	New Castle	150.00	D. Sweeny	"	20.00
Jesus Saenz	Palms	30.00	B. Fumasoli	"	100.00
Phillip W. Brooks	Holtville	30.00	G. DelaMaria	"	50.00
Johnson & Greening	Fresno	150.00	Frank H. Dias, Jr.	Morro	180.00
L. S. Leavitt	"	200.00	Robt. Tonini	"	45.00
O. E. Kunde	"	400.00	Frank H. Dias	"	55.00
Alice Millard	"	100.00	Robt. Tonini	"	22.50
H. M. Bowen	"	125.00	E. Beckmore	"	67.50
H. D. Cloyd	"	100.00	D. M. Mello	San Luis Obispo	153.50
O. E. Kunde	"	100.00	Valentina Canett	"	30.00
J. M. O'Brien	"	110.00	Flood Bros.	"	22.50
H. M. Bowen	"	125.00	Wm. Watson	Emmaton	75.00
F. S. Seiler	Chico	37.50	Peter Larsen	"	100.00
F. S. Seiler	"	37.50	Florence G. Kite	Redding	25.00
R. H. Lynn	"	40.00	Florence G. Kite	Redding	25.00
S. M. McVey	"	12.50	E. Petroddi	Waddington	24.00
J. M. Skare	"	3.00	Ulrich Capaul	"	12.50
J. C. Hess	"	30.00	Horace Pedrotti	"	30.00
J. M. Skare	"	10.00	J. M. Kalar	San Miguel	200.00
M. T. Machado	Duttons Landing	798.00	Ruby Lopez	Hollister	23.60
Baciarini & Yolo	"	178.00	John Risse	Los Molinos	100.00
Azvedo Brothers	"	199.00	E. R. Twitchell	Glenn	15.00
Frank Machado	"	50.00	Jacob Hansen	Ferndale	35.00
M. S. Quadris	"	100.00	Ralph Biasca	"	30.00
Sciarini & Baciarini	"	100.00	Frank Bnega	"	60.00
H. E. Kinkade	Newman	30.00	Peter Stewart	Crows Landing	100.00
Pacheco & Brazill	"	30.00	A. R. Rowell	Selma	50.00
Stevenson & Wagner	"	35.00	Robt. Donati	Cayucas	30.00
Stevenson & Wagner	"	35.00	Lewis M. Reis	"	135.00
Manuel Barbour	"	30.00	Andy Larsen	Laton	200.00
Pacheco & Brazill	"	30.00	A. Warmoth	Red Bluff	25.00
Geo. Steel	"	30.00	Andrews & Tait	"	200.00
H. B. Eachus	"	25.00	N. McIsaac	Nicasio	50.00
Joseph Nigg	"	30.00	Mazzini & Co.	Loleta	30.00
Joe Fernandes	Turlock	30.00	G. Dellamaria	Lakeville	10.00
Alfred Fliflet	"	50.00	W. A. Poole	Fowler	25.00
Joe Enos	"	30.00	Jose Canamas	Oxnard	200.00
G. Alexandre	"	100.00	James McIver	Truckee	90.00
W. D. Adams	"	40.00	Wm. Richardson	Tomales	20.00
Joe Lewis	"	50.00	J. G. Long	Kerman	35.00
M. F. Preira	"	100.00	L. S. Ghisletta	Stony Point	30.00
J. M. Ahrendes	Stockton	30.00	W. A. Hanchett	Ceres	38.66
B. R. Beach	"	168.00	N. Hanson	San Francisco	25.00
L. M. Haight	"	150.00	J. S. O'Rourke	"	100.00
H. C. Stohlman	Yuba City	60.00	I. O. Bishop	Manchester	50.00
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H. C. Stohlman	"	125.00	Alexander Skaggs	Geyserville	25.00
E. C. Smesler	"	100.00	Louis Heldreth	Talmage	30.00
A. DaCrosse	Tudor	100.00	S. Yokoi	Meridian	25.00
Wm. Humphreys	"	150.00	H. A. Logan	Merced	50.00

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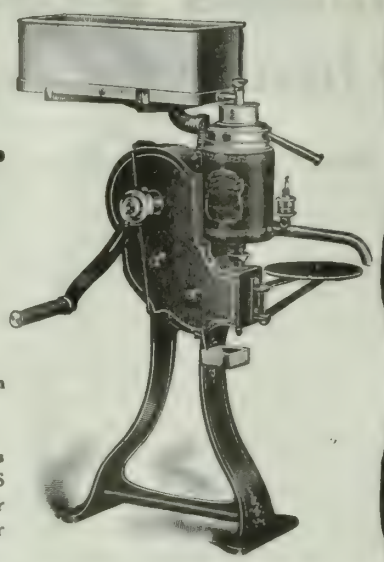
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It is cast in one solid piece.
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Extreme simplicity of construction combined with great strength.
Smaller diameter of bowls.

These are some of the reasons that make the UNITED STATES CREAM SEPARATORS run easier and wear longer than any other make of Separators.

The perfect mechanical construction of the frame and the scientific construction of the separating bowl, make UNITED STATES CREAM SEPARATORS the **Cheapest Separators** on the market for any dairyman to purchase.

Other Separator frames are made of two or more pieces bolted together. The daily use soon makes the bolts become loose and the frame unsteady.

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Selling agents in nearly every dairy town in the Country, if none in your town, write us and we will be pleased to quote prices. Ask for our **Catalogue No. 148** and it will be mailed to you, together with a beautiful lithographed hanger in colors.

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This industry will be destroyed and over 100,000,000 acres of otherwise useless mountain land which could support from 10,000,000 to 12,000,000 Angoras, would be condemned to lie idle forever with the tariff lowered or abolished. I say be idle forever, because once destroyed, it would be difficult to resurrect the husbandry, because since 1880 the Turkish government has prohibited the exportation of Angoras and the Cape Colony raises an export tax of $500 on each Angora, male or female, which leaves that country. Since this duty became a law in November, 1904, only one single Angora was imported from there at a cost of over $1500, and that buck died in the second or third season.

ALFALFA LAMBS IN ARIZONA.

Mr. W. C. Barnes, writing of his travels in the Breeders' Gazette, says that in Salt River valley, Arizona, he saw some of the most successful lamb raising he has ever seen in all his travels. Dr. A. J. Chandler, one of the most enterprising farmers of that region, turned his alfalfa farm into an ostrich-raising establishment. He found they did well on the alfalfa—in fact, that had already been established by others—but he also discovered that the old idea which generally prevailed that the ostriches would not do well with other animals in the same enclosure, was a myth, so he turned a flock of ewes in with them. He did this because he found that the ostriches left a great deal of good feed which was going to waste. The sheep did splendidly, and as there was a lot of feed still left as well as loads of grasshoppers and other insects loved by the turkeys, he tried a bunch of those birds along with the rest of his live stock and found that he had a happy family in the full sense of the word, for each did just as well as when alone. They never quarreled and all the waste feed was fully taken care of.

This, however, is all preliminary to the lamb proposition. In a small enclosure near the house and fenced as all his land is with tight-woven fences of the best possible kind, he showed me his lambs. Here he was bringing the lambs just as fast as they arrived in the big field and certainly they were an interesting sight. Never had I seen so many lambs to the ewes in sight, and I mentioned the fact that it looked as if there were two lambs for every ewe. To my surprise he told me that he had lambed from old ewes under his system and raised to live an average of 150 lambs to the 100 ewes. He said this could not be done with young ewes, but he had done it with all his old ones. The ewes were principally Shropshires and had been raised on alfalfa. He keeps constantly about 100 ewes in the smaller place and moves out those that are safe to turn into the larger field, replacing them with new arrivals.

I have known a flock of 2000 range ewes lambed on the desert near Phoenix several years ago when conditions of feed and water were almost ideal to average 105 per cent of raised lambs, but Dr. Chandler's 150 per cent on alfalfa proves that there is money to be made raising sheep on that crop and never bothering with the range at all.

A SEXAPHONE.—An instrument for which remarkable qualities are claimed made its London appearance on Thursday, says the Sun. The inventor calls it the sexaphone. He declares that it is an infallible discoverer of sex. The invention is simply a pith ball suspended at the end of a piece of magnetized steel and copper wire with a wooden handle at the opposite end. When held above a male creature the pith ball rotates steadily. If placed above a female the disk swings backward and forward like a pendulum. It was tested successfully on rabbits, mice and other animals.

WANTED—Thoroughbred White Wyandottes or Plymouth Rocks, also fancy pigeons and table doves. Address **Robin Grey, Irvine, Calaveras Co., Cal.**

CALIFORNIA HOGS.

(Continued From Page 181.)

price for grain finished stock against the present animal. Even now this is a fact, and I have recently heard that a certain packer could not find enough hogs properly finished in the entire State.

There are a good many hogs raised in the San Joaquin and Sacramento valleys, and some beautiful specimens of their respective breeds, but there are also a great many of the old "razor back" type that make good feeders, only, however, in the sense that they clean up and consume a great quantity of feed and make very little flesh.

We are pleased to note, however, that the general average of hogs in California has improved in late years. We are beginning to appreciate the fact that to get good pigs we must have a good foundation stock, and registered boars are becoming more common among the swine herds, both on small as well as on large ranches.

The proper feed and care of hogs is being appreciated, and while there are still many ranches where they receive no attention at all, the hog raisers are getting better results and have less sickness than under the old methods.

These newer ideas as to hog raising are coming with the increased acreage in alfalfa and the subdivision of large land holdings into smaller irrigated farms. To get the best results we must necessarily have good stock in the first place, and properly feed and care for them afterward, until they are sent to the market.

HELP FOR THE STATE VETERINARIANS.

There is before the California legislature as Assembly bill No. 274, strengthening the work of the State Veterinarian thus:

"The State Veterinarian of the State of California is hereby authorized and empowered to appoint one deputy State Veterinarian, two live stock inspectors and one clerk. The salary of the deputy State Veterinarian shall be $1800 per annum; the salary of each live stock inspector shall be $1500 per annum; the salary of the clerk shall be $1500 per annum. Said salaries shall be paid at the same time and in the same manner as are the salaries of other State officers. The deputy State Veterinarian and each live stock inspector shall be allowed such necessary expenses as may be incurred in the discharge of their duties."

By this the legislature will greatly strengthen Dr. Keane's hands and enable him to proceed with and extend the good work in eradicating scabies in sheep and Texas fever among cattle.



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Don't spoil the bearings of a hand separator with gummy oil. It cuts the bearings, spoils the balance of the machine and makes it a poor skimmer.

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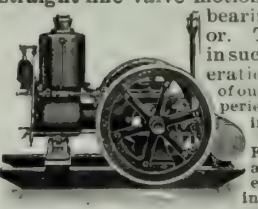
is the ***best*** oil for separator running. There isn't a gummy particle in it. It has just the right "body" to feed freely; it lubricates perfectly and it wears a long time. Ask your dealer for Standard Hand Separator Oil and try it.



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BERKSHIRE AND POLAND-CHINA HOGS C. A. STOWE, Stockton, Cal.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

FOR SALE—Jerusalem Artichokes, the great winter hog feed. Address Fancher Creek Nurseries, Fresno, California.

A GOOD WORD FOR HEREFORDS

Herefords have not filled so large a place in the public eye in California recently as they did a few years ago, although they are conceded some good qualities. It is only fair to give them a hearing by an appreciative advocate like the Field and Farm of Denver, that they may be fairly judged by a balance of testimony. The following seem to be the conclusions from a Colorado point of view:

The Herefords as we knew them here in the range country in the old days were a rough lot of cattle—angular, with coarse bones, tough hides, great horns and a want of mellowness about them, to say nothing about their peaked rumps which made them the sport of all the cowboys, but they were born grazers, however, with great constitutions and full of vitality and on the markets it was surprising how good they appeared. From a butcher's point of view their ends were bad but their middles were good.

We believe the first lot of Herefords ever seen in Colorado were brought here by John W. Prowers of old Bent county and this was more than 35 years ago. Since that time a great transformation has come over the Hereford business. Ever since we can remember we have heard people carp about the high price of registered Hereford bulls and they pretend to think that such cattle are only fancy playthings for the rich, yet history proves that such stock has been the salvation clause of many a poor man's career. A good, pure-bred Hereford bull will get from 25 to 80 calves in a season according to the method of handling and add $5 to $8 to the market value of each of them over the get of grade or scrub bulls. The get of registered Herefords is uniform, not only in color but in form and quality. Every intelligent feeder knows the value of uniformity, for it enables him to sell his product without tailing out a lot at inferior price. If feeders could get home-raised calves of uniform good quality they could pay more for them, as there would be comparatively slight shrinkage, but farm stockmen compel buyers to take what they do not want in order to get what they do want, and then rather than sacrifice on the inferior the feeders keep them out and generally manage to lose on the inferior what they make on the good. The range man can supply feeders beyond competition. Raising calves by hundreds and thousands he can classify his stock for sale by ages and sexes, by breeds and colors, and as the average ranchman can raise a calf to weaning time at a cost of from $3 to $5, the range man is likely to always have a virtual monopoly of rearing feeding stock. However, we have too little system in our breeding operations and this is the very thing that the stock shows are supposed to rugulate. We have seen many herds in which run grade and pure-bred Short-horn bulls and grade Hereford bulls and the youngsters were generally a ring-spangled lot because no type of breeding had been fixed.

Countless experiences here in the west go to show that the Hereford is an unequaled rustler; yet we are not convinced that a crop of calves should all have the benefit in price of the get of pure-bred Hereford bulls when grade bulls occupy the same pasture. In all the catalogue of sights pleasing to a real cattleman, nothing equals a bunch of Hereford cattle on the range; they are attractive in pairs, pretty in dozens, fine in scores, grand in hundreds, but sublime in thousands. Probably in no other breed can such uniformity of attractive color, markings and form be attained and when coupled with these attractions their natural and inherent thrift is considered, it must be said that they constitute a truly wonderful breed for our western conditions.

There are cattle that a feeder cannot pay too much for if he keeps within the bounds of reason, and there are other cattle that cannot be bought low enough to make money. The first are well bred, well developed calves, and are scarce; the others are scrubs, or stunted low grades of any breed, and plenty. The majority of American feeders make no money feeding cattle and they come out ahead only when they rear their own hogs to fatten on the offal of the cattle, or when the corn they feed is of their own raising. If the average feeder who has his own corn were to ascertain accurately what it netted him the bushel when marketed through cattle, not counting the hogs that follow, he would find that in a great majority of cases it would bring him a very small sum.

For centuries Hereford breeders have striven earnestly to develop the greatest weight in the most valuable parts, with the minimum of cheap meats and offal consistent with the best development of the forward or vital parts. The Hereford formation of thighs has always been the best from the butcher's standpoint, because the muscle has been in the twist or inner thigh. Hereford formation of the hind quarter is one of power that finds its counterpart in the sloping, well-covered shoulder of the Hereford forequarter, always inseparable from the well-sprung fore rib and bulging crops, that have ever given the Hereford ample room for lungs and other vital organs of life. Intelligent breeders who make a constant study of their animals are not slow to value properly the fore parts of their bulls. Aside from the characteristics mentioned a prominent eye betokens an interest in surroundings; a strong head and chest, great masculine character and strength and ambition to explore their surroundings. We trust that while Hereford breeders may fully appreciate inherent Hereford qualities, they will never be satisfied to rest on the present excellencies of the Hereford breed.

A STATION TEST OF MILKING MACHINES.

The problem of milking by machinery has been carefully studied by the Nebraska Experiment Station. The experimental work began with the installation of machines in October, 1906. The work and the results are described in detail in Bulletin No. 108, issued December 7, 1908. The conclusions arrived at are stated succinctly as follows:

1. Heifers in their first latation apparently give better results by machine milking than do aged cows that have been accustomed to hand milking for one or more years.

2. Some cows are not adapted to machine milking.

3. Alternate hand and machine methods of milking have a detrimental effect upon the milk flow.

4. Manipulation of the udder is absolutely necessary in some instances before all the milk can be drawn by the machine.

5. One man operating one machine can milk about the same number of cows per hour as one man milking by hand.

6. It was found in this test that only 30 minutes was saved by one man operating three machines in place of two when 60 cows were milked. This saving of time would not balance the lack of thorough work when the operator was using three machines. It was found that two machines in the hands of one operator insured the most satisfactory work.

7. Two men operating four machines can practically do the work of three men milking by hand.

8. One operator with two machines can milk between 10 and 11 cows per hour, and two operators with four machines about 21 cows per hour.

9. It was found necessary to thoroughly wash and boil the milking machine parts after each usage, in order to produce milk with as low a bacterial content as that resulting from careful methods of hand milking.

10. Washing the mahines at irregular intervals or simply drawing water through them will increase the bacterial content of the milk even above poor methods of hand milking.

11. The man operating the milkers must thoroughly understand the care and management of dairy stock. He should also be persistent in the attention to details in order to obtain the best results.

12. From these studies it would appear that the milking machine is fitted for large herds rather than small ones, and we believe it would be impracticable to install them where fewer than 30 cows are milked the year round.

The cost of a milking machine outfit with three machines is given as $493.43. The cost of repairs and supplies for two years was $88.97.

HELPING THE ELKS.

Members of the legislature recently received word that 20,000 elk were starving in Jackson hole, Wyoming. The deep snow, covered with a hard crust, prevented the elk from getting to the grass beneath, and in their search for food they took to breaking into the hay stacks of farmers. The farmers had to be on guard day and night. The legislature made provision for feeding the elk.

SELDOM HORSES.

At a certain village school in Yorkshire tne other day, the head mistress was examining a class in grammar.

"Stand up, Freddie," said she, "and make me a sentence containing the word 'seldom'."

Freddie paused for a moment, and then in triumph replied, "Last week father had five horses, but yesterday he seldom."

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First Day—Complete Dispersal Sale of **Nutwood Stock Farm,** Estate of Martin Carter, deceased.

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We have six sizes, ranging from 200 to 1000 pounds of milk per hour, and if you like the Disc system of separation, we can supply you and save you money. Be sure and see our catalogue and get our prices before buying.

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The Poultry Yard.

EGGS AND THEIR PRESERVATION.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

The hens in everybody's yards are cackling and the egg market is tumbling to their busy tune. No longer may the thrifty housewife with a few well kept hens send a basket of eggs to market and secure therefrom her week's supply of groceries. Eggs are just plain eggs and everybody has them.

Those persons whose hens lay only in the spring when prices are at ebbtide, naturally desire to store the surplus crop against the time of scarcity and prohibitive quotations. Years past eggs were mostly put down in salt for home use, and when they were kept in a cool, even temperature as found in the good cellars of the East, they met the requirements for cooking, but were not up to the standard for table use.

Of late years many experiments along this line have been tried for preserving eggs by methods other than cold storage. In Germany recently 20 such methods were tested, with the result that but three were satisfactory, viz.: immersing the eggs in a solution of water glass or in lime water, and coating them with vaseline. Of these three the water glass was found to be the best. After many tests both in our own country and abroad, this has been pronounced the method for preserving eggs for home consumption. From the report of the North Dakota Experiment Station, which made a specialty of the subject, we learn that "a 10 per cent solution of water glass preserved eggs so effectually that at the end of three and a half months eggs that were preserved the first of August still appeared to be perfectly fresh. In most packed eggs, after a little time the yolk settles to one side and the egg is then inferior in quality. In eggs preserved for the three and a half months in water glass the yolk retained its normal position in the egg, and in taste they were not to be distinguished from fresh storage eggs. Again, most packed eggs will not beat up well for cake making or frosting, while eggs from a water glass solution seemed quite equal to the average fresh eggs of the market."

Water glass may be bought in two forms, but the syrup-thick liquid is the one used for eggs. Some of the common water glass is very alkaline and such should not be used, as the eggs will not keep well in it. In preserving the egg, the condition in which it goes into storage is largely responsible for the condition in which it comes out. To be at its best it should not be over 24 hours old; it should be clean but unwashed, and of good shell and infertile. While few eggs for general storage will or can attain to this ideal state, there is no reason why the person putting down eggs for family use from the output of his own fowls should not have the best. The following directions are from Farmer's Bulletin No. 103:

PRESERVING EGGS IN WATER GLASS.—Use pure water that has been boiled and then cooled. To each 10 quarts of water add 1 quart of water glass. Pack the eggs in a jar and pour solution over them, covering 2 inches.

For packing, use only perfectly fresh eggs, for stale eggs will not be saved and may prove very harmful to the others.

Keep the eggs in a cool dark place. A dry, cool cellar is a good place. If the eggs are kept in a warm place the silicate is deposited and the eggs are not protected. Do not wash the eggs before packing, for by so doing you injure their keeping qualities by dissolving the mucilaginous coating on the outside shell.

Water glass is a very cheap product that can usually be produced at not to exceed 50 cents a gallon, and one gallon will make enough solution to preserve 50 dozen eggs, so that tne cost of material for this method would only be about one cent per dozen. Water glass is sodium and potassium silicate, the sodium silicate being usually the cheaper.

PRESERVING EGGS IN LIME WATER.—Put 3 pounds of unslacked lime in 5 gallons of water and allow this to stand till the lime settles and the water becomes perfectly clear. Pack the eggs in a clean, sweet jar and cover with the lime water. The same rules should hold good about the quality of the eggs, keeping in a cool, dark place, etc., as in using water glass.

At the Canada Experimental Farms a series of comparative tests led to the conclusion that lime water was equal to water glass solution and cheaper and easier to prepare; but most who try the two prefer the water glass, as the eggs preserved in lime water often have a disagreeable odor and taste. The Washington Experiment Station reports that the water glass not only gave better results than the lime water and certain patent egg preservatives, but that the eggs so preserved were kept in good condition four weeks after removel from the solution.

Poultry Notes.

THE HEN IN GREATER NEW YORK.—The Produce News says: Egg receipts in New York for 1908 were 4,115,369 cases. As this has been a year of high prices in eggs it is fair to say that the average for all the eggs received would be 20 cents a dozen. This would mean that the eggs coming to Greater New York during 1908 cost $24,692,214. Few people realize that the egg receipts alone in New York city amount in value to any such figures. The estimate that the city consumes an average of 80,000 cases of eggs a week for the year is borne out by these figures. Some idea of the value of the hen can be realized when these figures are considered. This is only one market of the country. When Secretary Wilson of the Agricultural Department states that the hens of America and their products represented more money value than corn, cotton or the minerals produced, few realized that this was true. The egg production is not the whole value of the hens, as the dressed and live poultry amounts to more in value than the eggs. Last year broke the record in high priced eggs. There are receivers on this market who returned as high as 60 cents for nearby white eggs. It is seldom that the market is such as to have a case of eggs bring $18. The farmers certainly have grown rich from the products of their poultry.

THE AMERICAN WHITE LEGHORN SCORES.—In the third monthly report of the four months laying competition at Bagshot, we note the following: "The weather has been very trying. The indescribable conditions of mud and wet were followed by cutting winds, and during the snowstorms the thermometer registered 5° F. above zero. All the eggs gathered on the morning of the 6th of January were split by frost. Frost, mildness and cold rains have alternated daily since. The only pen whose output of eggs was entirely unaffected by the severe weather was No. 8, White American Leghorns." Which rather upsets the prevailing opinion that the Leghorn is not suited to severe weather conditions.

So far in this competition among the 13 competing pens, 6 of which represent White and Buff Orpingtons, a pen of White Wyandottes leads in points, and this same No. 8 pen of American Leghorns stands second.

CHICKEN STEALING.—This business has some style about it in the East. A prepossessing person visits the commercial fancier; talks intelligently of "points" and things, dines with his host; buys a heavy string of prize-winners to be shipped later; pays with a check even larger than the bill; receives the change, generally about $20, in hard cash and departs. Check N. G. A more original scheme is the latest: A man of well-to-do appearance visits the farms to buy fowls, picks out those he wishes and has them cooped ready for him when he comes for them "next morning." But this enterprizing "buyer" takes time by the forelock and comes for the chickens that night! Hundreds of chickens have been stolen in that way this season in Pennsylvania.

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No. 1 Fillers, 10 sets per case.....	1.50
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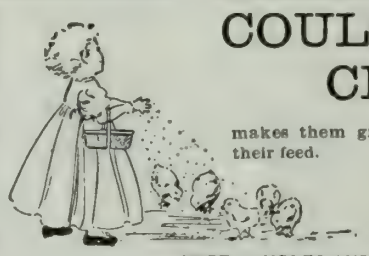
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Fashion.

It's not so long since all about one,
Mankind bowed down to the short and stout one;
But now we think we've never seen one
So lovely as the long and lean one.
In glory walks the lithe and willowy,
While fades away the broad and billowy;
Triumphant reign right lines and angles—
Geomerty in silk and spangles.

But this thought consolation brings us
And helps us bear the woe that wrings us—
No matter in what gowns you sheath 'em
There's still the same dear girl beneath 'em;
So never shake your head and frown, sir,
When you behold the Empire gown, sir,
For every dog must have his day,
And now's the turn of the sylph-like fay.
—N. Y. Sun.

Helps and Hints for the Home.

(Questions answered in this department and suggestions and experiences solicited.)

Oranges.—The orange is at its best and cheapest in the time of most need, when other fresh fruits are scare and dear. The citric acid is especially wholesome in the opening springtime, and far ahead of "bitters" as an appetizer and also in its cleansing effect upon the system. Every houseswife should serve this fruit as often as possible in the menu. The only thing to guard against is the eating of the tough white portion, which is very indigestible and often dangerous for small children. There is little of this unwholesome substance in a good grade of California navel orange, while it forms a large portion of the inferior grades of oranges. From the point of economy as well as health it is therefore better to pay five or ten cents more a dozen and get the better orange. The best effects are obtained by eating the orange au naturel, but many busy folks, especially men, will not take the time to prepare them, and some do not even relish them in the natural state.

The Breakfast Orange.—Wipe clean and halve by cutting crossways through the middle; at each plate place a half laid on a crisp leaf of lettuce in a fruit saucer; sprinkle lightly with white sugar. These freshen the breakfast table and are fine appetizers. The orange eaten before breakfast is a laxative.

Sliced Oranges.—All seed and as much of the white portion as possible should be removed and the oranges sliced very thin; it is even better, though the appearance is not quite so handsome, to divide the slices into pieces the proper size for eating, for it is dufficult doing this when they are in the fruit saucers. The men folks will appreciate the more convenient method.

The sliced oranges may be simply placed in a glass sauce dish with white sugar sprinkled between the layers and a thick dusting on top, or they may be mixed in alternate layers with either pineapples, bananas, or with fresh grated cocoanut. Bananas and oranges are delicious with whipped cream, allowing one-third oranges to two-thirds bananas and dusting the layers of oranges thickly with sugar with a lighter dusting over the layers of bananas.

Orange Shortcake.—Sift two teaspoons of baking powder with one scant quart of flour; into this work a half teacup of butter; mix into a not very stiff dough with either cold milk or water; divide into two portions; roll one out the size of the pan in which the cake is to be baked; spread with softened butter and place in the pan; roll out the other half and place on top; bake till thoroughly done, but not dried, to a delicate brown. Now put the shortcake into a warm platter and remove the top half and lay bottom up on another warm plate; butter both halves and on the lower half spread a layer of carefully prepared oranges cut in thin small pieces and well sweetened; turn the other half over this right side up; serve at once with whipped cream. Delicious!

Jellied Oranges.—Boil seedless oranges of rather small but uniform size in water till they may be pierced with a straw, make a syrup with sugar one-half the weight of the oranges; with a sharp knife cut the oranges into quarters; simmer them in the syrup till the fruit is clear; drain out the fruit into a glass dish, to the syrup add enough dissolved gelatine to make the jelly of proper consistency, about one-half ounce to a pint of syrup; strain this over the fruit and set away in a cold place till well chilled before serving.

Orange Marmalade.—Use several navel oranges; wipe them clean and with a sharp, thin knife blade peel off the colored portion of the skin, being careful not to take any of the white part. Now lay this colored peel on to a clean board and cut in strips about one inch long and one-eighth inch wide. Carefully pare off all the rest of the peel from the oranges and throw this white portion away. Cut the oranges in two and squeeze the juice into a preserving kettle; scrape out the pulp and add to the juice; put a little water on the white parts of the pulp and simmer some time, then strain into the juice and pulp (this water should equal one-fourth the pulp and juice); add the bits of colored peel and cook all till smooth; now add an equal weight of sugar and boil briskly from ten to twenty minutes; put up in glasses or jars the same as jelly. This makes the finest filling for jelly cakes, and is excellent with meats. The English, who are very partial to marmalades, take our dried apricots and with oranges manufacture a superior marmalade for which Americans pay fancy prices. The flavor of orange and apricot blend to perfection, as do the colors. In making apricot marmalade an addition of one-third oranges, prepared as above makes a delicious marmalade; the chief difficulty lies in the fact that oranges are out of market during the apricot season.

Saving the Peel for Flavoring.—In using oranges and lemons always pare off the colored portion of the skin and save it for flavoring. Put it on a plate or pan and set in a warm oven; it will soon dry, being very thin; put it into clean tight paper bags and hang in a dry place. This is very brittle and may be broken or pounded. It is excellent for flavoring and saves a good deal on extracts.

The Work Dress.—The busy housewife, with many tasks of many kinds to perform, is apt to neglect her appearance, especially in the mornings. Perhaps this is more often the case in the rural districts than in towns, and with very good reasons: the country housekeeper has more and heavier work to handle and she lacks the stimulus of the passing throng and of nearby neighbors who keep up an appearance. The woman most devoted to her family and to her work is usually the one most neglectful of herself. This is a grave mistake. The importance of dress cannot be gainsaid. We owe it to ourselves and family to be neatly and becomingly clothed; by neglecting this duty we not only fall somewhat in the respect of our best friends, not to mention that of the stranger, but we lose in selfrespect. The influence of the bodily raiment reacts upon the mind; to be well and comfortably dressed gives equipose and wards off fatigue.

Neglect in this matter is largely due to careless habits. If mothers would train their daughters to be neat and clean and whole at all times this condition would become a part of themselves and a matter of course. One does not need fine clothes; the more plain and simple the better. Often those who are the most be-trimmed when "dressed" are the most slouchy at home. Again, the economical housewife is apt to make a point of wearing out her old clothes, "any old thing," about the house o'mornings. Now the morning work usually lasts into the middle of the afternoon, and the housewife must spend two-thirds of her time in those depressing and demoralizing tag-ends of her wardrope, open to a shock whenever an unexpected guest arrives, and out of humor generally. There is no economy in it. It is cheaper to provide one's self with a couple of new print dresses each season for kitchen wear. These should be made with a simple shirtwaist and plain gored skirt, the latter finished with a broad hem and clearing the floor two inches and hanging evenly all around. Three strong buttons should be firmly sewed on the band of the waist, one in the center of the back and one at each of the under-arm seams. The band of the skirt should have well worked buttonholes, one in each end, to button over the middle waist button, and one each side to button on to the under-arm buttons. This holds the skirt and waist firmly together and there can be no pulling apart and sagging. The sleeves should have simple bands made adjustable by having two buttonholes, one to button at the wrist and the other to button when the sleeve is pushed up above the elbow. The waist may be finished at the neck with a turn-over collar to be worn with a bright tie, or it may have a standing collar. Instead of wearing stiff linen collars, which are always too warm and uncomfortable for kitchen work, a small lawn handkerchief may be folded crosswise and worn with the edge just showing above the neckband of the waist. This is soft and pleasant and protects the neck.

With two such plain dresses worn week-about, with large kitchen aprons and sleeve protectors, the housewife may be neat and cheerful and not ashamed to receive company in the midst of dirty work. A sweeping cap is also a great help to tidiness. It protects the hair from dust and smoke and prevents it flying about and gives a neat and attractive appearance even when one has not taken time to properly "do" the hair.

Sweet oil is excellent for softening and preserving the leather of womens' and children's shoes; castor oil softens the heavier leather, boots, harness, etc.

To preserve shingles and keep them from becoming moss-covered, dip the well seasoned shingles in lime water and let dry before laying.

Newspapers kept clean in a box handy to the kitchen stove are very useful in wiping the outside of cooking utensils and the grease and stickiness from the pans and dishes and thereby making the dishwashing easier.

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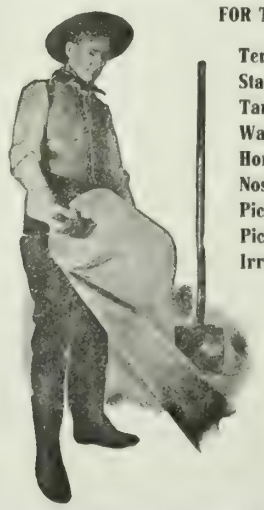
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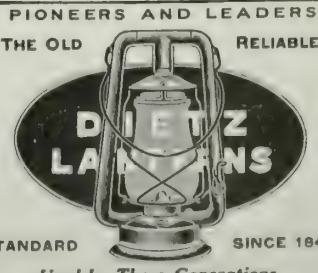
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GRANULATED ALFALFA.

We are likely to get alfalfa in as many forms as "breakfast foods." In a recent Breeders' Gazette, Prof. W. L. Carlyle, recently of the Colorado Experiment Station, gives this account:

"Granulated alfalfa is a term applied to alfalfa that has been cut and shredded to distinguish it from alfalfa meal that has been ground. In the grinding process the leaves are usually made into a very fine powder, and much of this valuable part of the plant is lost in handling afterward. There are one or two of these so-called granulating machines operating in Colo rado which are very successful.

"The best evidence that we have as to the comparative feeding value of this granulated alfalfa compared with the whole hay is that the granulated excels whole hay by about 20 per cent. Of course when it is desired to feed molasses with the hay there is a great advantage in hav ing it either ground, cut or granulated, since molasses can be much more intimately mixed with it.

"We have also alfalfa cutters which operate the same as other feed cutters, only cutting in one-eighth inch lengths. I think possibly the granulating process is superior to the cutting, possibly also superior for ordinary feed to the ground meal, besides costing very much less to prepare it."

[We do not see exactly how granulating alfalfa will increase its "feeding value" 20 per cent except it be based upon the conception that its nutritive contents are that much more available, but that view is not supported by any feeding experiments known to us.—EDITOR.]

LIVE STOCK MEETINGS AT THE UNIVERSITY FARM.

It is part of the plan of those who are laying out the work at the University Farm at Davis to have it serve as a rallying place for all kinds of agricutlural societies. This is working well in other States, and will become popular here no doubt. In an account of such use of the college farm in Michigan we read as follows:

The college proves an ideal place for the meetings of the breeders. Its fine equipment of stock barns, containing excellent specimens of the principal breeds of live stock kept in the State, are sources of inspiration and enthusiasm. There are also many grade animals which are being used in practical experiments for meat, wool and dairy products that are of much interest. Most of the various breed associations held their annual meetings for the election of officers and transaction of business here this year. The attendance was large, several hundred breeders, feeders and farmers proving their interest in live stock breeding and feeding by their presence and participation in discussing the subjects presented.

MAKING HOGS IMMUNE TO CHOLERA.

Of the progress of this effort, of which an outline was given in the PACIFIC RURAL PRESS of June 27 and July 18, 1908, the following summary is given by Dr. A. D. Melvin, chief of the Bureau of Animal Industry of the U. S. Department of Agriculture:

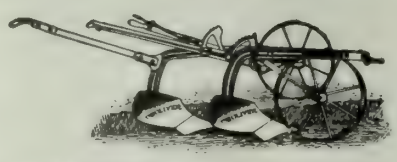
Briefly, the process of producing the vaccinating agent is to inject a hog which is immune against hog cholera with fresh virulent blood from a hog which is sick of hog cholera. After the immune has recovered from this injection, which might cause a transitory illness, but nothing more than this, blood is drawn from the immune. The fibrin is removed and the fluid portion of the blood of the immune is used for injecting hogs which are to be protected from hog cholera. This blood or serum obtained from the immune is entirely harmless and disease cannot be produced with it. It will protect hogs for several weeks. If a longer protection is desired the blood or serum from the immune is injected into teh susceptible hogs, and on the opposite side of the body at the same time there is injected a very small amount of fresh virulent blood from a hog sick of hog cholera. This latter process we have designated the serum simultaneous method.

THE GREATEST JERSEY.

The reigning Jersey queen is Jacoba Irene 146443, American Jersey Cattle Club. Bred by J. M. Shrader, St. Joseph, Mo., and dropped April 3, 1898, she commenced her world conquering career for her present owner, A. O. Austen, of Illinois, by freshening December 11, 1905, and in the succeeding 12 months gave 11,391.1 pounds of milk, containing 619.9 pounds of fat, average test 5.44%. She freshened again December 10, 1906, and during the ensuing year gave 14,255.7 pounds milk, containing 792.1 pounds fat, average test 5.55%. Thirteen and one-half months later, January 28, 1908, she freshened again, and her record for this third year is 17,253.2 pounds milk, containing 954.1 pounds fat.

Six months ago Financial Countess, an imported Jersey owned by C. E. Parfet, of Colorado, held the official world's record for Jerseys with a production of 795.3 pounds of fat. Two months ago Adelaide of Beechland, bred by Mr. Sweet of New York, but now owned by the Ladd Estate of Portland, Ore., where the year's work was accomplished, eclipsed this record by producing under official supervision 849.62 pounds of fat during the preceding 12 months. And now comes Jacoba Irene with another eclipsing record of 954.1 pounds.

OLIVER



"The New Oliver No. 17 Gang for Orchard, Vineyard and Garden

FOR Orchard, Vineyard, Garden or Field—easy on two horses and a joy to the man.

At last, there is a light 2 or 3-bottom gang that will work as a plow should work in the Vineyard, Orchard and Garden. Everybody who sees this Oliver Gang **wonders** why somebody hasn't built a plow like it before.

A man with a lame back who at the close of a day's work with a heavy gang sees his orchard or vineyard poorly plowed and his pet vines and trees scarred **may be pardoned for using big hard words.**

But there is no excuse for this condition of things any longer. The No. 17 Oliver Gang will plow your ground the way you want it done.

We want you to see it and examine it. It is now on exhibition at all of our agencies in the Orchard and Vineyard Sections.

WRITE FOR PARTICULARS

OLIVER CHILLED PLOW WORKS

San Francisco, Cal.

THE MARKETS.

San Francisco, March 3, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

The wheat market has been rather dull for the last week, as holders are very firm in their ideas as to prices, and are asking more than most buyers are willing to pay. Prices on some grades show a further advance, Northern Bluestem, California White Australian, and Turkey Red being very scarce and in demand at the new quotations. Other grades are also very firm, but with little change in prices.

California White Australian.	$2.00	@2.15
California Club	1.85	@1.95
California Milling	1.95	@2.05
California lower grades	1.65	@1.80
Northern Club	1.87½	@1.90
Northern Bluestem	2.00	@2.15
Northern Red	1.80	@1.85
Turkey Red	2.00	@2.10

BARLEY.

Arrivals for the last week have been rather large, but the demand for feed shows some improvement and a higher price is quoted on choice lots. Considerable interest is taken in the speculative market, which also shows higher figures. The present demand for shipping and brewing grain is light.

Brewing	$1.45	@1.47½
Shipping	1.45	@1.47½
Chevalier	1.57½	@1.62½
Good to choice Feed, per ctl.	1.40	@1.43¾
Common Feed	1.35	@1.38¾

OATS.

No further changes have taken place in this grain. Reds are fairly plentiful, and incline to weakness in the absence of any urgent demand. Gray oats are still nominal, and while whites are not moving off very rapidly the scarcity of stock keeps the market in strong condition.

White, per ctl.	$1.85	@2.00
Gray	Nominal	
Red, seed	1.85	@1.90
Feed	1.65	@1.80
Black, seed	1.65	@2.00

CORN.

Responding to conditions in the primary market, the Western grades are 3 to 8 cents higher, with an upward tendency. Local conditions, however, have little effect on this market, as the small stocks carried are ample for immediate requirements. California yellow and Egyptian are unchanged.

California Small Yellow	$1.80	@1.85
Western State Yellow		1.65
Mixed, in bulk		1.58
White, in bulk		1.65
Egyption White		1.80

RYE.

Rye is still quoted at high prices, as for several weeks past. While there is no large demand here, the supply on hand is about exhausted and the high prices have failed to bring out any large offerings.

Rye	1.80	@1.85

BEANS.

Stocks of beans on hand in San Francisco at the first of the month amounted to 187,735 bags, and the movement during the month was 63,000 bags, which is considered a very good record for this time of year. The shipments consisted principally of pink beans, but the price of this variety, while firm, does not show any material advance. The market on white beans remains firm. There is only a limited quantity in the State, and it will all be wanted. Bayos are firm. Lima beans are steady in this market, though sales are being made in the East at low prices.

Bayos, per ctl.	3.10	@3.25
Blackeyes	3.00	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.75	@1.90
Small Whites	5.20	@5.30
Large Whites	4.25	@4.35
Limas	3.75	@3.90
Pea	4.75	@5.00
Pink	2.50	@2.65
Red	4.50	@5.00
Red Kidneys	3.25	@3.50

SEEDS.

Alfalfa seed is coming into greater demand as the ground dries out, and the outlook is for a continued active market. Supplies are considered small in comparison with the requirements, and prices have accordingly been quite sharply advanced, with the likelihood that 20 cents will be bottom in another month. Other descriptions are still a little quiet, though the market shows more life in all departments. Local dealers quote the following prices.

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@ 3 c
Hemp		4¾c
Millet	2¾	@ 3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

Flour has been very quiet since the recent advance, as buyers are still inclined to limit their purchases, and there is practically no export business. There is no prospect of any reduction, however, until the new wheat crop comes into the market.

Cal. Family Extras	$6.00	@6.60
Bakers' Extras	6.00	@6.25
Superfine	4.80	@5.10
Oregon and Washington	5.00	@5.75

HAY.

Receipts of hay for the past week have been heavier than for some time previous, being nearly 1000 tons more than the week before. The demand, however, has continued quite active, and no material decline in prices is reported, though the market has a little weaker tone at the moment. The larger dealers here believe that the arrivals will again fall off. Business in the country is still active, with firm prices, the demand running principally to the higher grades. Alfalfa is arriving in small quantities, but with a diminishing demand the price is easier. Considerable poor hay has been coming in and is selling at low prices.

Choice Wheat, per ton	$23.00	@25.00
Other Grades Wheat		22.00
Wheat and Oat	21.00	@24.00
Tame Oat	20.50	@23.00
Wild Oat	20.00	@22.00
Alfalfa	17.00	@19.00
Tame Oat	20.50	@24.00
Stock	14.00	@16.00
Straw, per bale	50	@ 75c

MILLSTUFFS.

All feedstuffs remain steady at unchanged prices. While the demand for bran, shorts and middlings is only moderate at present, the comparatively light production so far keeps prices up to the quotations which have ruled for some time past. Other feedstuffs are moving about as usual.

Alfalfa Meal, or mealfalfa, per ton	$25.00@26.00
Bran, ton—	
White	29.50@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Middlings	33.50@35.50
Mixed Feeds	28.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	28.50@30.00
Shorts	31.00@32.50

VEGETABLES.

Green onions are now coming into the market in sufficient quantities to be quoted and are selling at about 65 to 85 cents a box. Yellow onions have quieted down somewhat, but with stocks only moderate and closely held the price is unchanged. Asparagus is much more plentiful, and while the demand is growing the price is easier. Tomatoes are plentiful and considerably lower. Green peas, peppers, etc., from the south receive little attention at present.

Onions, ctl.	$ 1.75@ 2.00
Garlic, per lb.	10@12½c
Green Peas, per lb.	10@12½c
Cabbage, per ctl.	1.50
Marrowfat Squash, per ton	20.00@25.00
Tomatoes, crate	1.25@ 1.75
Green Peppers, lb.	20@ 25c
Cauliflower, doz.	65@ 75c
Celery, doz.	40@ 50c
Asparagus, lb	8@12½c
Rhubarb, lb.	5@ 7c

POULTRY.

Receipts of chickens from the East are still very light, only one car arriving so far, with two more expected before the close, and there is little increase in the California arrivals. The market is consequently in good shape and all varieties are selling readily, with higher prices on hens and young roosters. There is no inquiry for turkeys except for fancy stock, and few are now on the market.

Broilers	$ 6.00@ 6.50
Small Broilers	5.00@ 5.50
Fryers	7.00@ 7.50
Hens, extra	7.00@10.00
Hens, per doz.	6.00@ 7.00
Small Hens	5.00@ 6.00
Old Roosters	4.50@ 5.00
Young Roosters	7.50@ 8.00
Young Roosters, full grown	8.00@ 9.00
Pigeons	1.25@ 1.50
Squabs	2.00@ 2.50
Ducks	4.50@ 8.00
Geese	2.00@ 2.50
Turkeys, live, per lb.	Nominal
Turkeys, dressed, per lb.	Nominal

BUTTER.

Extras show a slight decline, firsts are a little higher, but the market in a general way is quite steady. Extras have fluctuated between 34 and 37 cents, the tendency for the last few days being downward, as the production is beginning to increase, as usual at this time of year. Further reductions are expected within the next few weeks, but at the moment supplies are about equal to the demand.

California (extras), per lb....	35 c
Firsts	34 c
Seconds	30½c
Storage Ladles, extra	23½c
Cal. Storage, extras.....	32½c
Eastern Storage, extras.....	31½c

EGGS.

The low prices which ruled last week brought a greatly increased local demand, besides several shiping orders of considerable volume. While the arrivals have been much larger than for the few preceding weeks, prices have strengthened, and there is little or no surplus in the hands of dealers. Extras advanced to 23 cents a few days ago, but have since gone back to 22 cents.

California (extras), per doz...	22 c
Firsts	21½c
Seconds	21 c
Thirds	20½c

CHEESE.

Cheese is attracting less attention this week, as receipts have increased sufficiently to meet all demands without difficulty. New California flats have declined one-half cent, though other varieties remain as formerly quoted. Most Eastern and Oregon grades are firm.

Fancy California Flats, per lb.	14½c
Firsts	14 c
New Young Americas, fancy..	16 c
Oregon Flats	14½c
Oregon Y. A.	16½c
Storage, Cal. Flats	13 c
New York Cheddars	17½c
Storage, Oregon, Flats	14½c

POTATOES.

Low-grade river stock has been rather plentiful the last week, tending to depress the market, but these goods are now becoming scarce and the price is a little stronger. The market for Oregon and other fancy lines is strong and active, with supplies closely held, and dealers generally look for higher prices within the month.

River Whites, ctl.	$ 1.10@ 1.40
Lompoc Burbanks, ctl.	1.85@ 2.00
Salinas Burbanks, ctl.....	1.65@ 1.85
Oregon Burbanks, ctl.	1.60@ 1.75
Early Rose	1.75@ 2.00
Sweet Potatoes, ctl.	1.35@ 1.50

FRESH FRUITS.

A large stock of apples still remains in the local cold storage houses, and the local demand is light, but as there has been some inquiry for shipment of late, holders expect to clean up at good prices. Quotations on choice stock are still firmly held, though there is a little easiness on the cheaper grades. Pears are becoming rather scarce and are quoted at higher prices. A few new crop strawberries are now arriving from the South.

Apples, fancy	85c@ 1.75
Apples, common	60@ 85c
Pears, box, Winter Nelis.....	1.50@ 1.75
Other varieties	75c@ 1.00

CITRUS FRUITS.

Notwithstanding a slight advance in oranges at shipping points, the local market rules as before. The improved weather has brought out little or no additional demand, and with continued liberal receipts there is now quite an overstock. Lemons, limes and grapefruit are unchanged.

Choice Lemons	$2.00@ 2.50
Fancy Lemons	2.75@ 3.00
Standard	1.25@ 1.50
Limes	6.50@ 7.00
Oranges—	
Fancy Navels	2.00@ 2.50
Choice	1.75@ 2.00
Standard	1.50@ 1.75
Tangerines	1.25@ 1.75
Grape Fruit	3.00@ 3.50

DRIED FRUITS.

The consumptive demand in the East, which up to the first of the year was considerably below normal, has been reviving and is now fairly active. The Eastern jobbers have cleaned up most of their surplus and while they are not disposed to buy heavily at the prevailing prices some large lots have been sold of late. There has been a steady movement of prunes, the smaller sizes being now in demand for shipment to Europe, and apricots are now in more demand than formerly, though their scarcity prevents much trading in a large way. Both prunes and apricots, however, have been moving at comparatively low prices, and the packers have made some reduction in their offers. They are buying up a good many prunes, but the apricots are now closely cleaned up. Evaporated apples remain firm and peaches are also fairly strong, though no change has been made in the prices. Some fairly large lots or raisins have been moved by the growers recently, but the local packers report a quiet market, and are not buying to any great extent. They are quoting the following prices:

Evaporated Apples	4@ 5¼c
Figs, black	1@ 2c
Figs, white	1@ 2½c
Apricots	6@ 9c
Peaches	2½@ 3½c
Prunes, 4-size basis	2c base
Pears	2½@ 3 c

RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown.....	70c

NUTS.

No particular activity is observed in this market, and prices remain about the same, though almonds are inclined to weakness, notwithstanding the comparatively small quantity on hand. Stocks of walnuts are quite ample for all prospective requirements and the demand at present is small. Little stock of any description is moving from the growers.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c
WALNUTS.	
Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Little honey is arriving in the local market, and Eastern buyers are paying little attention to California offerings. With a lighter local demand than usual, the market is dull. Packers are quoting the following prices to growers.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼@ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Hops are quite active in the north, with buyers anxious to secure the 1909 crop on contracts. This market is still a little quiet. Some contracts are being made for two, three and five years ahead, the price in some cases being 10 cents, but little spot stock moving.

Hops, per lb.	6 @10 c

WOOL.

The spring clip begins this week in some sections, but no figures are yet quoted on the new clip. Fall prices are steady at the recent advance, but California wool is neglected in the Eastern market at the moment, the demand running mostly to Territorial wools.

Red Bluff (f. o. b. Red Bluff) free	7 @ 9 c
Defective	less 2 c
San Joaquin (at S. F.) free....	5 @ 7½c
Defective	4 @ 6 c
Mendocino, free	7 @10½c
Defective	6 @ 8 c

MEAT.

Receipts of hogs have been light for the last week, causing a slight advance in both live and dressed stock. Dressed beef and veal are a little easier, but live cattle are still very firm.

Beef: Steers, per lb.	8½c
Cows	7 @ 7½c
Heifers	7 @ 8 c
Veal: Large	9 c
Small	9½c
Mutton: Wethers	9½@11 c
Ewes	9 @10 c
Lambs	12 @12½c
Spring Lamb	15 c
Hogs, dressed	9 @11½c

LIVESTOCK.

Steers, No. 1	5¼ @ 5½c
No. 2	5 c
Cows and Heifers, No. 1.....	4 @ 4½c
No. 2	3½@ 3¾c
Bulls and Stags	2½c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5½@ 6 c
Ewes	5 @ 5½c
Lambs, lb.	6½c
Hogs: 100 to 150 lbs.	6¾c
150 to 250 lbs.	6¼c
250 to 325 lbs.	6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., March 2.—Sales at auction are now in the heaviest volume of the year, and yesterday 45 cars were offered in New York city alone, and in all the auctions together 114 cars were sold. The New York prices were very fair, as also were those of Boston, other points seeming to be somewhat lower, though this may have been largely due to the quality of the stock offered there.

The novel feature of sticking a tag on each individual orange has seemingly proven a succes, for the four cars already sold in New York and Boston have topped the market in each case. Another brand that is attracting attention right now is the Blue Banner, which is put up by the Sutherland Fruit Company of Riverside and which has been near the top of the market every day.

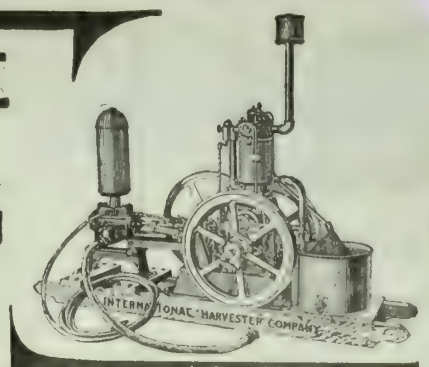
Shippers at Redlands and Riverside profess to believe that the output at the present time is too heavy and that they will have to curtail to save the market. There are other shippers who will take advantage of any let-up from these districts to ship heavier themselves, as they have a certain number of cars to handle and the fruit must go out steadily in order for them to move their crops before the fruit begins to deteriorate.

Orders are not very plentiful, say the brokers, and one said today that the jobbers would be foolish to buy heavily right now with shipments so heavy.

The average asking prices at this end are $1.70 cash per box, with f. o. b prices 10 cents higher. The average returns for fruit sold delivered and at auctions is about in line with asking prices at this end; that, is, the $1.70 with 83 cents added for freight.

The orange shipments from last Wednesday to Sunday inclusive have been: Wednesday, 218; Thursday, 217; Friday, 246, and Saturday and Sunday, 259 cars, making a total to date of 8113 cars, as against 8308 cars to same time last year. The lemon shipments have been 1485 this year as against 1441 to same time a year ago. About 12 cars of lemons are going out daily.

PREPARE FOR SPRAYING



ARE you prepared to do a good job of spraying?

You must spray if you would grow fruit successfully. You must spray not just once, but a number of times—spray not only this year, but next year and the following years. The warfare is a constant one.

So it pays to *get ready* for spraying. When you *do* spray you ought to be prepared to do the job right.

The I. H. Co. Gasoline Engines and Famous Spraying Outfits

afford the best of facilities for all sorts of spraying operations.

The power behind the pump is the basis of all right spraying. You can throw the spray mixture to the tops of tall trees and reach the ends of the long limbs with an I. H. Co. engine.

You not only have all the power you need but you have it dependably at all times. You do not need to keep your wagon or spray cart constantly in motion as in the case of wheel driven spray pumps, but you can let your wagon stand under the tree until you have sprayed every part of it thoroughly.

You have the choice of either purchasing one of the powerful, reliable I. H. Co. engines and connecting it up with whatever make of spray pump you prefer; or you can purchase one of the Famous spraying outfits, consisting of engine and pump, all connected up and mounted on skids, platform or 4-wheeled truck, ready for operation.

In either case, with an I. H. Co. engine furnishing the power you will be equipped for doing the work rapidly and in the best possible manner.

In the I. H. C. line you will find many other very desirable engines and outfits, besides the Famous spraying outfits. There are general purpose engines for farm, shop and mill use. No matter what your requirements may be, you will find an engine in the I. H. C. line to meet them. The line includes.

I. H. C. Vertical—2, 3 and 25-horse-power
Horizontal (stationary and portable) 4, 6 8, 10, 12, 15 and 20-horse-power
Traction –12, 15 and 20-horse-power
Famous Skidded Engines—2, 3, 4, 6 and 8-horse-power
Air Cooled—1 and 2-horse-power
Famous Mounting Engines from 4 to 20-horse-power
Sawing and Pumping Outfits.

If you are interested, call on the International local dealer and get catalogs and full particulars, or address nearest branch house.

WESTERN BRANCH HOUSES: Denver, Col.; Helena, Mont.; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; San Francisco, Cal.

INTERNATIONAL HARVESTER COMPANY OF AMERICA, CHICAGO, U. S. A.
(Incorporated)

PUBLISHER'S DEPARTMENT.

A SUCCESSFUL PIONEER DIARYMAN.

To meet and talk with the pioneer creamery man of Marin county, a subscriber to the PACIFIC RURAL PRESS since its first issue in 1870, was our pleasure one day last week, when T. B. Roy of San Geronimo, called at this office. Mr. Roy has been successful and for a man of his years appears remarkably young. He started in dairying in 1862, since which time he has made and marketed his butter under the "47" brand, for which he has during many years past received about three cents above the regular market price on contract. At San Geronimo, where his creamery is located, he put in the first separator in the county, was one of the first to try out milking machines—which he soon discarded, and now has a herd of about 70 Jersey cows, which he considers the best butter producers. We trust Mr. Roy will find time soon to give our readers the benefit of his long experience in dairying in California.

A. Cannady & Co. of Los Angeles, are offering second-hand machinery and pipe in their advertisement in this issue. If you want something in this line it will pay to read it carefully.

George B. Warner of Santa Ana, the well-known nurseryman of Orange county, has an ad in this issue. The PACIFIC RURAL PRESS is always glad to carry advertising from such a reliable firm.

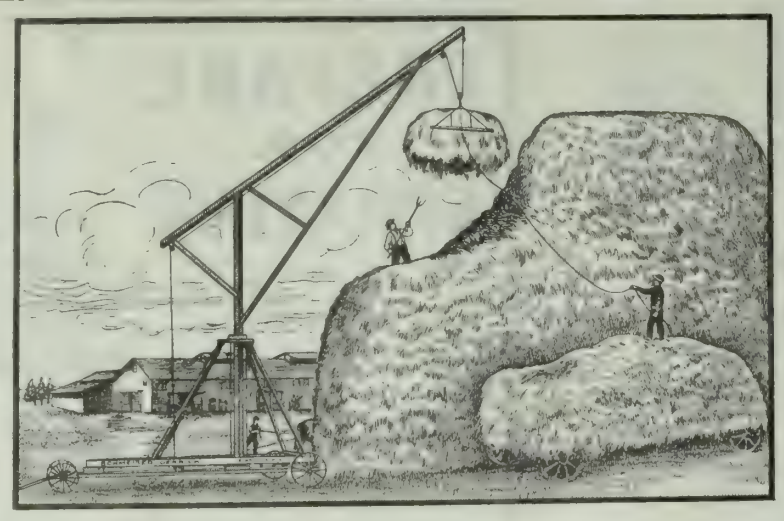
A new advertisement to our columns is the Imperial Land Grader Works of Sacramento. This is a good firm handling a good machine.

Stockmen will be interested in the advertisement of A. Roche of San Francisco, who offers to send books treating of stock diseases free. Look in the stock department for his announcement.

We are pleased to call our readers' attention to the California Mutual Live Stock Association's advertisement in our live stock columns. For a long time such an association has been wanted in California, and two years ago some men of energy and wide business experience organized the above association. Hundreds of farmers and stock owners from all parts of the State have joined the association and the amount of business that it is doing is surprising and interesting. A few days ago a representative of the PACIFIC RURAL PRESS had the opportunity of inspecting the association's books, which showed the claims paid in the past six months and the amount of business written for the same period. There was too much there to total up, but it all looked good, and the representative was told that enough horses, hogs, sheep and cattle had been insured in the six months to bring their combined insurance up to $1,000,000 and the premiums paid upon the insurance to $100,000. In other words, $1,000,000 worth of live stock has been insured by this association in the last half year. The California Live Stock Insurance Association is purely a mutual protective society. Its rates of insurance are so reasonable that every owner of stock can take out insurance, and another thing—whatever profits this association makes from its investments above the cost of carrying on its business are divided among its members. Each person taking out insurance becomes one of the members.

The Schmeiser Portable Automatic Derrick

The State is Using a Number of These Derricks on the Experimental Farm, at Davis, With Great Success.



No Guy Ropes Required

Any kind of a fork or a net may be used, whichever may be desired.

You can not afford to be without it. Will pay for itself the first season, every year after that doing your work for nothing. Write for descriptive circular and we will tell you how it can be done.

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Rates from San Francisco:
One way, first class rail, via Sunset Route to New Orleans and first cabin on steamer—$76.80.

Round trip, first class rail and first cabin steamer—$144.40.

Choice of rail route on return trip.

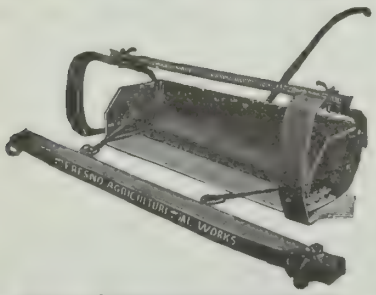
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Ask nearest Agents.

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RAIN! RAIN! RAIN!

USE

REX! REX! REX!

The enormous rain storms of the past weeks have been great producers of fungi on the growing fruit trees of the Pacific Coast. More than ever will it be necessary between now and the time that the buds open, for the orchardist to spray his trees with lime and sulphur solution in order to prevent Curl Leaf and Twig Borer on his peach and almond trees, and Scale and Fungi on the other trees. The vines should also be sprayed to prevent Mildew, Rust, Thrip and the other insect pests incidental to moist weather. The California Rex Spray Company, at Benicia, Calif., are prepared to furnish the celebrated REX LIME & SULPHUR SOLUTION in any quantity on short notice.

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Cor. 18th and R Sts., Sacramento, Cal.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

CHEAP LAND 160 acres $200, get title under homestead law in 14 m. s. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

PATENTS

White for our Guide to Inventors, sent free on request; containing nearly 100 mechanical movements and full information about Patents, Caveats, Trademarks, and Infringements.

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Water gates for pipe lines. Send for catalog.

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Pomona, Cal.

THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN.
Vol. LXXVII. No. 11. SAN FRANCISCO, SATURDAY, MARCH 13, 1909. Thirty-ninth Year.

Date Varieties for the Southwest.

Written for the PACIFIC RURAL PRESS
By J. ELIOT COIT, Professor of Horticulture,
University of Arizona.

Many of the varieties of dates imported by the United States Department of Agriculture which have been planted since 1900 at the co-operative date garden at Tempe, Arizona, by the Arizona Experiment Station, are now beginning to bear fruit. The observations being made as the trees come into bearing are exceedingly interesting. So far about sixty varieties have borne fruit. As was expected, many of these have proved unworthy of extensive planting on account of certain objectionable features, such as failure to ripen, too great a tendency to sour on the trees, susceptibility to insects, etc. On the other hand, a number of varieties have been studied which meet all of the above objections and are very promising.

But while the slow process of testing imported varieties is going on, a great many persons are planting date seed in the hope of securing valuable seedlings sooner than by waiting for the slow multiplication of suckers from tested varieties. This phase of the question is very interesting, and many persons are inquiring as to the actual prospects in planting date seed.

There are many old seedling date trees scattered throughout southern California and Arizona which have ripened fruit of fair quality. In most cases these have sprung from seed taken from dates purchased of local grocers. The chief varieties of dates imported in large quantities are eign-bred seed. (It may be stated here that at the present time both the Arizona Experiment Station and the United States Department of Agriculture are distributing date seed which are much more desirable for planting than seed taken from the common imported dates.)

The commercial dates of today are not in any sense of the word a highly bred fruit, but merely chance seedlings whose desirable qualities having been noted by the Arabs, their propagation by suckers was begun. It is difficult to realize the tremendous possibilities in the way of improved date varieties in the future, when seeds for planting are available which have been pollinated from males whose hereditary characters are known. Such a knowledge of male trees is gained from a study of the fruit of their offspring, and also in some cases from a study of all female trees arising from the same lot of seed.

The writer's attention has been called from time to time to seedling dates of greater or less value. Bearing date trees are often found on the grounds of persons who are but little versed in the fine point of date judging, and who do not realize the true value of their seedlings.



Bergenkamp *Smith* *Smith Bergenkamp*

Two New Date Varieties Originated in Arizona.



Birket el Haggi—An Imported Date Tree Growing in Alkali Soil in Tempe Date Orchard.

Helawi, Khadrawi, Sayer and Fard. It is likely, therefore, that the bearing seedlings of the Southwest have mostly originated from seeds of the above four varieties, no doubt chiefly the Helawi. These seeds were pollinated in Africa by the Arabs with pollen from males whose hereditary tendencies are not known. In many cases these males are simply scrub trees sprung up in out of the way places from seeds of partly wild and worthless dates of the dry type. In view of this, it is to be expected that only a small percentage of American seedlings grown from such seed will ripen desirable fruit. Though this is usually true, there have been nevertheless quite a number of very valuable varieties originated from this for-

With the idea of bringing to light as many seedlings as possible, the writer last year influenced the Territorial Fair Commission to offer substantial premiums for the best exhibits of Arizona grown seedling dates. The result was highly satisfactory, as quite a number of very promising dates were brought to the fair, where they could be carefully studied and their merits passed upon by experts.

At least three of the seedlings which received premiums are of such striking value as to unquestionably deserve being named and described. These trees will be propagated by their owners as rapidly as suckers are produced.

Bergenkamp.—This date originated on the ranch of Mr. Charles Bergenkamp, near Tempe, Arizona. It is a large soft date of very fine flavor which ripens in November. Oval, light translucent amber color, 40 c.m. long by 25 c.m. wide, average weight 10 grams. Flesh very thick, with almost no fiber, skin somewhat tough. Seed 24 cm. long, 7 c.m. wide and 6 c.m. deep; weight averages one gram; dark brown, mostly smooth, ventral channel wide open, wings usually lacking. Curing qualities fairly good. Won first premium at Phoenix Fair, 1908, as the best seedling dessert date.

Archer.—Originated by Miss F. J. Archer of Phoenix, who purchased this tree as a small seedling, together with others, from Mr. Isaac Byer of Glendale, Arizona, February 27, 1900. This is a soft date especially suitable for curing and packing. It ripens in late October and November. Oval, truncate at base, round and blunt at apex; 35 c.m. long by 20 c.m broad, average weight 10 grams; color clear reddish amber; surface much wrinkled. Flesh soft with very little fiber, flavor fine and rich. Seed 26 c.m. long by 6 c.m. wide and 5 c.m. deep, weight 3½ gram. Straight, very

(Continued on Page 2 6.)

Pacific Rural Press

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FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., March 9, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	1.13	40.09	33.77
Red Bluff	2.30	28.31	18.77
Sacramento	.32	19.78	14.84
Mt. Tamalpais	1.65	33.60	17.70
San Francisco	.92	23.22	17.53
San Jose	.87	16.30	10.45
Fresno	.32	8.89	6 96
Independence	.T	7.95	6.81
San Luis Obispo	.20	27.50	15.20
Los Angeles	.14	16.70	11.95
San Diego	.15	7.01	7.71

The Week.

Drying weather is on this week, and there will be a rush to catch the land at that right place between water and wind where tools produce best tilth. The old Californian knows about this and generally does his best to speed work when soil condition is best, though he is often unable to cover his job because of the size of it. We put in this word, therefore, chiefly for the newcomers, who may not know the danger in waiting for soil to dry and in allowing it to dry too much, trusting to later rains to restore the right condition. Sometimes such rains do not arrive, and then the land is bad all summer. Therefore it is incumbent to seize every chance for work. There are a number of late things which are bad in California, but none so bad as being late in the spring: the whole summer is thrown out of shape by it. It is well to have better weather for blooming, and some of the later districts will be greatly benefited by it, especially as early blooming trees in early regions have had such a bad time for setting fruit. Fruit tree planting will be continued late this year, and with a better chance of success than usual, because the soil is wet to the very bottom; but if one has to plant late the plowing should not wait. Get the surface in good shape and the subsoil will remain right for planting much longer

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We do not wish to be a crank on this matter of saffron colored agricultural writing, but admit there is much danger of getting wheels in our head because we get around to it so often. We hope all readers who noticed the fling we took in our issue of February 6 at the reporters who maligned the wheat work of Prof. Roberts of Kansas by telling impossible stories about it, will read Prof. Roberts' excellent letter on another page of this issue. So long as our experimenters and research men are well grounded in truth and reason, we may expect work of great value and endurance, and Prof. Roberts' letter will show why truth and reason are essential and why he does his best to cling firmly to them. It is a question as to whether our workers in applied science are better off now, when every sensationist glorifies them, than they were a few years ago, when nearly everybody ignored them. There are heavy penalties imposed upon prominence. Even agriculture itself is endangered in some of its essential attributes by becoming fashionable as it now is. All the scatter-brains and lame financial ducks are being attracted to it, and they are doing their best to unsettle safe and rational views about it. There will be reaction, of course, and the only comfort in the outlook is that there will be a net gain for progress, although irrational expectations will yield only disappointment to those who found their undertakings on them.

One of the dangers in the situation is in the obscuration of the fact that the man's own view and effort are the ruling factors in his fortune. The prominence attached to institutional achievements and corporate enterprise are naturally depressing estimates of individual effort and responsibility. When people gloat over the reports of a new tree which grows twice as fast as a tree ever grew before, and yields lumber four times as valuable as such lumber ever sold for, and that the rolling wealth which such cultural and commercial improvements produce can be had by buying stock in some new kind of a company which some promoter, just graduated from the College of Town Lots, Oil and Mining Stocks, places before him, what contempt he has for the good old working ways of his father, who never organized a company except on his wedding day. Between institutions and promoters we are in a way to lose all the individual strength which is the basis of national greatness as well as of individual success. We are in danger of being helped too much to everything—helped to live, helped to get rich and, perhaps, helped to die.

And that brings up another hobby of ours, saddled and bridled and prancing to his place in this relay race. This idea of helping people to get rid of their money by wildcat organizations, which is not new in agriculture, but greater than ever before in agriculture, is a twin of the idea of getting poor people to make money through organized efforts which neither the organizers nor the organized know anything about. On the one side is incorporation to get rid of money and legislation to give money to those who have it not. One might claim that, in the long run, one undertaking would balance the other—that the victims of one would be the victors of the other. Possibly, but such an end is out of sight. In both cases, however, the importance and force of the individual in making his own way are minimized or excluded. We see in a recent speech by Lord Roseberry, president of the Scottish National Fat Stock Club, a reference to this tendency to carry people through life by personally conducted excursions under institutional auspices. Lord Roseberry warns those who are expecting to make farmers of the city poor that if they attempted to take from the slums of Glasgow and Edinburgh a population which had no acquaintance with the land, and no sympathy and understanding of the land, they would only be preparing for themselves the most bitter mortification and disappointment. And this prophetic thought starts Lord Roseberry on a homily about all this organized and institutional effort as antagonistic to the development of individual independence and energy. He pictured a curious knot proceeding along the Queensferry Road, near Dalmeny, at a measured pace a year or two hence. That would be himself, surrounded by his board, accompanied by an inspector of physical exercise and preceded by an inspector of nuisances, with his medical member on his right, his spiritual member on his left, and his chairman in close attendance. He assured them that in his judgment what he had described and foreshadowed was scarcely an exaggeration of the state of things to which they were rapidly coming, and he did not despair, if legislation went on along its present lines, of seeing three-fourths of the nation as a board of inspectors over the other fourth. This is, of course, reductio ad absurdum, but we are not quite sure that it is not bound that way.

All this is, of course, not antagonistic to organizing people to do things for themselves, which is still another of our hobby bunch, swung up for mounting. This old pet claim comes up now in connection with the letter of Mr. H. E. Dye, printed upon another page and at the close of which we have indulged ourselves in comments. Some people expect that the State would do all their business for them, if people would only vote for it. Mr. Dye hints at this, but seems to think more of the idea that the railroad would do just as well as the State, and we are not sure but that it would. In either case it would be a substitution of institution or corporate wisdom and authority for the same qualities which should inhere in the individual. A railroad, no matter how long it is, is little more than an industrial automobile. Even when it has the hauteur of a chauffeur, you still have to get on your stuff and say where you wish to go, and if there are many going the same way you can go more cheaply and, perhaps, more rapidly. The real actuating motive is in the individual; the strength of a movement which makes things go in a certain way lies in a combination of individuals. The combination becomes stronger as the individuals are wiser and more resolute, and the wiser and more resolute, the more they will insist upon their own ways and will inspire the institution they create, and not be carried by an institution provided for them. In California experience, as we have frequently claimed, the most forceful demonstration of this is the organization of our most capable citizens—the orange growers. No one would think of them as equipped with such outriggers as Lord Roseberry describes. We may be on the verge of realizing a general organization on the same lines. At Kingsburg, Fresno county, last week there was a convention of the Farmers' Union, attended by 600 delegates from all sections of California, called for the purpose of forming a commercial body for the marketing of all kinds of farm products. It has been decided to form a State organization, which shall be a central joint-stock concern, organized on broad lines, to include all local unions and to be known as the California Farmers' Union, Inc. A committee of five will be appointed to perfect the organization at as early a date as possible. We do not pretend to say that this will be the coming organization to accomplish what the adequate distribution of California products needs, nor whether it will succeed any better than other similar undertakings which have started during the last third of a century—but it is on the right track. If it has wisdom to handle so large a problem, and if it can secure adherents and coherence enough, it will arrive. However this may be, it will at least land us some paces ahead of the point of its beginning. It is this sort of thing which will accomplish what Mr. Dye desires, and it will be no peddling proposition either.

The Japanese question comes home to different people in different ways, but it arrives all right. The latest touch is the fact that Mr. George Shima, known in the Stockton district as the "potato

king," from the fact that he is on his way to a million through potato profits, has purchased a $15,000 house in a popular residence part of Berkeley and presumably proposes to domicile himself in the classic precincts. His prospective neighbors are in doubt as to how to receive him. One of the calmest counsels arrest of judgment "until we see what kind of a Jap he is"—which means, we presume, whether he is a coolie or a colonial. How they can tell we do not know, unless his pedigree can be had from the Mikado. We are disposed to contribute what we can to his standing as a master in agriculture. The current story is that he has just added to his previous holdings 4300 acres, at a rental of $19 per acre. This tract completes an extensive system of farms for the raising of potatoes, which practically corners the market so far as San Joaquin county is concerned. By means of the low scale of wages paid his hundreds of employees he is able to put the tubers upon the market at a lower rate than any other concern in the county. Mr. Shima seems to be dealing very successfully with producing conditions as he finds them, and that is the highest art of agriculture. Whether his work is good for the country is another question, with which Mr. Shima need not be expected to concern himself: that is the American end of it. If the Berkeleyans have any case it is not against Mr. Shima: it is against conditions which make it possible for him to turn a good article of Japanese brains into profitable American potatoes.

Last July we had a paragraph about a colony of imported European edible snails which were brought to San Francisco before the earthquake and were not disturbed by it, but had multiplied notwithstanding. Now comes the report that Professor Blunt of the natural history department of the Golden Gate Park Museum has discovered the presence in the neighborhood of Lone Mountain of a great number of edible snails. This class of molluscs is considered by French epicures a great table delicacy, and the production of edible snails is made a matter of special work on the Continent. This is two or three miles from the place where the colony was noted last July. It looks as though the metropolis might have as many snails as fleas. The remedy is, obviously, to stew them.

The present report is that the hop picking machine has gone to meet the cotton picking machine. The initial outlay and the experiments made in the attempt to overcome the defects in the machines cost $40,000, which is a dead loss, and the machines have been abandoned. The machines wasted as much hops as they picked, and were not as economical in operating as was expected. Had the expectations been realized, hop growing would have again become permanently profitable and regained its former importance as one of California's leading industries, but—there's many a slip 'twixt the hop and the pick, to say nothing about the prohibition movement.

Just wait until Dr. Wiley hears about this! Cocoanut oil, which was at first used only for making soap, may now become an important factor in food. Hitherto the copra or dried flesh of the cocoanut, from which oil is made, has become rancid before it reaches European ports, owing to the partial decay of the fatty matter in it. In order to obviate this a French scientist has formed the plan of sterilizing the product by submitting the fruit of the tree, cut in two, to the action of sulphur gas. The oil then obtained does not become rancid, and may be used in some forms of food. Well, on the whole, we hope Dr. Wiley will get after it, because it would be another substitute for olive oil. But still, the preservative effect of the sulphur bath is worth noting.

Queries and Replies.

Growing Black Walnut Seedlings.

To the Editor: Will you instruct me how and when to plant black walnut seeds for nursery purposes? Shall I plow a furrow, drop the seeds and cover with the next furrow? Shall I plow, harrow and drill the plot chosen, drop the seeds and cover with a hoe? When—in the fall or in March?—Enquirer, Sonoma County.

You should have begun some weeks ago and put your nuts through a sprouting process in some such way as this: Choose a warm place, such as the south side of a building; make a platform of ordinary boards just slightly raised from the ground to give good drainage. On this platform place a half inch or so of asnd. Upon this sand spread out the nuts. Cover lightly with sand or moss. To prevent damage from heavy rains, loose boards should be available in order to cover the bed. Protection can be given by covering with burlap. In a few weeks the nuts will sprout and can then be transferred to the nursery row. By doing this you can reject deadheads and plant only those that sprout and get a full stand in your nursery row.

It is about the right time now to plant out—as soon as the ground is in good condition through disappearance of surplus moisture. As you are too late to undertake sprouting, we should get the ground into as good condition as possible by deep plowing and harrowing and drop the nuts pretty thickly in a furrow made with a marker so as to get the rows straight and parallel, covering about three inches. Cover carefully with a hoe unless you have a hand cultivator rigged for covering and pressing the ground around the nuts. Make the rows about four feet apart so as to use a horse cultivator later. We should not expect very good results from plowing in the seed while breaking the ground. That is pretty rough work even when best done.

Feeding Value of Raisins.

To the Editor: I would very much like to be given figures as to the food value of muscat raisins compared with barley. The question was raised in our local of the Farmers' Union of America whether it would be more profitable to dispose of a part of the present raisin hold-over by feeding raisins to horses or hogs, or selling them at 1½ or 1¾ cents to the packers, who might only store them away, bringing them in competition with next year's crop.—Member, Sanger.

Raisins are almost exactly equivalent to grain according to the nutritive content, as shown by analysis; that is, one hundred pounds of raisins would be equal to one hundred pounds of barley, oats, corn or wheat. They are presumably better for feeding hogs than other animals, but while according to the analysis the equivalents would be the same, the question of whether you could sell the pork for enough to return to you the price of grain is an economic question which might not agree with the analysis. If, for instance, you found a man feeding hogs profitably on grain he could perhaps afford to pay you for the raisins what he pays for grain; whether you could buy hogs and make a profit from your raisins would be another question.

Places for Oranges.

To the Editor: I have a prune orchard on my place south of Reedley, that I wish to change to an orange grove. The soil is white ash. Why is it not as good for oranges as the soil near the foothills?—Owner, Fresno.

The orange tree naturally prefers rather a heavy, retentive soil, providing it is not too retentive, so as to cause injury to the roots by standing water. At the same time the tree will grow very thriftily on almost any good loamy soil which is suited to fruit trees, and good trees are growing upon such soils in various parts of your valley. There are, however, some soils which are rather lacking in retentiveness in which the tree is not so thrifty, because of the difficulty of maintaining just the right amount of moisture. For this reason the heavier soils are preferred and the places near the foothills are considered better because of less liability to frost injury.

Time for Heavy Pruning.

To the Editor: I read in your valued paper of January 30 on article headed "Methods with Apples in Eastern Washington." It recommends pruning in June. This interests me very much, as the orchard I have purchased needs pruning, especially cutting out the middle top, as it has been pruned on the outside for several years and the inner branches left to grow up (some 20 ft.). The trees are 10 or 12 years old and I wish to know if I should delay pruning until the sap starts, which will be in April, as the elevation is 4000 feet and they face southwest.—Owner, Millwood.

The article to which you refer speaks of a light summer pruning in June to remove surplus shoots. This is quite different from your proposition. It is usually better to remove large limbs just before the sap starts, or just about the time it is starting, because the injury is most readily healed over when the tree is in that condition. It is a fact, however, that in most of our California valley situations such branches can be removed at almost any time during the dormant period and the cutting back of trees for grafting purposes, or for reducing the number of limbs, is naturally done at various times in the winter—later rather than early in the winter, because there is less danger of dying back through evaporation. You can safely treat the trees which you desire to cut back at any time now that may be convenient.

Pear Blight and Burr Clover.

To the Editor: Can you kindly give me some information as to how resistant Duchess, Le Conte and Keiffer pears are to the pear-root form of woolly aphis and to pear blight? Can you also let me know if burr clover makes good cow hay, and at what stage it should be cut, if so? Should it be planted like the ordinary cereals?—Farmer, Alhambra Valley.

We are still on the lookout for light on these points. The California standing of the Le Conte is given in detail on page 44 of our issue of January 16 ult., and the Duchess is endorsed on the basis of Eastern experience in our issue of February 13. These may perhaps be considered as relatively resistant. The Kieffer has less resistance. We do not know how they stand as to the root aphis. Pear growers are invited to continue the discussion.

Burr clover should be sown very early in the rainy season, for it is a winter grower. It makes good cow hay. It is hard to state definitely the condition of the plant for cutting, because it blooms progressively from the base and grows progressively from the tip so it keeps on blooming and growing and does not "come out in bloom" like alfalfa and other clovers. You have to use your own judgment when you have secured high enough growth to yield a good cut and weather conditions are good for curing because the growth is chiefly in the winter and early spring.

Horticulture.

POINTS ON PRUNING.

To the Editor: Referring to my letter in the Pacific Rural Press of January 30, on pruning prune trees, I will undertake a few more lines on that same subject.

From a business standpoint a healthy tree is essential, in order to obtain the required results. I also consider fully as important a large hole to plant a tree. It will help to retain more moisture during the long dry season and in this section we are only blessed with the rainfall. A transplanted tree will re-establish its root system better in a large hole. It is not like a forest tree that starts from its seed on the surface, and on loamy soil.

The moisture you retain by cultivating during the spring and summer months will feed the root system and also the body as well. Cultivation is the key to growth.

Good buds are desired on the south side to shade the body of the tree, for this prevents sunburn. The north or shaded side retains its freshness of bark so that limbs can be produced as long as the tree is topped, and the south side can be kept from hardness also by shading it. The short undergrowth which is allowed to remain after pinching small growth, not only makes shade, but takes up certain properties from the air which strengthens the body of the tree. This growth can be taken off gradually when it becomes choked. Making close cuts will insure new growth if there is air space.

In thinning out the tree you should only cut out the straggling old twigs that are exhausted. Never cut off new wood from the body or limbs, for such treatment will not stimulate your tree.

It is best to keep the center of tree open; this will insure plenty of small growth and the fruit will do far better. Good observation should prove that two shoots are best at the point of branching, for oftentimes when there are more you are obliged to take out some of them, and perhaps by doing so it will throw your tree out of balance, and not only that, but will weaken the crotch and often cause the tree to die. This is particularly true if a long stub is left in the form of a peg on a hat-rack. Such a stub finally becomes a hole in the branch and never can heal up.

If you want strong upright growth you should top your tree early in the winter. If you top after the tree has started to grow, the growth will be more like laterals.

On full grown trees when the ends of limbs turn downward (from overbearing) you should cut out the center of the cluster, and shoulder back the ends of limbs to short spurs. If you peel the limbs so as to make them look uniform, they may sunburn, and the flat-headed borer will do the rest. Experiments on my palce at Rucker will show that this is not theory. E. P. Rose.

Gilroy.

[These observations are very interesting. When Mr. Rose says that his conclusions are not theory he means that they are justified by practical demonstration. His writing is, of course, full of theories, for a theory is "a rational explanation that agrees with all the facts." Do not be afraid or ashamed of theories; we could not make our observations useful without them. All that you have to look out for is that your theory agrees with all the facts. If not it is a fancy or vision and you must look out that it does not deceive you.—Editor.]

THE LINCOLN CORELESS PEAR.

To the Editor: For several years I have fruited the Lincoln Coreless pear, and during this time I have been trying to figure out its place in the list of pears for various uses. From what I have read of it, it is generally considered to be practically worthless. It is so different from the general run of pears that it is possible that few people have gone deeply enough to really discover what it is good for.

Its strong claim for recognition is in its difference from other varieties of pears, being almost as austere as a quince. In size it is very large, 20 to 25 ounces in weight being common, and over 30 ounces to be met with frequently. In color it is green with russet dots and a red cheek. It has never produced any seeds here, but it does have a sort of core that, at picking time in November, somewhat resembles a piece of very coarse sandstone.

At picking time the fruit is so austere and gritty that no one would think of eating it. In January, however, much of this grittiness disappears, and if boiled well before sugar is added the product is of a texture quite the equal of the Keifer and some others among pears for kitchen use only. The flavor of the cooked fruit is good, but it is a great deal more like quince than pear, and for anyone who has a taste for the quince, the Lincoln Coreless would command approval. I believe, though, that its most important field would be in using the juice of this austere variety in combination with other verieties where more acid than they contain is desirable, as in preserves of various kinds.

The tree bears well, is perfectly healthy and the fruit will keep until March. The juice can be used for blending as early as the middle of September. People who are looking for a new kind of fruit to round out their home supply, and something the children will not bother, are recommended to give the Lincoln Coreless pear a place in their garden. Albert F. Etter.

Briceland, Feb. 6.

[We have held the above and the pear, which stands shipment like a wooden ham, to see what would come to the fruit by exposure. It stood on our office stand as unchanged as the paste-pot for a month and was pinched and pounded by everyone who came in. Then it began to go at the stem end, but slowly, and decay kept to a definite area; the flesh below was as good as ever when the top was soft-rotten. Then we cut off the rot and split the rest in pieces, which dried on the outside and seems as durable as firewood. Mr. Etter's account of it is interesting.—Editor.]

ANOTHER GUM DROP FIG.

To the Editor: I have read with great interest in your issue of February 27 the description of the Rixford fig by Dr. Walter T. Swingle and would like to say, thinking it might be of interest to you, that there is now growing in the back yard of an Italian, Mr. Louis Lavagga of Lagrange, Stanislaus county, Cal., a large fig tree now eleven years from a cutting he had a friend bring from Italy. The tree bears enormous crops of figs identically like Mr. Swingle's description of the Rixford fig, gum drop and everything, except that it matures its figs without the aid of the blastophaga wasp. For this reason alone I deem it superior if anything to the Rixford. Although only 11 years from the cutting it is a very large tree, having a spread of at least thirty feet. I would strongly advise the investigation of this tree.

Also I would like to call your attention to an immense wild or caprifig with its colony of blastophaga wasps growing on the Samuel Gates ranch, ten miles west of Modesto. Mr. Gates bought this ranch in 1869 and this tree was on the place then. It is at least three feet in diameter near the ground, and so far as they know always had its colony of bugs. Mr. Gates' postoffice is Modesto, Stanislaus county, Cal. I hope these two trees might be of value to the Department of Agriculture. W. W. Hall.

Hickman, Cal.

[Thank you. That is just the right way to do. Write us at once about anything which seems to have relations to things we print.—Editor.]

EUCALYPTUS AND OVERFLOW.

To the Editor: In your issue of December 19 I notice a query as to whether eucalyptus trees will grow on flooded areas. From personal knowledge I can say, yes. Indeed, the red gum is only found in large quantities along rivers and low lying country, where oftentimes the flood water lies to a considerable depth for a long time.

The blue gum seems to prefer a higher but moist ground, although it is grown successfully in all parts of the State. A great many have been grown in the streets of our towns, but owing to the great size they attain are not at all suitable.

Stringy Bark, Iron Bark, Messinate (all the eucalyptus family) will not grow in low wet ground, but prefer the hills and poor stony soil.

W. J. Wilson.

Tatura, Victoria, Australia.

PACIFIC COAST CRANBERRIES.

Our correspondents frequently ask about this fruit, and we have to give them discouraging replies, so far as culture in California is concerned. They may be interested to know, however, how close cranberries come to California, and it is of course possible that on our Northwest Coast where fresh water may be induced to spread over marsh land when desired, and excluded at other times, there may yet be an industry based upon this lowly shrub.

Prof. C. L. Lewis, horticulturist of the Oregon Agricultural College, has prepared the following statement concerning the growth of cranberries in the western part of his State:

The cranberry is very exacting in its requirements. Nevertheless, there seems to be considerable land along the Oregon coast that is naturally adapted to this industry. True it is that most of the bogs are wild, and only a few have had any artificial preparation, and in many cases these were not properly prepared.

Valuable Tillamook Bogs.—What promises to be a very valuable bog for the Pacific Northwest is one recently acquired by the Tillamook Cranberry Co., near Oreton. This seems to have the necessary requirements, such as soil, drainage, a good water supply and comparative ease with which a bed can be prepared. The company has determined to spare no pains in establishing the bog properly.

The reports of Oregon yields are almost unbelievable, and the Government statistics give the average yield of our bogs as being the highest in the country. That the yield would run considerably above the average seems highly probable, for we have no insect pests as yet, neither do we have frosts to contend with. With the return of, say, 100 bushels to the acre, a very handsome profit can be realized on a valuation of $1000 per acre.

Requirements for Cranberries.—In order to grow the berries successfully, certain conditions must prevail. First, we desire peat soil, and especially a decomposed peat. Clay or heavy muck soils are undesirable. Second, an abundance of good coarse sand should be available, within easy hauling distance. When this sand becomes mixed somewhat with the peat it seems to make the ideal soil. Third, the drainage is a very important factor, and during the growing season one should be able to keep the water at least a foot below the surface. It should not be allowed to get much lower than this. Cranberries will not stand stagnant water. Fourth, a good water supply furnished by some living stream or reservoir is very desirable, for, in case insects should appear, flooding could be easily resorted to.

In addition to the above requirements, it is also well to choose a bog in which the work can be carried on easily. It will cost from $100 to $500 an acre to prepare a bog.

The Vineyard.

PRUNING NEGLECTED VINES.

To the Editor: I am a newcomer and have purchased a ranch with some Emperor vines three years old which have never been pruned. I am advised to prune, leaving one stem, staking, and have a wire 20 to 24 inches from ground to them. I would greatly appreciate your advice.—Kerman, Fresno county.

Answer by Prof. F. T. Bioletti.

Vines require pruning every year; for young vines to give them the form which will combine economy of cultivation with good crops and long life; for old vines to regulate and increase the bearing.

Vines which have been neglected in this respect

are irregular in shape, which increases the cost of cultivation and hoeing; liable to injury from plows and singletrees, which shortens their period of useful life; and irregular and unsatisfactory in bearing. Such vines, however, can usually be brought back into good or fair condition if the neglect has not been of too long standing. Failure to prune at all will often do much less permanent injury to the vine than improper pruning.

It is impossible to give any detailed directions as to the treatment of such neglected vines, for each vine is a separate problem. A pruner who knows what he wants and understands vines can renovate them in one or two years by proper winter pruning, supplemented by judicious suckering and sprouting during the spring. He must first determine what form he wishes his vine to have and then use such cuts and removals as will tend to establish this form with least mechanical injury. The problem differs from that of pruning a normal vine only in that everything is sacrificed, at least during the first year, to shaping the vine. No distinction is made between sterile and fruit wood, and those buds and spurs left which will shape the vine best, whether they are fruitful or not.

Sometimes when the vines have been unpruned for several years there may be no young wood at all in the position where we most need it. In such cases we need not hesitate to cut back into the old wood, three or four years old. This may leave no visible buds, but shoots will start from adventitious buds in the old wood. These shoots, in fact, are apt to be too numerous and must be thinned out during the spring in order to direct the energies of the vine into the shoots we need.

Young vines which have been pruned for the first two or three years can be brought into good shape by these means. Old vines which had been shaped properly when young and later left for a year or two without pruning can be brought back into good condition in the same way.

The Grape of Canaan.

To the Editor: The grape which your correspondent from Mercedes, Texas, refers to is undoubtedly that known as the Grape of Canaan, which is grown in English hothouses and which I have also seen growing in the open in South Africa. The grape is grown particularly because of the enormous size of its bunches, which occasionally weigh as much as 15 pounds or more, and have been known to be over three feet long. The grape is of poor quality and would probably not be a profitable variety to grow.

FREDERIC T. BIOLETTI.

University of California, Berkeley.

Citrus Fruits.

PROBLEMS IN ORANGE CULTURE.

Written for the PACIFIC RURAL PRESS
By GUNNAR.

The Significance of Choosing a Good Soil.—For the past three years the orange growers of southern California have been enjoying a period of great prosperity, and the present year, in spite of the fact that some fruit was hurt by the December frosts, bids fair to add another profitable season to the list.

The effect of this continued prosperity is noticeable in various ways. The almost universal indulgence in touring cars is one of the most apparent evidences of the "plethoric pocket-book." A better evidence, perhaps, of present prosperity, and also of faith in the future, is the high price of land, and particularly of bearing orange groves. Prices have advanced remarkably during the past three years. One thousand dollars per acre was formerly considered almost the maximum, while today twelve to fifteen hundred dollars per acre seems about the going rate for groves in full bearing, and sales at two thousand per acre have actually been made.

All this is very delightful, and the local newspapers "point with pride" to the list of sales in their every issue. But it is leading to one result which will most certainly have to be reckoned with in the future.

Reckless Planting.—I refer to the reckless planting of citrus trees under conditions which must inevitably result in partial failure. The orange tree will grow almost anywhere in California, except in localities where the temperature gets too low, and it is a tree that will grow upon soils which vary essentially in character; but to bring an orange orchard up to a condition of full bearing, and to produce fruit in sufficient quantity to make the enterprise profitable, three essentials are required: a good soil, a plentiful supply of water for irrigation and a location free from killing frosts. These essentials are being violated today in more than one locality.

The popular slogan just now is "Boost! Boost!" and he who fails to boost is accounted a "knocker." Though fully realizing the prevalence of this sentiment, I cannot believe that to sound a mild note of warning is not disloyal to the true interests of the orange growing communities.

Naturally the present high prices being realized for orange property constitutes a great temptation to further plantings, and that this is widespread is evidenced by the fact that the visible supply of nursery stock is said to be all sold. Orange trees have been selling as high as $1.40 each from the nurseries. Seed-bed stock is also said to be all sold out, and the nurseries which have been growing this class of stock cannot accept any further orders. Whether these tens of thousands of young trees will ultimately fulfill the hopes of those who plant them must depend largely upon the soil in which they are planted, the abundance of the water supply, and the general climatic conditions of the locality. Everybody knows this. No one would think of disputing the truth of it. And yet some of the men who are doing reckless planting are experienced orange growers. The only explanation that suggests itself is that they are willing to take long chances, possibly with the thought in some cases of disposing of these properties later to the perennial "tenderfoot."

The Tenderfoot Considered as an Asset.—Is the "tenderfoot," then, fair game? By no means. To consider him fair game is the height of folly. To my mind he is worthy of the utmost consideration. It is the "tenderfoot" who has built the Los Angeles of today, and placed her in the front rank of young American cities. He has also poured a few millions into Pasadena and Redlands, expended in the building and beautifying of costly winter homes, and otherwise improving those charming localities. Surely we cannot afford not to be nice to the tenderfoot. He can be useful to us in the future as truly as he has been in the past. And if he asks for soil, shall we give him stones?

Water and Soil.—It must be admitted that it has been the men of large faith who have accomplished things ever since the world was young. And that the present generation is not without men of large faith is shown in southern California by the fact to which I have been referring, that barren, stony lands which twenty years ago were classed as almost worthless are being planted to orange trees. Rocky lands, cut up by washes, have been cleared of surface stones at considerable expense; in some cases hundreds of loads of stones and boulders being hauled off from a single ten-acre tract in the process of plowing the land to a depth of six inches.

These poor lands have no appurtenant water-right. They are not entitled to water from the Santa Ana river, nor from the Bear Valley reservoir, nor from any similar source or mountain stream that can be considered a permanent source of supply. Their sole dependence is upon water that can be pumped out of the ground.

How many years ago was it that the Government engineers then in southern California were delivering public lectures for the purpose of demonstrating that the underground waters were being steadily depleted and the general water levels becoming lower and lower each year?

Since then we have had several seasons of plentiful rainfall, the water levels have risen, and the scare of five years ago is all forgotten. However, if the Pharaoh of Joseph's time were living here now, and attempting to raise oranges on lands devoid of a permanent water right, he would quite likely find cause to dream again about those seven lean cows that came up out of the river.

Many things enter into the value of a piece of land, but, for horticultural purposes, the quality of the soil ought to be considered one of the greatest factors. The immense difference in value between a poor soil and a good soil does not seem to be as fully appreciated, or though about, as it ought to be. Take, for example the poor lands I have been describing. They will grow orange trees; the trees will not perish unless they perish for lack of water. But what is an orange orchard worth per acre growing upon that kind of soil as compared with other groves growing upon deep, alluvial soil? I hear orchards of about the same age all quoted at about the same asking price per acre, while, as it seems to me, there is a vast difference in value owing to the fact alone of a great difference in the soil.

A Successful Orange Grower.—It will probably be conceded on all hands that the most successful orange grower in California is Mr. C. C. Chapman of Fullerton. Judged by the profits he has made from his groves, he easily stands in the lead. I once asked Mr. Horace W. Day, a prominent receiver of New York city, why Mr. Chapman's Valencia late oranges sell regularly for more money in the New York auctions than any other brand, and his reply was that Mr. Chapman's Valencias are "simply perfect." How is it that Mr. Chapman is able to produce oranges that for quality are above criticism, and, more remarkable still, continue to produce large crops of such fruit year after year? He has often been asked his secret, and he maintains that he has no secret. Mr. Chapman is a man of keen insight, a man of superior ability (and a man of charming personality withal), but he is not a wizard, nor does he claim to be. His own explanation of his success is that he uses the most extreme care in all the details of management, and particularly in the handling of his fruit.

The extreme importance of handling oranges carefully is better understood now than it used to be, and for the past few seasons, at least, several prominent growers and packers have been going to the very extreme in the matter of careful handling. It is probable that, during the past few seasons, these men have used fully as much care as does Mr. Chapman, but at the end of the period the essential fact stands out as prominently as ever that to ship perfect oranges you must first grow them! This is what Mr. Chapman does. He grows them. They come from the tree perfect. So the question, "what is the secret?" still remains unanswered.

If I were to hazard an opinion, I would say that Mr. Chapman's soil could probably answer the question. He has a soil that in quality is probably unsurpassed in the State; a deep soil, naturally rich in plant food; a soil that the orange tree fairly revels in.

I heard him say recently that he had had occasion to take up some three-year-old trees that were not entirely satisfactory and found that the roots had gone "down" into the soil nine feet. Those roots did not find it necessary to spread out near the surface seeking nutriment from applications of fertilizer; they went "down" because there was inducement for them to go down. There was plenty of plant food to be found in that direction. In confirmation of this, it may be added that analyses of Mr. Chapman's soil have shown it to be unusually rich in humus.

A Contrast.—What a striking contrast this presents to the poor, thin, rocky soils on which some optimistic people have, within the past three years, been planting orange trees! The contrast in the soil seems to me typical of the contrast that will ere long be apparent in the results.

In our semi-arid region, humus is not only the soil element in which we seem to be most deficient, but also the element which first becomes exhausted, and the element most difficult to restore to the soil.

James Mills is credited with a good thing when, at the close of one of his stirring talks at a recent fruit growers' convention, he said, "With all your gettings, get humus." That modernized proverb has been aptly quoted more than once, and bids fair to endure as a working motto for the fruit growers of this State.

Los Angeles county.

AGRICULTURAL REVIEW.

With the Fruit Growers.

The Bounds ranch, near Butte City, is to have 3000 fig trees set out on it this spring.

Forty-two tons of prunes grown in Napa county were shipped last week to New York, via steamer routes.

Raisins and hulled almonds are being put up in pound cartons by Hanford packers and sold as sweetmeats.

The Arlington Heights Fruit Co. is commencing the erection of a large lemon house at Prenda, a station near Riverside.

The Foothill Citrus Farm company, which owns a large acreage in Kern county, announces that it will set out a large tract to oranges this spring.

Strawberries will be late in Orange county this spring, owing to the rains. Usually they are sent to market by the middle of March, but this year the crop will be a month late.

G. de Latour of Rutherford received from France last week two carloads of rooted resistant vines, numbering about 450,000. Mr. de Latour will plant out 50 acres this year himself.

A big orange grove at Riverside changed hands last week, when the famous Beulah ranch of 70 acres on Arlington heights, was sold for $75,000, to the Arlington Heights Orange Grove Co.

Reports from Solano county are to the effect that the apricot and peach crops will be light in the Suisun valley this season, owing to the heavy rainfall and cold weather during January and February.

The Chico Plant Introduction Gardens was voted $21,380 by the recent Congress for experimental purposes. In the above appropriation is an item of $1000 to be used for the destruction of ground squirrels in California.

Nurserymen of Stanislaus county state that the number of fruit trees to be set out in that county this spring will aggregate nearly 400,000. The great majority of the trees are peach, and the next in numerical order will be figs.

The prunes in the Willamette Valley Prune Association pool, consisting of the 1908 crop, have all been sold and the growers realized the following prices for Italians: 30 to 40, 5.22 cents; 40 to 50, 4.65 cents; 50 to 60, 4.27 cents.

A dispatch from Grass Valley states that nurserymen of Nevada county cannot ship their nursery stock out this season, as there is no horticultural commission there to pass on the trees, and the railway company refuses to haul them unless they are passed on as being free of disease or insects.

New Manager for Fruit Distributors.

It is announced that Frank McKevitt of Vacaville has been selected as manager of the California Fruit Distributors Co. to succeed Alden Anderson.

Mr. McKevitt has fruit interests in Solano county, is identified with packing establishments, and is considered a strong man to manage the business of the company that handles most of the fruit shipped from the northern half of the State.

Heavy Tree Planting.

While at Modesto last week we were informed that Ekstein & Ekstein had sold over 1,000,000 eucalyptus trees for this season's planting.

According to the statement attributed to one of the horticultural commissioners, Sutter county will this season plant 1200 acres of fruit trees and vines. This includes 550 acres to peaches, 150 acres to figs, 200 acres to apples and miscellaneous fruit, and 500 acres to grapes.

In Stanislaus county we were informed that fully 500 acres will be set out to fruit trees, of which three-fourths will be peaches, and a considerable part of the balance to figs. Besides the 500 acres planted to fruit trees, there will be a heavy acreage set out to table grapes. While the rains kept the planters from getting the land in shape till late, yet the rush is now so great that the season is proving a good one to the nurserymen.

Agricultural Items.

The crane fly is reported to be doing some damage in Tehama county, in both grain fields and grass lands.

The Pacific Pea Packing Co. has planted nearly 500 acres to peas near Oakdale, Stanislaus county, and expects a big crop this season.

W. E. Premo is getting ready 80 acres of land near Porterville to plant to alfalfa. He has a good well and is now putting in his pump.

A St. Louis association has had land at Hazen, Nevada, examined, and proposes to plant 100 acres there to eucalyptus of the mahogany species.

Two thousand asparagus plants were shipped from Sebastopol last week to Walter Armstrong at Los Angeles, who will plant them out on his ranch near there.

The secretary of Glenn County Chamber of Commerce states that if the farmers there will plant 50 acres to sugar cane this season, as a demonstration, that outside capital will establish a syrup factory there at once.

The S. P. demonstration train is touring the southern part of the State this week, and will be in that section all of next week. Many able speakers from the University of California and the State Horticultural office accompany the train.

The Mutual Distributing Co. is the name of a new concern, which will handle 300 cars of melons from the Imperial valley this season. This company will also handle melons from Moapa valley, Nevada, and from the Kerman district, in Fresno county.

A dispatch from Yuba City says that farmers have been very busy for the past two weeks seeding wheat and barley. While the sowing of grain is a little late, yet the farmers are expecting big crops this season. In District 70 there are some very large fields, running from 300 to 1800 acres, being seeded.

Upper Sherman island, near Antioch, containing 10,000 acres of fine vegetable land, which was flooded during the high water in January, is to be reclaimed. The work is to be commenced at once, and will cost nearly $40,000. The work of repairing the levee on lower Sherman island was completed last week, and pumps will soon remove the water, that a crop may be produced this season.

State Appropriations, $9,701,995.

The general appropriation bill before the legislature for the expenses of the various departments covering the next two years totals $9,701,995. Of this large sum the State hospitals secure the largest amount, being $2,800,000. The various State offices, including the legislature, judicial and executive departments are given $2,001,565. The National Guard have $386,660, Forestry Board $39,900, Engineering Department $135,800, Mining Bureau $73,500. The State University gets $252,000, Polytechnical School $85,500, the State Farm at Davis $68,500, State Horticultural Commission $61,000, Fish and Game $40,000, Dairy Bureau $25,000, Agricultural Society $47,500, Veterinarian $36,-

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400. State prisons cost $1,029,500, and the Veterans' Home is allowed $220,250. It is stated that the present tax rate will provide ample funds to meet the appropriations.

Market Being Found for Rhubarb.

It is announced that the Phalanx Company, the big rhubarb grower of the southern end of the State, has opened a selling office in New York and has one in Philadelphia. So far the company has been successful in selling in car lots, as the Eastern commission men have found California rhubarb to be better than heretofore offered. If a good, steady demand can be secured, rhubarb growers of this State will have a big asset added to their market products, as early rhubarb, especially the crimson winter variety, grows here to perfection and is ready for market while the snow is yet on the ground in States east of the Rockies.

Dairy and Stock Items.

An important agreement has recently been signed in Imperial county, whereby the cream buyers are to pay dairymen according to the grade of cream produced.

Frank Watson, one of the prominent horticulturists near Gridley, will take up the dairy business in addition to the fruit industry. He expects to soon have a herd of fifty cows.

George Meadows of Corcoran, who took his horses out of quarantine, where they were being held on account of glanders, was arrested on a misdemeanor charge last week. The case is to be tried at some future date.

Porterville Co-operative Creamery Report.

According to the report of Secretary R. E. Premo, made to the directors of the Porterville Co-operative creamery, the total net receipts of the creamery for last year was the very comfortable sum of $36,664.73, the total output of the factory being 143,260 pounds of the "Orange Blossom" butter, which figures show that the average net price for butter fat for the year to the producer was almost 25.6 cents per pound. The increase in receipts over the previous year show 30 per cent, and the indications are for a still larger gain this season.

Track Dates Fixed.

A meeting of representatives of the various county racing associations was held at San Francisco last week, when the following program of dates was selected:

San Diego, week ending July 10.
San Bernardino, week ending July 17.
Los Angeles, week ending July 24.
Fresno, week ending July 31.
Salinas, week ending August 7.
Pleasanton, week ending August 14.
Woodland, week ending August 21.
Chico, week ending August 28.
State Fair, week ending September 4.

The Nutwood Stock Farm Sale.

Some interesting facts are given us by Fred H. Chase & Co. of the fine stock to be sold by them at Pleasanton on the first days of its sales to be held March 25, 26 and 27. The Nutwood Stock Farm was founded by Martin Carter, who sent his mares to the best stallions standing for service in California. His first animals were Wilkes Nutwood and Geo. M. Patchen, and he always kept breeding up. The stallions on the farm are the famous Nutwood Wilkes, sire of four in 2:10 and the dams of four more in that list—now 21 years old, but vigorous and in good condition; and the young son of that horse, Lord Alvin, an own brother to John A. McKerron, 2:04½, the fastest trotting stallion in America. There are yearlings on the farm by Nutwood Wilkes, Lord Alvin, Bon Voyage and Greco B.; two-year-olds by Nutwood Wilkes, Star Pointer and Lord Alvin; three-year-olds by Nutwood Wilkes, Lord Alvin, Star Pointer and Bonnie McK; four-year-olds by Zumbro and Searchlight. There are many young mares by Nutwood Wilkes, 2:16½; Altivo, 2:18½; Klatawah, 2:05½; and by several other good horses. There are over sixty head upon the farm, of the very best breeding, and every animal is to be sold.

Favorable Season for Texas Fever Tick.

Dr. Rosenberger of Hanford, who has charge of the eradication of the Texas fever tick in his district, reports the weather as being favorable to the ticks. He says the tick commences to breed 36 days from the time it is hatched, and females lay about 4000 eggs, which hatch in 13 days. The Doctor has one ranch under quarantine in Kings county, and last week went to Madera county to investigate conditions there. Inspector Langley of Fresno county, states that ticks have been found on two ranches in his jurisdiction.

Los Angeles Poultry Association.

According to the Times of Los Angeles, the poultry raisers of southern California are organizing a co-operative selling organization, through which they will market their eggs in the future. A meeting of poultrymen was recently held at which a preliminary organization was effected and a committee appointed to secure the co-operation of the surrounding counties. It is claimed that Los Angeles requires $2,000,000 worth of eggs annually, of which half are shipped in from the Central States.

The Coulson Poultry and Stock Food Co. of Petaluma have made a deal with the Ward Fireless Brooder Co. of Calistoga, which places in their hands the selling of the entire output of brooders made by the latter firm. The business will be handled from Petaluma.

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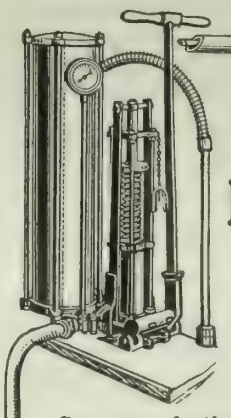
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AN ANALYTICAL REVIEW OF THE USE OF BLUESTONE IN DRY AND WET SPRAYS.

To the Editor: Your issue of February 13 contained an article entitled, "A Thoughtful Review of the Dust Spray," signed by Mr. T. H. Buckingham.

I have been requested to reply to this article "in an absolutely fair and open manner, so that it will show conclusively an honest desire to give information along the right lines, solely for the common good and welfare of the California fruit growers." It is both a privilege and a pleasure for us to comply with the above request.

Mr. Buckingham's article throughout is a fair representation of the doubts and the fears of the fruit growers of California in regard to a change from their present methods of spraying to a system that, to them, is new and untried.

The writer knows by personal contact with the growers of California at their homes, as well as through correspondence, that Mr. Buckingham's views are representative as well as personal, and are seemingly strong presumptive reasons for continuing a method of spraying, that not one of its advocates are satisfied with themselves.

Mr. Buckingham states that in commenting on Mr. Dargitz's article, his object is "to ascertain by the exchange of ideas, and comparison of results by the different methods of fighting pests, what may be the most efficient and economical method."

In the same broad spirit, from the standpoint of a practical grower, we will explain the basic principles upon which the dry system of fighting our orchard pests, with the same remedies, rests. Then in the light of the information given, Mr. Buckingham can review his own article and determine for himself the relative value of both systems to the commercial orchardist from a practical standpoint.

The system of dust spray, as the growers of California use it now, is the result of ten years effort, on the part of the practical commercial orchardists of the Middle West, both in laboratory and orchard, to improve their methods of spraying from a business standpaint.

The intelligent business orchardist who has invested his money in the growing of fruit as a business venture, never loses sight of the commercial value of his product, because on that depends his profits in the business.

Commercial value depends on both quantity and quality of product. To make the business profitable and successfully meet competition he must reduce the cost of production to the lowest possible margin consistent with the best methods of doing so. This is what Mr. Buckingham wants to learn, but he hesitates to take the practical experience of his brother fruit growers in the Middle West in its entirety. He is convinced now that a spraying appliance that will treat his 80 acre pear orchard in a day and a half is more "economical" than one that would require a week to do the same work. He likes the idea, too, of being able to run in between rains if necessary and fight the scab, but he is not certain that soluble bluestone, the remedy in dust form, would control it, and he hopes the growers in California will find "some dust" that will do it, and he has generously offered to help them to find it.

Sources of Loss.—Quantity and quality of product are effected: First, by uncontrollable weather conditions. The most serious of these to the growers in the Middle West is rainy weather, because it is most likely to occur at a critical time for spraying (early spring), causing an epidemic of fungi, which the grower must control to prevent loss. The codlin moth and other destructive insects are just commencing their spring campaign and wet weather don't stop them from work. Now, leaving the question of the preparation of the remedies out of the calculation entirely, and granting the contention of Mr. Buckingham, or any one else, that water is the only carrier for the remedies that control these pests that the grower can rely on, what good will the remedies do if the grower cannot apply them? Mr. Buckingham will please note that I am speaking of the physical appliance only. He says he will be pleased to assist Mr. Dargitz and others to experiment with dust spray; that means, he will assist them to determine whether an appliance using 20 pounds of hydrated lime to carry one pound of the remedy, or one using 1200 pounds of water to carry the same remedy is the most practical; whether an appliance that will treat his pear orchard in one and a half days, with the help of a team and two men to operate it, in any ordinary weather conditions, is more practical than an appliance that would require a week to do the some work, requiring teams and a retinue of men to operate it, available for use only under favorable conditions and worse than useless under unfavorable conditions.

The writer commenced to solve this question of enforced loss of product caused by an unwieldy and impractical spraying appliance in 1898. No doubt it would have been amusing, tinged perhaps with a degree of pity for my mental status, for Mr. Buckingham to have seen me trying to spray my 30-year old apple trees with a dust appliance that weighed only 7 pounds, with bellows attachment, and half the energy was lost in operating the machine. Out of that crude effort in 1898 has grown the sprayer that Mr. Buckingham modestly says will spray his 80-acre orchard in one and a half days. Experiment? Yes, we have done a little of it ourselves, and we hope not without profit to the business orchardist.

Second Source of Loss.—The loss from the depredations of disease and insects. To control disease in the orchard or in the family we must depend on the use of the known remedies for its control. The grower should never speculate or experiment to find "some dust spray that will prove efficient" until he has demonstrated to his own satisfaction that the known and tried remedies are ineffective when properly prepared and used. Stay with the known remedies every time until they fail you, after you have given them a fair show for effective action.

It seems Mr. Buckingham has a remedy for scab on the pear, but the weight and unwieldiness of his appliance and unfavorable weather conditions prevent him from using it "in the very limited time" in which the control of this disease can be successfully accomplished. Why not use the remedy bluestone in dry form? As the bluestone is processed in sal bordeaux, you are not limited to just two ounces to the pound of lime dust. You can put in as many ounces as you think would be right. In fact, you can use it in its pure state if you want to. You can take sal bordeaux, wet the foliage on your pear trees, then put it on with the intention of burning the leaf and you can't do it. Now, if the only remedy you can use in the wet method will not control the scab on your pears with that latitude in its use, what will do it. Do you know?

The primary law governing the relation of the remedy is, the remedy must be used in soluble form, unlimited as to quantity, and its direct action must not be restricted by any cause whatever. This primary principle is self-evident and needs no elaboration.

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CITRUS
WOOD
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R. P. EACHUS, LAKEPORT, CAL.

The action of the remedy on the disease, when thus prepared and applied will be positive. The results will be stable, dependable and calculable, because of the positive action of the remedy.

The remedies for tne control of disease on plant life, sulphur and bluestone, cannot be thus prepared nor used in the wet form of spray. Therefore, if we would apply the remedies as they must be applied to get stable, dependable results, it is not a matter of choice with the grower, but a matter of necessity that he make new alignments—work out new methods of protection. That is what the practical growers in the Middle West have been doing for the last ten years. The net result of their labors is dust spray, both in the development of appliances and formulas as presented to the growers of California.

Two Ounces vs. Twenty Pounds.—Mr. Buckingham, in his comments on Mr. Dargitz's article, raises the point that the bluestone element in the dust formula "goes into solution on the tree and becomes similar to the same amount of dissolved bluestone as it is used in the wet spray." Then his conclusion: "It seems incredible that 2 ounces of the bluestone can accomplish what has in the wet spray required 20 pounds.

Two Ounces of Fact Outweighs Twenty Pounds of Guess.—While Mr. Buckingham's statement is purely hypothetical and could be fairly answered by denying the hypothesis set up, that would not give the fruit growers of California information we desire them to have for the common good.

The gist of Mr. Buckingham's article is Sal Bordeaux. In defining his subject, he says: "Sal bordeaux is, as I understand it, nothing more than," etc., etc. In order to give his definition of sal bordeaux all the force of a positive statement, I will accept it this way: sal bordeaux is nothing more than, etc., etc.; that the sample analyzed by the Agricultural College of the State University was sent directly from Kansas City, under a special seal to insure its genuineness, and that it contained just what the State University says it does.

Now for the Facts.—He says: "It seems to me that this finely powdered bluestone would go into solution and be similar to the dissolved bluestone as we use it in the wet sprays." There is no question but that bluestone, either in powdered or crystal form, will dissolve if moisture is applied to it. But, his assumption is, that because we put bluestone and lime on the tree, and he puts bluestone and lime water in a tank, that the solutions of the bluestone are similar. How does he know? What reasons has he for the assumption? If he, or the State University, would give the fruit growers of California definite information about the nature of the solution "we use in the wet sprays," it would let in a flood of light that would be worth millions of dollars to the fruit industries of California.

That the soluble solutions are not the same is easily demonstrated. It is the soluble copper salt in the solution that kills the fungi. If Mr. Buckingham will take a small quantity of powdered bluestone, as found in sal bordeaux, and wet it, he will have the solution as nature makes it on the tree. Now let him take some of the sediment from the bordeaux mixture and he has the solution as chemical action makes it in the tank. A simple test for soluble copper salt (the remedy) in the solutions can be made in this way: Take a piece of bright clean steel and rub it in the solutions. If the solutions contain the remedy for fungi, soluble copper salt, it will coat the steel with the copper. After the first test is made, set the solutions aside and let them dry as they would upon the tree; then wet and test for the copper salt again.

The result of this simple test will be, that no soluble copper salt will be found in the tank solution, and the sal bordeaux solution will not only show an abundance of the soluble copper salt in the first test, but in the other tests as well. Therefore, 2 ounces, or any part of an ounce, of powdered bluestone dissolved by nature's process on the tree, is different from the tank solution of bluestone produced by chemical action. The natural process of solution preserves the remedy and holds it in suspension for future action. The chemical action solution destroys the remedy, and leaves the grower guessing what did produce the results he gets from its use. It's a case of something against nothing; that's all there is to it.

Mr. Buckingham raises another point that should be noticed for the common good. He says: "It also seems as though 2 ounces of anything scattered over an acre of orchard would be such a small quantity that it could have no appreciable effect." If he has reference to the bluestone only, we have already shown that 2 ounces of something, scattered over an acre, will have a more appreciable effect than 20 pounds of nothing. He has stated previously that Mr. Dargitz's formula was: Hydrated lime 40 pounds, sal bordeaux 2 pounds, and sulphur 10 pounds—40 plus 10 plus 2, equals 52 pounds. This amount of dust mixture, Mr. Dargitz says, is sufficient for 2 acres. To be fair, Mr. Buckingham should have said: "Mr. Dargitz scattered 26 pounds of dust mixture over 1 acre, and this mixture contains only 2 ounces of bluestone. It seems to me that 2 ounces of bluestone, in this mixture, could have no appreciable effect as compared with 20 pounds of bluestone and 200 gallons of water scattered over the same area." But that fair statement would have brought in sharp contrast the relative value of lime and sulphur in Mr. Dargitz's mixture as fungicidal remedies, as against water in the wet spray, and no doubt Mr. Buckingham wanted to avoid that comparison.

The word "scattered," used by Mr. Buckingham, is suggestive. To the business orchardist it means distribution, and lies at the very foundation of his success in controlling disease and insects on plant life. If we were going to make out a list of objections to the wet form of spray, faulty distribution would rank well up to the head of the list.

Whether the results Mr. Dargitz got are due to the use of the remedies he used, or to the weather, I am not prepared to state. Whether he sprays as thoroughly as Mr. Buckingham, is begging the question at issue. If we can succeed in driving home the fact that, as growers, we must depend on the use of the known and accepted remedies, all of them, for the protection of our crops; that they must be used in soluble form to be effective; that their direct action on the disease must not be restricted by any cause whatever; the physical appliance for doing it is of secondary considreation. I really believe that, if it were demonstrated to me that the remedies I must use in my orchard could be "scattered" better from a balloon than otherwise, I would buy a balloon and use it.

G. C. Johnson.

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DATE NOVELTIES IN THE SOUTHWEST.

(Continued From Page 201.)

dark brown, fairly smooth; ventral channel wide open, wings rare. Germ pore conspicuous, median line well marked. Won first premium at Phoenix Fair, 1908, as the best seedling date for curing and packing.

SMITH.—Originated by Mrs. W. H. Smith of Phoenix. A small, golden yellow, soft dessert date. Ripens in November. Oblong-oval, 25 c.m. long by 18 c.m. wide, average weight 6 grams. Color very light yellow; flesh soft and juicy, free from fiber; skin tender, rich and very fine. Seed 20 c.m. long, 7 c.m. wide and 6 c.m. deep; oblong, straight, blunt at both ends, average weight two-thirds gram; golden brown and smooth all over; ventral channel usually open, wings very rare. Received second premium as a seedling dessert date at Phoenix Fair, November, 1908.

THOUGHTS ABOUT THE DEMONSTRATION TRAIN.

To the Editor: Mr. Judah, representative of the Southern Pacific with the Demonstration Train, said that seeing the falling off in their tonnage and looking for the cause of it, some one expressed the idea that the soil was becoming worn out, therefore the railway and the professors joined in an effort to help the farmers get better crops.

Now, gracious as all this is, and though the very sight of President Benjamin Ide Wheeler was an inspiration to the people, it is most fitting that some one for the people should try to express appreciation both to the Southern Pacific and the professors, especially to the railroad in whose power it so easily lies to do the needed thing, in this way:

Much as we appreciate your most helpful work, we beg to say that we fruit raisers are already producing such crops that we cannot begin to sell all we produce. It is markets we need. The transportation companies and middlemen, the latter perhaps almost wholly to blame, make our fruits so high to the user that just a very little is used. Fifteen to twenty cents a pound is charged the consumer for what the producer gets only one or two cents, or perhaps no offer at all, until in desperation he is forced to all but give away his goods. Now if the Eastern consumers could get our fruits for say 6 to 10 cents there would be so much more used that the producer would easily get from 4 to 7 cents. And how Eastern people would enjoy our fruits, especially raisins!

I venture there are millions on millions of people who for years do not taste a raisin, and but for these middlemen they might carry raisins in their pockets and use them as a common article of food. Then people who never taste a raisin now would buy a hundred pounds at a time if they could get them reasonably. With rational markets I sometimes think the production of raisins might be increased a thousand fold; whereas now comparatively few acres glut the market. How both cruel and suicidal is such a system. But it is what the majority vote for.

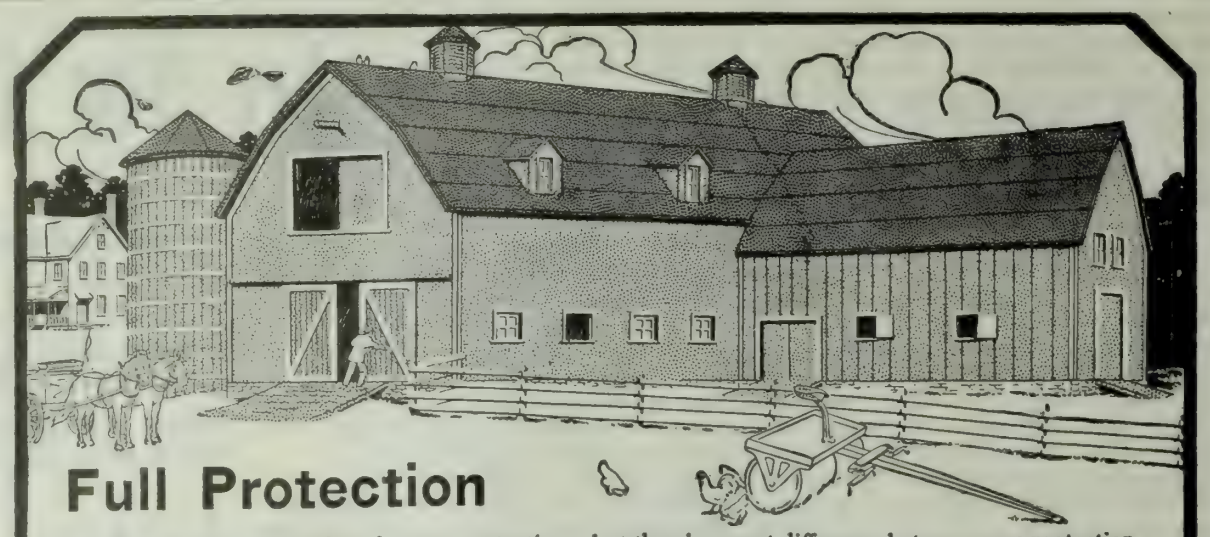
Mr. Judah said the Demonstration Train was not wholly an unselfish move. And so I say it is not wholly love for the Southern Pacific that prompts me to suggest how they might increase their tonnage, namely, let them give the fruit producers transportation at the regular rates but with concessions for a thousand cars. Let them allow two men to go with each car on slow freight and permit them to sell from the cars while sidetracked for a day on request, and to be routed over all roads. There would be no need of advertising, so full of it would the papers be, and the joyfully expectant people would be at the trains for their hundred pounds of raisins. Then these cars could be brought back loaded with Eastern goods now badly needed in California, but which we now cannot buy because we cannot sell our fruits. I am not a fruit raiser except for family use, but take an interest in all that tends toward a free exchange of goods.

H. E. DYE.

Visalia.

[Such suggestions have been made frequently for the last 30 years and will not accomplish anything until producers get together in a business way, and then they can make almost any produce-selling arrangements which their representatives desire, if the laws permit. This is the way the citrus interest was rescued from depression and carried to a distribution valued at above twenty millions annually. This was done by growers organizing for wider distribution than ordinary commercial channels afforded. The same way is open to all producers. It is idle to discuss railways, middlemen, politics and the like and blame them for not handling products in newer and greater ways. If it is ever done it will be done by producers' organizations which learn how to do business.

We know just as little as Mr. Dye does about running railways and so we shall not discuss the feasibility of running peddling trains, but we do know, or think we know at least, that to go peddling our products in places where they should be on sale all the year at reasonable prices would kill the chance of securing continuous sale, which is the only way of disposing of large quantities. The number of people who would buy a hundred



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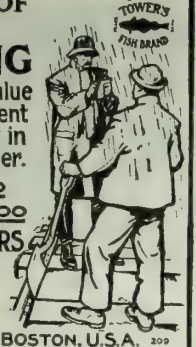
The Kruckeberg Press

Los Angeles, Cal.

Publishers "The Rural Californian" and Printers of "California Fruits and How to Grow Them."

pounds of raisins at one time at any price is exceedingly small. We haven't space to discuss the subject at length, but desire to give his plan fair statement, even if we must add that we consider it altogether impracticable.—EDITOR.]

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Large Land Sale

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Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

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The Field.

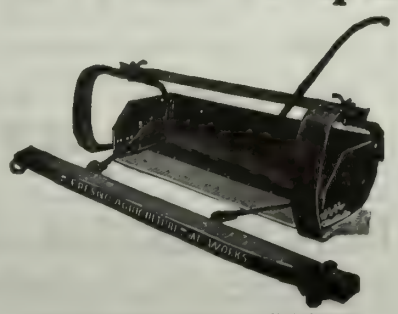
PROF. ROBERTS EXPLAINS HIS WORK AND PURPOSES.

To the Editor: Someone has just sent me a copy of the PACIFIC RURAL PRESS of February 6th with an editorial commenting on the absurd press reports that have been going the rounds, concerning the writer's experiments in wheat breeding at the Kansas Experiment Station. I beg to thank you for the way in which you have discussed the matter in your editorial, and to assure you that, as you surmise, these ridiculous and absurd assertions and prophecies are the work of the buoyant imagination of newspaper reporters.

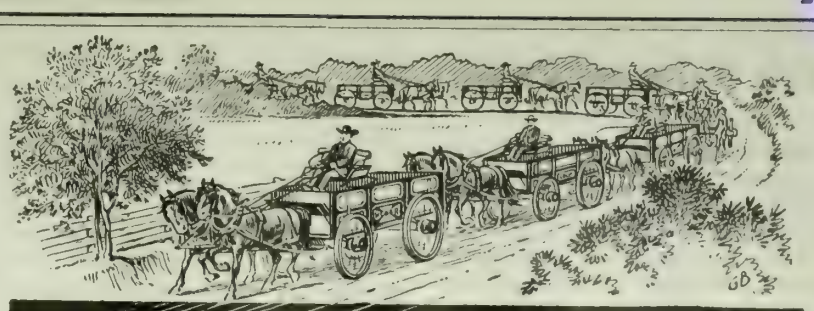
No scientific man would, or could, indulge in remarks of this character regarding his work. The writer will say that he expects and believes that certain of the pure bred wheats he has on hand will outyield the average wheats now grown in the State of Kansas. Further than that, the writer says nothing, and expects nothing. To double the average yield of any great area by breeding alone may, generally speaking, be set down as a flat impossibility. No scientific breeder of plants believes for a moment that he can accomplish any such result. So far as securing an "ideal wheat" is concerned, the writer is not at all sure as to just what the "ideal wheat" will be in all respects. The writer's investigations have led to some discoveries which will probably assist in working toward some sort of an ideal in wheat breeding. However, it is needless to state that the writer does not expect "to secure an ideal wheat by next fall." Only a newspaper can accomplish such a result as this. As a matter of fact, no breeder of plants or animals will ever reach, finally and definitely, the ideal product toward which he is working. Ideals develop progressively and by degrees. As breeding operations progress with any plant or animal, new and unlooked-for possibilities appear, which indicate other, broader and still more distant ideals toward which to work. New difficulties, deficiencies and limitations appear, which modify, alter or compel to be discarded completely, ideals already developed, and toward which the experiments had previously been trending. Nature being in a state of constant flux, it is probable that we shall never attain to a state of perfect and stable coordination in all respects between the economic needs of man and the physical possibilities latent in the plant and animal world. It is, however, the business of the breeder patiently to explore this living world, in order to discover as much as he can of the organic laws according to which living beings work, and to take advantage of the operation of natural forces to secure and to preserve those forms of organic life which are best adapted to man's economic necessities. Here one is

(Continued on Page 214.)

The Fresno Scraper



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FRESNO AGRICULTURAL WORKS
FRESNO CALIFORNIA.



WAGONS

The farmer is particular about the kind of wagon he buys—and rightly so—because a wagon is used nearly every day in the year. Note the following special features of the Weber and New Bettendorf wagons each one of which is built to give satisfactory service.

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For sixty-three years the name "Weber" has been the best guarantee as to the quality of a farm wagon. No other wagon is made better than the Weber—no other wagon is made with so much care. The Weber, king of all farm wagons, is the I. H. C. standard of excellence in wagon construction. Everything used in building Weber wagons is the best that the market affords—ironed on the made-to-order principle—painted as good as the average buggy.

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The New Bettendorf farm wagon is exceptionally strong, durable and light running. The gears are made entirely of steel, have greater carrying capacity than wood and weigh no more. There is never any trouble with loose skeins, season checks, improper seasoning or inferior quality of materials, such as is common on the ordinary wagon. The tubular axle is made in one piece. There are no joints at the collar and the removable malleable iron sleeve which protects the axle from wear is not found on any axle except the New Bettendorf.

The New Bettendorf farm truck is used extensively on fruit farms in the western states. With wheels 30 inches, front and rear, and platform, it makes an excellent truck for spraying outfits, as the platform is wide and roomy and the front wheels cut under.

Call on the nearest International agent who will be pleased to show you the meritorious features in the construction of the wagon he handles. Ask him for illustrated booklet and lithographed hanger, or if you prefer, write nearest branch house.

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UNIVERISIY OF CALIFORNIA BUTTER SCORING CONTEST.

To the Editor: The call for the first entry to the California Educational Butter Scoring Contest brought a response from twenty-four creamery buttermakers. Because of careful packing and cool weather most of it reached Davis in good condition. On March 1 it was scored by Mr. C. L. Mitchel, U. S. butter expert of San Francisco, assisted by members of the Dairy Department. The following scored 90 or above:

	Score.
Gridley Creamery, Gridley	94
Colusa Creamery Co., Colusa	93½
Edenco Creamery Co., Petaluma	93½
Crystal Cream & Butter Co., Sacramento	93½
University Farm Creamery (not competing)	93
Denman Creamery, Petaluma	93
Homestead Creamery Co., Nicasio	92¾
San Pasqual Creamery Co., Escondido	92½
Hicks Valley Creamery Co., Hicks Valley	92
Pozzi Creamery, Marysville	92
Suisun Creamery, Suisun	92
Tomales Creamery, Tomales	91½
Sutter Co. Creamery, Meridian	91
Good Luck Creamery, Tulare	91
Bay View Creamery, Napa	90¾
Rose City Creamery, Chico	90½
Smith's Creamery, Corcoran	90

Letters of careful criticism will go forth to the various buttermakers as fast as they can be prepared.

This is an excellent beginning and we hope that the interest shown will be maintained. The next entries will be called for in April. In the meantime the buttermakers should prepare to use starters more generally. Those who have done well at this season without starters will need to look to their laurels as the weather becomes warmer.

For the interest of the buttermakers I submit herewith the present conditions of the "contest" premium fund:

Fred L. Hilmer Co.	$10
Diamond Crystal Salt Co.	10
J. B. Ford Co.	10
C. E. Whitney & Co. (Leslie Salt)	200
	$230

It should be a matter of deep satisfaction to the buttermakers to see their interests so cordially supported. Points of interest in connection with the contest will be discussed later.

HERBERT A. HOPPER.
University Farm, Davis, Cal.

REARING CALVES ON SKIMMILK.

There are about as many ways of doing this as there are dairymen doing it, but some of the essentials which all try to cover are sketched by a writer for the Journal of Agriculture in this way:

To teach them to drink, let them go without feed for six to twelve hours until they grow hungry and then place warm, new milk in a shallow pail before them. Raise the milk to their mouths so that it touches the lips. Place two fingers in the calf's mouth. Separate the fingers slightly so that a small opening will be formed for the milk to enter. Use the fingers as aid in drinking for a few times, when the baby calf will learn to drink without aid. Some calves learn to take nourishment in this artificial way sooner than others, but any of them can be taught to drink with a few lessons.

Feed the young calf at least three times each day—five times is better—for the first week, giving it about a quart of whole warm milk fresh from the cow at each feed. After the first week, feeding twice each day will do, with about two quarts of whole milk at each feed to the end of the second week. After the second week, gradually substitute skimmilk for whole milk until at the end of the third or fourth week nothing but skimmilk need be given. The skimmilk may be increased to three quarts at each feed by the time the calf is six weeks old.

Always warm the milk to about blood heat, but no warmer, and feed from a scrupulously clean vessel. Never feed cold, dirty or sour milk and never feed too much. Any of these will cause the calf to "scour," which is a dangerous ailment, resulting in stunting of the young animal and often death.

When the calf is about four weeks old it will begin to chew hay and other feeds. Encourage it in this eating and furnish it with a handful of clover hay or other similar feed each day. By the time it is six weeks old it will learn to eat shelled corn and this helps in balancing the skim milk diet. It may also be fed wheat bran and oats in connection with the skimmilk.

[A little rolled barley may be substituted for the oats or corn, which are not so easy to get in this State.—EDITOR.]

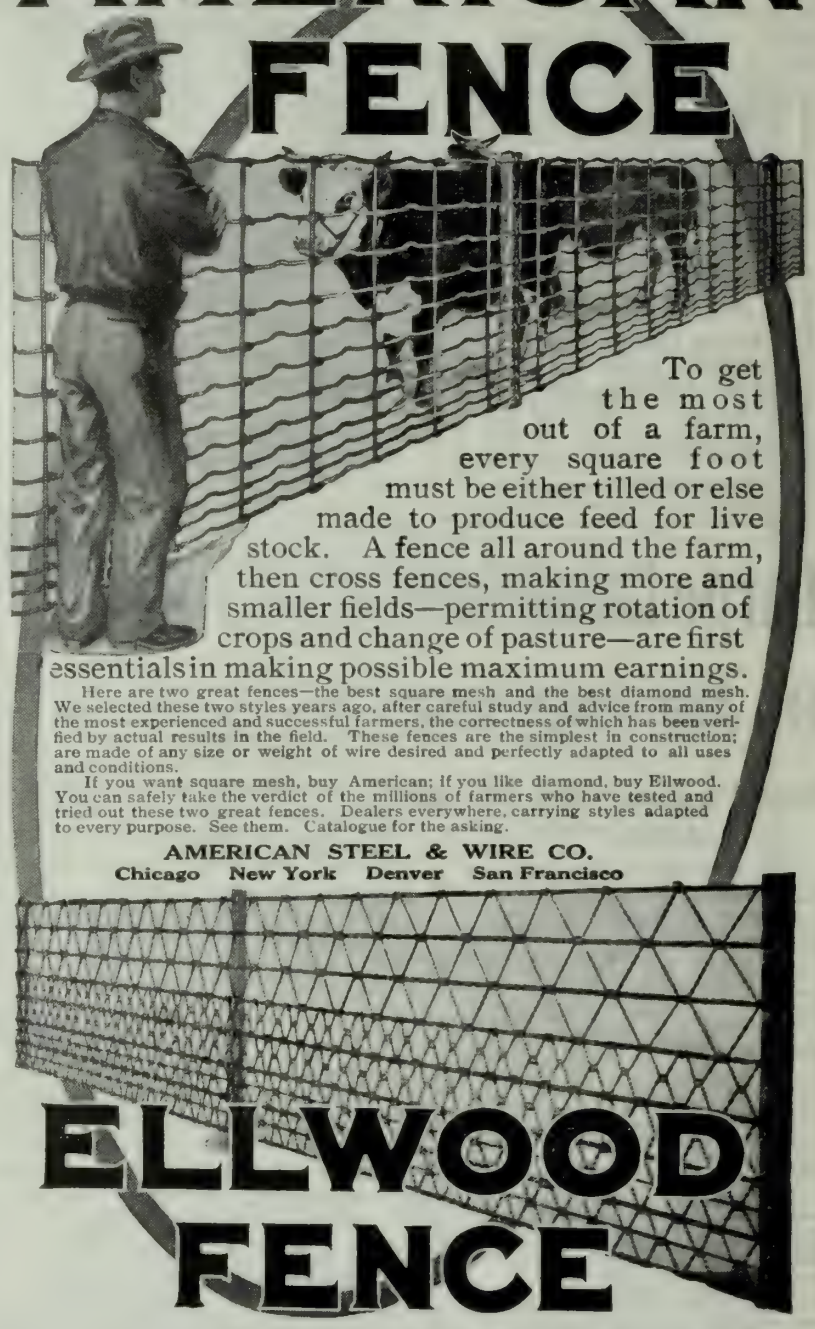
HUSK OR HOOSE IN CALVES.

This trouble, which occasionally causes much anxiety, and sometimes considerable losses, is produced by worms in the windpipe and air pasages of the animal. The modern method of treating severe cases is by inter-trachael injection. It is certainly the most effectual way of destroying the parasites in the air passages in advanced cases. It brings the agent into direct contact with them—which is not the case where turpentine is given by the mouth and has to act, if at all, through the circulation—and it does not cause nearly so much inconvenience or distress as pouring medicine into the nostrils, or compelling the animals to inhale irrespirable gases in a closed building. A special syringe is required. It resembles the hypodermic syringe in construction, and its glass barrel is similarly graduated, so that the required quantity of injection fluid can be drawn up from bulk. The syringe needs to be larger, because it has to contain more fluid, and the full dose must be given at once; and it must be stronger, because the needle has to pierce tougher structures than the instrument used in subcutaneous injections. Almost every veterinary practitioner has his pet formula. The mixture used by Mr. Penhale, who first introduced the treatment, consisted of oil of turpentine, carbolic acid, and chloroform. Gresswell substitutes tincture of opium for chloroform. A very useful mixture, suitable for yearling calves, is: Terebine, 1½ drams; chloroform, ½ dram; pure carbolic acid, 20 drops. When several animals have to be injected, as is usually the case, the mixture should be obtained in bulk from the chemist, and the dose required drawn up into the syringe and measured by the graduated scale on the barrel, keeping the mixture well shaken.

HOW TO INJECT.—The operation is not a difficult one for an intelligent man, but unless the owner has seen it performed it is quite well to get the local veterinary surgeon to do it.

If circumstances necessitate the owner intra-tracheally injecting his own animals, the calf should be held by one or two assistants, according to its size and strength, with its nose in the air, and the neck quite straight. The operator then draws the skin tightly across the windpipe at a point about half way in its

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course down the neck, so that with the other hand he can feel the rings of the trachea, and know exactly where it is. The needle of the syringe should then be driven into the middle of the windpipe with a slightly downward direction, and without reference to an inter-annular space. The needle of the syringe is best inserted into the trachea independently of the barrel, from which it is readily detached, and the barrel, into which the required quantity of fluid has previously been drawn, then attached. All that is then required is slowly to discharge the contents of the syringe by steadily pressing on the piston. The discharge must not be violent. When injected slowly it causes less coughing and distress in breathing. The principal difficulty experienced by the amateur is in piercing the windpipe fairly, owing to its tendency to roll about, and in knowing when the needle is standing clear in the lumen of the pipe. It is most necessary to avoid piercing the opposite wall of the trachea, for not only would this, by discharging the fluid into the tissues, defeat the object in view—that of bringing the remedy into contact with the worms—but it would cause a considerable amount of local irritation and inflammation. There is no doubt that advanced or neglected cases are most advantageously treated by intra-tracheal injection. Removal to shed or yard, at least at night and until the grass has dried, and feeding dry, nourishing food, inlcuding linseed cake, meal, chaff and hay, and a supply of salt, will certainly cure mild cases without medicine, while giving medicine and withholding dry food and neglecting to shelter is simply time and money wasted.

PERMANENT MILK.

The Minister of Agriculture for the Province of Quebec, Jules Allard, is credited with solving the problem of obtaining a milk supply for the winter in most of the large cities at a reasonable rate.

The process is that of preparing the milk in such a way that after being pasteurized it may be kept pure and perfectly sweet in sealed jars for six or eight months.

The Quebec Departbent of Agriculture has been experimenting with a machine at the St. Hyacinthe Dairy School for some time and has proved that milk can be kept absolutely pure for many months. The cost of the machine now in use at St. Hyacinthe was only $1000.

The principle of this machine is to cause the homogeneity of all the elements composing the milk—the fat, casein, etc. Mr. Allard points out to the farmers that several producers in a district can club together and purchase one of these new machines, which requires a twelve-horse-power engine to run it. Thus, while the grass is abundant in summer and the milk is at its best and cheapest, an abundant supply may be laid in under the most favorable conditions and put on the market in the winter time in good condition at a cheaper rate than can now be given. This system will also solve the problem of supplying steamships with milk for long voyages.

THOSE WILD HORSES IN NEVADA.

W. C. Barnes in the course of his interesting notes on range observations for the Breeders' Gazette gives the following: We saw hundreds of the famous wild horses that the papers made so much ado over last spring when the report got out that the government was going to kill them. They are wiry little fellows, as wild as deer and seem to breed like rabbits, for every mare we saw had a colt by her side. We chased one bunch one day for over six miles with the car. The band was split, part being on each side of the road, and as horses always do they were bound to cross ahead of us to reach their mates. For miles we held the car just abreast of them, the driver himself, an old cow puncher, knowing just how far to crowd them. They finally crowded us so hard that he had to shut off the power to avoid running into them, for they had edged up to us until not 50 feet away and then they cut in ahead of us and crossed the road. Fortunately for them there was not a gun in the car or we could have killed every single animal in the bunch. These horses are a great pest here and really it is a problem what to do with them. Hundreds are annually shot by the irate ranchers while hundreds more are caught, but with it all they continually increase in numbers until on some ranges they keep the feed ration down so as seriously to impair the range.

"Why don't they catch them?" I hear some one ask. Well, I refer you to George Abell, one of the most experienced horsemen in Nevada, for a reply. George arranged with the Forest Service last summer for a grand horse round-up, he to have everything he could catch. Fifteen days he worked with seven good men and a band of 80 splendid saddle horses and quit in disgust with every horse in his bunch run down and not a single wild horse to show for it all.

A few years ago Nevada passed a law allowing everybody to kill wild horses as they pleased and in a year 15,000 were killed. Then the law was repealed and today they are as bad as ever. One cattleman I met put up a prize of $100 for the man on his ranch who this year brought in the most ears and foretops of horses they killed, and they say his men have killed a lot of them in their anxiety to win the prize.

KALE AS A WINTER FOOD FOR SWINE.

To have something good when alfalfa is dormant is exceedingly desirable for cows and hogs, and in fact for all grazing animals in alfalfa districts. We have already called the attention of our readers to the promise in kale as a late fall, winter and early spring forage, largely on the basis of Oregon experience because much has been done with it in that State. The Oregon Countryman has some additional points along that line:

The pork producing problem in Oregon necessarily resolves itself into pigs with a minimum amount of grain and a maximum amount of skim milk, whey and kale or other cheap foods. Some dairymen have solved the problem by giving skim milk and whey as the cheap maximum ration and adding just enough grain, usually bran or shorts, to give the best results. This combination of foodstuffs is generally fed in the proportion of one pound of grain to three pounds of skim milk or six pounds of whey.

The skim milk or whey and the grain feeding problem as indicated above, has been pretty well solved and is demonstrated by the fact that some succulent food is highly necessary if the pigs are to be made to do their best through the winter months in growing and remaining healthy.

The Thousand Headed kale has been introduced as a substitute for this long needed cheap food. It is a very succulent, nutritious forage plant much grown in England and France, but of late years it has been found admirably adapted to the moist mild climate of the northern Pacific coast region and is likely to be of much wider adaptation, especially where the winters are not too severe. It is closely related to rape, but the plants are much taller and the leaves much larger, longer and broader. It does not head up like cabbage. The name Thousand Headed Kale refers to the numerous branches the plants have when given plenty of room to grown in.

For the purpose of ascertaining the value of kale as a winter food for hogs, an experiment was conducted from the first of December, 1907, to the first of March, 1908. Twelve pigs were selected and placed in three lots. Lot one consisted of three mature hogs and lot two consisted of six young shoats weighing about ninety-three pounds each; lot three consisted of three young pigs of Berkshire crosses and weighing about sixty-two and one-half pounds each. They were fed all the kale they would eat up clean and given skim milk and whey to drink instead of feeding chopped wheat as in lot two.

In lot one the pigs did not seem satisfied during the experiment and it was difficult to get them to eat the kale up clean. At first they would not eat it at all, but later they became accustomed to it and ate it fairly well. Lot two and three took to eating it very readily, and cleaned up all that was given them. They seemed to be more satisfied, were in better condition and made better gain than lot one. Lot three fed very evenly on the amounts of kale from day to day, and seemed to do fairly well. The combination of kale and skim milk made a rather watery feed, and the pen was continually wet and sloppy. The combination was lacking in crude fibre, but for the short period the pigs did well without it. In conclusion we may say that kale is almost a winter maintenance ration for swine, but when fed in addition to a little grain or skim milk good growth may be made. Especially is this true of young pigs, as has been denoted by the tables. Taking all in all, the feeding of kale to swine will be a cheap method of carrying pigs through the winter months.

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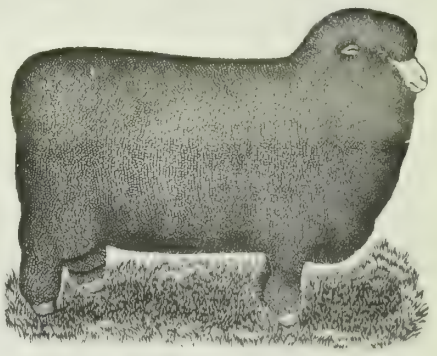
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JOHN LYNCH, breeder of Registered Short horns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321. Petaluma, Cal.

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CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

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WHAT PROFESSOR ROBERTS IS DOING WITH WHEAT.

(Continued From Page 211.)

dealing with some of the most intricate and fascinating phenomena on earth.

Unfortunately, so far as the field of plant breeding is concerned, the average American mind has been so carefully trained by the newspapers and the ten-cent magazines, as to demand and expect nothing short of the sensational and the marvellous in science. Such a public will always be welcoming and heralding a "wizard" bringing a miracle. The charlatanism and quackery of such sensation mongering in science are too well apparent, however, not alone to the scientific world, but to conservative and educated people in general. Science works, not with miracles of a day, but slowly and patiently, with "the long results of time."

H. F. Roberts,
Professor of Botany.
Kansas Agricultural College,
Manhattan, Kansas.

[We are exceedingly glad to have this manly and rational statement. When we get the public education to reasonable expections, enduring satisfaction will be realized.—Editor.]

WHAT PROF. ROBERTS IS DOING WITH WHEAT.

Inasmuch as Prof. Roberts has kindly written us about the motives and expectations in his work with wheats, we are glad to give our readers an authoritative account of his results thus far, as described recently in the Breeders' Gazette, over his own signature:

Aims in Breeding Wheat.—The writer's aims in the breeding of what are as follows:

1. Increase in the bushel yield per acre. 2. Increase in the number of pounds of wheat to the bushel. 3. Increase in the protein (gluten) content of the kernel. 4. The breeding of wheat strains free from yellow berry. 5. The breeding of wheat strains more resistant to rust. 6. The breeding of more drouth-resistant strains of wheat.

To obtain a wheat variety having any of these characters we must first begin with a single individual plant. Here the system of pedigree records comes into play. The series of measurements, tests and analyses embodied therein yield exact and authoritative data each year for all the factors and characters in volved in determining the economic aims of the breeder. It can be definitely ascertained what strains or families, as we call them, are consistently from generation to generation of the progeny, better yielders, what ones are highest in protein, freest from yellow berry, and so on, through this system of scientific record-making.

Importance of Form.—An interesting illustration of the vitally practical nature and outcome of these wheat breeding operations is furnished by certain experiments now actually in progress in our laboratory of plant breeding. The writer observed on going over the hundreds of pedigree wheat races at planting time last fall that there were the most striking differences among the different strains of pure-bred wheat in what may be designated the packing qualities of the grain; that is to say, the completeness with which the grain fills the space it occupies. Some of the pure-bred races had types of kernels that allowed them to pack down and fill the space perfectly; others left large and numerous air-spaces unfilled, even when jarred and shaken down to the limit of packing. It was seen at once that the form of the kernel, a factor that has never before been considered in the breeding of wheat, is an important one in determining the perfect filling of the bushel measure, and hence the weight of grain per bushel.

Importance of Weight.—So it is for the breeder not merely to secure a prolific strain of wheat, but one with the form of kernel which allows for the most perfect packing, and which in consequence will yield the most pounds per bushel. Specific gravity is an important factor in determining bushel weight, and generally speaking those wheats having the highest specific gravity will give the greatest weight per bushel. But we find that pure-bred strains of the same specific gravity may have entirely different types of kernel, and that they consequently pack differently, some leaving more and others less of unoccupied air space, with resultant differences in the average bushel weight. Remember that these strains of wheat may otherwise be equally hard, equally high in protein and equal in other desirable qualities. The writer can confidently state that this is an absolutely new and untouched problem in wheat-breeding, one unsuspected and unnoticed by previous breeders.

The reason why the packing question in wheat has not been generally noticed is because the wheats commonly grown are not pure-bred strains but are of an impure and mixed nature. If not actual mixtures of different varieties they at least contain as a rule mixtures of strains consisting of different types of kernel and having different yielding powers. By separating out of these various hidden strains through the methods of pedigree breeding it has become possible to secure in each pure strain of wheat a perfectly uniform and distinctive type of kernel, constant for each strain, and to ascertain for each and every strain of wheat the precise range and limit of productivity. Through a series of exact measurements by means of special apparatus we determine quantitatively the precise form of kernel peculiar to each of our pure-bred races, and by a simple and direct method we ascertain the volume of unused air space per bushel for each of the same series of wheat.

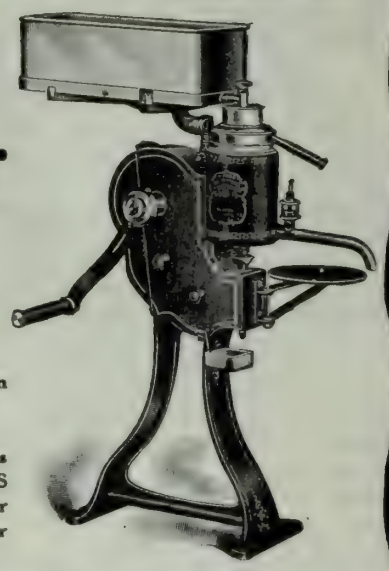
When these investigations are concluded, within the next month or so, the writer will be able to say, on the basis of definite scientific knowledge, just what form of kernel, in terms of kernel volume, and of the ratio of length to breadth, will most perfectly fill a bushel measure, and which we must therefore continue to breed to the exclusion of other types. Having answered this question, we shall simply turn to our pedigree records, in which the kernel measurements of all of our pure-bred families appear for three generations of plants, and find at once in just which of our pure-bred families of hard red wheat this particular type of kernel actually occurs, and is hereditary in the offspring.

Composition of Kernel.—Another experiment now in progress is to determine the relation of the amount of gluten in the wheat kernel to its hardness. The glutenous wheats are the highest in protein, and are also the hardest. Hitherto the hardness of wheat has been a matter of estimate and judgment on the market. In our laboratory we have invented and have had constructed by the best instrument maker in the United States a piece of apparatus which determines rapidly and accurately the hardness of the grains in terms of their crushing point. All of our highest-yielding wheats are now being analyzed for their protein content, and their hardness is being determined quantitatively with this apparatus. From the data thus obtained we shall calculate what is known to mathematicians as the "coefficient of correlation" between protein content and hardness of grain. In other words, we hope to obtain from these data with mathematical precision exactly the per cent of protein to be expected in grain of given hardness. If we can thus ascertain the protein content of grain within a narrow range of error by determining its precise degree of hardness we have then found a rapid, cheap and easy way of selecting pure-bred races of higher protein content, without undergoing the expense and delay of chemical analysis. The writer cannot predict the issue of the investiga-

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The Empire Cream Separator is pronounced the lightest running Machine on the market. In all the gearing there is only one shaft that causes friction.

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This is a very essential feature in a Cream Separator that is going to be run by hand.

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Analysis (from Bulletin 164, Jan. 1905—University of California.)

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Linseed Oil Cake Meal	24.4 per cent	Shorts	12.2 per cent	
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tion, but it is clear that the aim is a practical one, and that the outcome may be of great service to the breeder.

STARCHY WHEATS.—Finally, the writer wishes to say a word about the yellow berry problem and how we are dealing with it. The "yellow berry" is a soft, starchy grain appearing in hard wheats. It is lower in protein content, specific gravity and bushel weight than the glutenous type of kernel; and when present in hard wheat in sufficient quantity it causes the wheat to grade off seriously in the market. How can we get rid of the yellow berry? Its occurrence is generally ascribed to conditions of soil and climate. We have been investigating this problem for two years and have embodied our results in Bulletin 156, just published from the Department of Botany of the Kansas Experiment Station, entitled "The Yellow Berry Problem in Kansas Hard Winter Wheats." The details of the investigation can be found there. Briefly, the yellow berry is probably due to seasonal conditions during a critical time in the wheat's maturation period. We find that the yellow berry is also to a degree an inherited character. It occurs in our pure-bred wheats as well as in the common mixed varieties of commerce, but in different degrees in different strains. Our pedigree wheats that contained from 76 to 100 per cent of yellow berry in 1906 were found to contain 24 per cent in 1907; while those which contained no yellow berry in 1906 contained only 4 per cent in 1907. This investigation, which is now being continued with the offspring of the same pedigree wheats that were investigated for yellow berry last year, will be completed for 1908 within a month or so, and we think that we shall then be able to assert with positive authority the extent to which the yellow berry is heritable. It may be interesting to know that we have pure-bred wheats that were planted on the same day in the fall and harvested on the same day last fall, and stood no farther than six feet apart, in which there is a difference of 100 per cent in the amount of yellow berry. It will not be necessary to enlarge further on the subject of yield. We have superior strains of hard red wheat which in relative yield surpass the best yielding wheats hitherto grown at this station. It is no exaggeration to say that these operations in the breeding of wheat are of economic significance to the State of Kansas.

H. F. ROBERTS.
Kansas Experiment Station.

TRAINING DOGS TO HUNT COYOTES.

In answer to a North Dakota inquirer, a writer for the Breeders' Gazette gives these suggestions for training fox-hounds to chase and kill coyotes: First you should have at least four fox-hounds. They should be over a year old before attempting to kill coyotes. In starting the young dogs I would advise crippling a coyote with a shot, then put the dogs on him and help to kill him, or better still catch a coyote in a steel trap, take him out in a clear open country, cut one hamstring and turn him loose fifty yards ahead of the dogs. Have a swift saddle horse and gun handy and use them as a cowboy would, but be sure and let the dogs do the killing if they will. Repeat this as often as convenient, and do not try to hunt your dogs except in damp weather when scenting is good. Your dogs are apt to get discouraged if they do not make a killing soon after starting.

I have had more than forty years' experience with fox-hounds after foxes and have made many pesky coyotes bite the dust with them, on the range out in Colorado. Any two of my dogs would kill a coyote, and on one occasion I had one fox dog catch and kill an old coyote alone.

The farmers of Humboldt valley, near Lovelocks, Nevada, have formed a company to build a big reservoir in the mountains near there, to conserve water for summer irrigation.

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That's the marvelously good investment that more than ONE MILLION satisfied users are finding the

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There's half this much saving in the use of a DE LAVAL over inferior separators, while other separators last but from six months to five years instead of twenty years. They lose half that might be saved while they do last.

That's the whole separator story in a "nut shell" and the reason for the now nearly universal sale of DE LAVAL separators.

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WESTERN HORSE MARKET
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TUESDAY, March 16th.

All gentle broke, ready for work. You have never seen any like these.

100 head, 1100 to 1300 pounds, will be sold beginning at 1 p. m.

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E. Stewart & Co.
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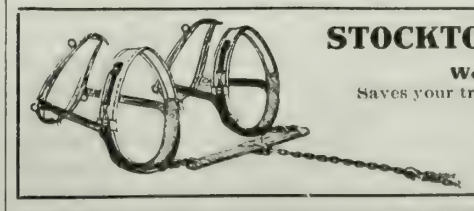
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The Poultry Yard.

MARCH AMONG THE POULTRY.

Written for the PACIFIC RURAL PRESS
M. R. JAMES.

A busy month in the poultry yard. All poultry raisers must get busy in the fullest meaning of that phrase; for on the outcome of March largely depends the income of the fall and winter. The bulk of the hatches should be brought off this month. From these hatches will come the pullets that may be depended upon to lay during the three months of maximum egg prices.

The breeding stock, which are the very foundation of a profitable season, should be well looked to. Any of the birds that have dark red combs with discolored edges should at once be removed from the pens and turned out on a grass range with only light feeds of hard grain. A few days of this treatment will usually cure their indigestion and restore their activity and the clear healthy color to the comb. Eggs from sluggish dark-combed hens will produce few chicks and those of little stamina. It is even more important, if it were possible, that the head of the pen be in the pink of condition. As with the hens, his comb must show a clear bright red with no discoloration; he must be sprightly and full of vigor, which he shows by much crowing and sparring. With breeding pens, the safe policy is to have an extra cock, a substitute, for the pen of the breeding cock that has become run down or out of condition, while the latter recoups himself on a grass range. Often the cock of the breeding pen is not well nourished. His gallantry and the fear of getting his wattles nipped make him stand back until the greedy hens have about cleaned up the food, or at least all the appetizing portions. He should be fed a little meat by himself. Grain and green feed should always be accessible to the fowls. This prevents any danger of over-eating, as fowls are pretty sure to do if allowed to get very hungry, which tends to indigestion and crop-bound birds. Keep the grain in clean litter or coarse sand, the green feed, such as cabbage and chard, may be hung up securely out of the dirt. Of course growing greens are best for the pens if one can give the necessary space, but all poultry raisers are not able to do this, and the greens and exercise must be furnished the breeding stock. Give a little cooked, lean meat, chopped and mixed with bran two or three times a week, but allow no other mashes; instead feed sprouted oats or barley. Cut out all egg foods, tonics, medicines and forcing foods. The fowls must be well nourished on good wholesome food.

Gather the hatching eggs twice a day and keep them in a cool place covered with a clean cloth to prevent evaporation, but do not keep them too long. Two weeks should be the limit, and one week or less would be better.

Keep the chicks warm, clean and busy; keep them growing! If there comes a time when they seem to be at a standstill and their happy chirp is changed to a doleful "yap, yap," be sure something is wrong—something neglected, something undone or overdone—and you are at fault.

This is also the time to make provisions for green feed in the season ahead which is dry and barren. An abundance of tender succulent greens is of first importance for the quick and vigorous growth of chicks no less than for the well-being of mature fowls and the filling of the egg basket. For the dry season on the coast, the best crops to grow for this purpose are mammoth kale, mangel wurtzel, yellow sugar beets and Swiss chard. With rich soil and thorough cultivation all of these may be grown with little or no water. The outside leaves may be constantly broken off and others will continue to grow, while the roots of the beets are excellent for yarded fowls to peck at. Field carrots are also fine for this purpose and easily grown. Alfalfa is good green food, but it cannot be profitably grown in all localities and to be of use to poultry it requires more water than any of the plants named. If one has the space to grow wheat for winter use in the scratching sheds nothing is better. A bundle thrown in daily keeps the fowls busy, healthy and happy scratching out the grain, and the straw makes fine litter. The great secret of success with yarded fowls is to keep them busy. Idleness in the poultry ward as elsewhere tends to mischief. If the fowls have nothing to do but stand around and wait for the handful of grain or mash to be thrown to them, they are pretty sure to get out of condition and into the bad habit of feather pulling, egg-eating and the rest; but give them mellow soil to roll in and clean litter to scratch among and something therein to reward their search, with fresh roots to peck at between times, and they will be healthy, happy, moral birds, and birds that pay because they lay.

Poultry Notes.

THE HEN ABROAD.

In Ireland the poultry products amount to some twenty million dollars annually, and are equal in value to those of the pig, bacon, horses and sheep combined.

The wholesale value of the eggs and poultry consumed in the United Kingdom annually is estimated to be over one hundred million dollars.

The Secretary of State for Scotland appointed last July a departmental committee on poultry-breeding in the Highlands and islands of Scotland. "When the committee report appears it will be the first official record of the kind dealing with the poultry industry in any country and marks an important step in advance that cannot fail to have a wide influence."

"THE MERCIFUL MAN IS MERCIFUL TO HIS BEASTS."—The poultryman or farmer who can enjoy a good dinner and a comfortable bed knowing that his stock are standing in filth and water, shivering in drafty, leaky barns and sheds or entirely shelterless, and eating their scant and musty retions out of slime and filth, is no man at all. Yet how many, alack, are doing just that. Make a tour of inspection of the poultry quarters and the barns and barnyards these days of rain and slush and say if dry, clean, comfortable housed stock and poultry are not the exception instead of the rule! It may be said in excuse that this is an exceptional rainfall. Very true; yet we have much rainy weather each winter and the conditions remain the same. In the first place, poor judgment is too often exercised in locating the stock buildings. The desire to have them conveniently located overruling points of even greater importance. Such buildings should always occupy as high and well drained spots as possible. Even if this places them at a less convenient distance, it will prove more convenient in the end, and will be vastly more healthful for the stock and more profitable to their owner. Should no such location be obtainable, much may be done by banking, draining and filling in with sand and gravel to make low places dry and sanitary; barns and poultry houses may be battened, roofs patched, eave drippings conducted away, and floors raised well up above the ground and tightened. This with feed kept dry and from the contamination of mice and other pests and fed in clean mangers, troughs, etc., with more attention to the removal of the manure and droppings than at other times, will insure the comfort and health of poultry and other stock through the most severe and protracted storms, and at no great outlay. Ill-fed stock crowded into filthy and drafty quarters become veritable plague spots. No one has a right to keep more stock than he can comfortably house and care for. It is unkind, it is wicked, and—most weighty of all with some—it doesn't pay!

POULTRY STIMULANTS.—In the recent meeting of the Poultry Keepers' Association at Petaluma, the George Bros., who conduct two of the largest and most successful poultry plants in that great poultry center, were called on for points in regard to stimulants for fowls. They advised every poultryman to get a good supply of the very strongest brand of ginger—and take it themselves! "then let it work out into painstaking, business-like care of the fowls."

This advice covers neatly and completely the subject of poultry stimulants.

YEAR OF THE COCK.—In China and Japan the year 1909 is the "year of the cock," says the Chicago News. It is regarded as a lucky year and is symbolized by a cock sitting on a drum. It is believed by the Japanese that the cock has five virtues: His comb represents civilization and his strong feet denote military power. When he meets an enemy he fights well, thus demonstrating courage; when he finds food he calls friends, thereby showing himself kind and helpful. He keeps watch for the dawn, thus proving himself faithful.

An incubator company has got out a "fireless brooder," but not a heatless one. The warmth is supplied by hot water protected by an asbestos insulator on the same principle as the fireless cooker.

FOR SALE—A J. I. Case Threshing Machine, with bean and pea attachment; 28-inch cylinder, 52-inch rear. Has been used only two seasons. Call or address
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Send for **price list** and **free booklet.**
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RANCHO LOS ENCINAS
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POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

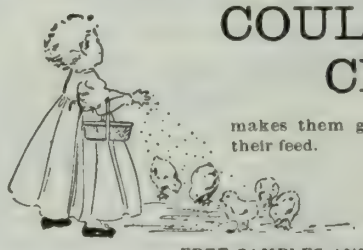
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BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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makes them grow. Throw it in the litter and let them work for their feed.
It contains the best quality of everything they require for first six weeks, **except grit.**
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BILLE'S GOPHER POISON
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LOS ANGELES, CAL.
Makers of the celebrated WEST COAST POULTRY FOODS.

The Home Circle.

Spring Time Memories.

Oh, say does the cottage yet peer from the shadow
Of ancestral elms on the side of the hill?
Its doorway of woodbine that looked to the meadow
And welcomed the sun as a guest on the sill;
The April-wing'd martin with garrulous laughter—
Is he there where the mosses were thatching the eave?
And the dear little wren that crept under the rafter,
The earliest to come and the latest to leave?

Oh, say, is the hawthorne the hedge-row perfuming
Adown the old lane? Are the willows still there,
Where briery thisksets in springtime were blooming
And breathing their life on the odorous air?
And runs yet the brook where the violets were weeping,
Where the white lily sat like a swan on the stream,
While under the laurel the country boy sleeping
Saw only the glory of life in his dream?

—G. W. Dewey.

Buying a Place.

We were all the time at work in some way improving our little place. "Some day we will buy it," said Euphemia. We intended to have some wheat put in in the fall and next year we would make the place fairly crack with luxuriance. We would divide the duties of the farm, and, among other things, Euphemia would take charge of the chickens. She wished to do this entirely herself so that there might be one thing that should be all her own, just as my work in town was all my own. As she wished to buy the chickens and defray all the necessary expenses out of her own private fund, I could make no objections, and indeed, I had no desire to do so. She bought a chicken book and made herself mistress of the subject. For a week there was a strong chicken flavor in all our conversation.

This was while the poultry yard was building. There was a chicken house on the place, but no yard, and Euphemia intended to have a good big one, because she was going into the business to make money.

"Perhaps my chickens may buy the place," she said. And I very much hoped they would.

Everything was to be done systematically. She would have Leghorns, Brahmas and common fowls. The first because they laid so many eggs, the second because they were such fine big fowls, and the third because they were such good mothers.

We will eat and sell the eggs of the first and third classes," she said, "and set the eggs of the second class under the hens of the third class."

"There seems to be some injustice in that arrangement," I said, "for the first class will always be childless, the second class will have nothing to do with their offspring, while the third class will be obliged to bring up and care for the children of the others."

But I really had no voice in the matter. As soon as the carpenter had finished the yard and had made some coops and other necessary arrangements, Euphemia hired a carriage and went about the country to buy chickens. It was not so easy to find just what she wanted, and she was gone all day. However, she brought home an enormous Brahma cock and ten hens, which number was pretty equally divided into her three classes. She was very proud of her purchases, and indeed, they were fine fowls. In the evening I made some allusion to the cost of all this carpenter work, carriage hire, etc., besides the price of the chickens.

"Oh," she said, "you don't look at the matter in the right light. You haven't studied it up as I have. Now, just let me show you how this thing will pay if carried on properly." Producing a piece of paper covered with figures, she continued: "I begin with ten hens—I got four common ones because it would make it easier to calculate. After awhile I set these ten hens on thirteen eggs each; three of these eggs will probably spoil—that leaves ten chickens hatched out. Of these I will say that half die, that will make five chickens for each hen. You see I leave a large margin for loss. This makes fifty chickens, and when we add the hens, we have sixty fowls at the end of the first year. Next year I set these sixty and they bring up five chickens—I am sure there will be a larger proportion than this, but I want to be safe—and that is three hundred chickens, add the hens and we have three hundred and sixty at the end of the second year. In the third year, calculating the same way, we shall have twenty-one hundred and sixty chickens; in the fourth year there will be twelve thousand nine hundred and sixty, and at the end of the fifth year, which is as far as I need to calculate now, we shall have sixty-four thousand and eight hundred chickens. What do you think of that! At seventy-five cents each—a very low price—that would be forty-eight thousand and six hundred dollars. Now, what is the petty cost of a fence and a few coops by the side of a sum like that?"

"Nothing at all," I answered. "It is lost like a drop in the ocean. I hate, my dear, to interfere in any way with such splendid calculation as that, but would like to ask you one question."

"Oh, of course," she said, "I suppose you are going to say something about the cost of feeding all this poultry. That is to come out of the chickens supposed to die. They won't die. It is ridiculous to suppose that each hen will bring up but five chickens. The chickens that will live out of those I consider as dead will more than pay for the feed."

"That was not what I was going to ask you, though of course it ought to be considered. But you know you are only going to set common hens, and you do not intend to raise any. Now, are those four hens to do all the sitting and mother work for five years and eventually bring up over sixty-four thousand chickens?"

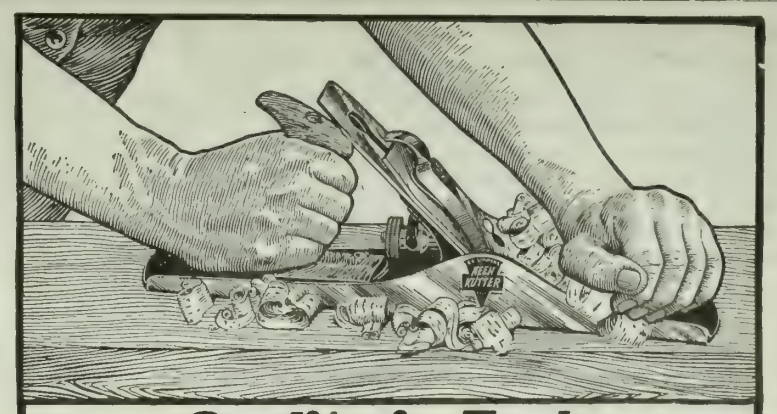
"Well, I did make a mistake there," she said, coloring a little. I'll tell you what I'll do, I'll set every one of my hens every year."

"But all those chickens may not be hens. You have calculated that every one of them would set as soon as it was old enough."

"Two heads are better than one, I see," she said directly. "I'll allow that one-half of all the chickens are roosters, and that will make the profits twenty-four thousand three hundred dollars—more than enough to buy this place."

"Ever so much more," I cried. "The place is ours!—Frank R. Stockton in Rudder Grange.

Some one has figured out that the years ending in the figure 9 are always prosperous ones in the United States; 1909 ought to be a hummer.



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Women in the World's Work.

A woman is a successful farmer in the island of Bermuda, and from the products of 12 acres is educating her three children in New York. She raises lilies, onions, sago palm leaves and bananas. Her most profitable crop is the dwarf banana, the only kind which will stand the high winds of the islands. Her banana crop nets her $400 to $500 per acre.

At the six hour session of the Commission for the Betterment of Country Life which was recently held at Boston, Mrs. G. S. Ladd of Sturbridge, Mass., talked about the conditions existing in the average country home. She maintained that there should be courses of domestic science in all schools and that the work in agricultural colleges should be extended so as to include topics on farming and home life of interest alike to boys and girls. She contended that the tendency is to educate the children away from the farm rather than to fit them for it.

Miss Kate Gilmore, stewardess of the Sardonia which was destroyed by fire a short time ago at Malta, is the only woman who has ever received a Lloyd's medal for life-saving at sea. Miss Gilmore refused positively to quit the ship until all the women and children had been taken off. By her coolness and courage many lives were saved that might otherwise have been lost.

Mrs. Nancy C. Bush, postmistress at Charlotte, Vt., has just celebrated her 78th birthday. She has been in the postal service for 38 years, beginning as a telegraph operator and assistant postmistress. In a petition signed by almost every person in Charlotte, Pres. Grant appointed her postmistress in 1875. Her office is said to be a model of neatness and her accounts are always accurate to the last cent. She has never had a clerk and she superintends one sub-station and two carriers, besides attending to an extensive money order business and the regular duties of postmistress.

Miss Helen Summers is the only woman regularly employed by the U. S. labor bureau to collect information on the subject of women in industry. She is a graduate of Wellesley College and recently took her degree of Ph.D. at the University of Wisconsin, the subject of her thesis being the labor movement of the United States between 1827 and 1837.

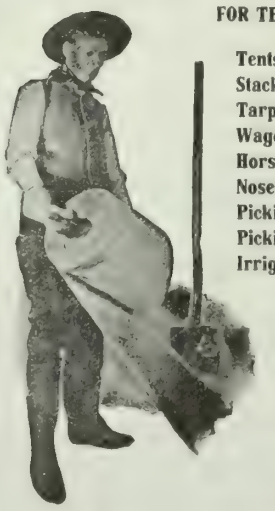
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Miss Summers has just finished a report of equal sufferage in Colorado.

Counsel (to the jury)—The principal fault of the prisoner has been his unfortunate characteristic of putting faith in thieves and scoundrels of the basest description. I have done. The unhappy man in the dock puts implicit faith in you gentlemen of the jury!—Tit-Bits.

"In what condition was the Patriarch Job at the end of his life?" asked a Sunday school teacher of a quiet looking boy at the foot of the class.

"Dead," calmly replied the quiet looking boy.—Illustrated Bits.

"How did that man get the reputation of being such a profound thinker?"

"By talking on subjects that nobody understands and thereby avoiding the chance of having his arguments definitely refuted."—Washington Star.

"So he has ceased to be her ideal?"

"He has."

"What disgraceful thing did he do?"

"Married another girl." — Louisville Courier Journal.

THE MARKETS.

San Francisco, March 10, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

While there has been some weakness in the Eastern markets, the local situation continues strong, with a further advance in California and Northern Club. There has been quite a strong demand during the greater part of the week, and large quantities are coming in from the Northern ports, though just at present the buyers are not so urgent. Supplies, however, are light, practically all the arrivals now being from Oregon and Washington.

California White Australian	$2.00	@2.15
California Club	1.90	@1.95
California Milling	1.95	@2.05
California lower grades	1.65	@1.80
Northern Club	1.90	@1.95
Northern Bluestem	2.00	@2.15
Russian Red	1.87½	@1.90
Turkey Red	1.97½	@2.10

BARLEY.

While the receipts have continued of fairly large volume, the spot demand for all grades is improving, and considerable interest is taken in futures, bringing higher prices all around. There has been some movement of the brewing and shipping grades, which are quoted up to $1.50, and feed is moving freely at $1.45, though any advance above that fails to find buyers. Chevalier has a wider range.

Brewing	$1.47½	@1.50
Shipping	1.47½	@1.50
Chevalier	1.55	@1.70
Good to choice Feed, per ctl.	1.43¾	@1.47½
Common Feed	1.37½	@1.42½

OATS.

The oat market here continues very quiet and uninteresting. The high prices have cut off a large part of the usual demand, and the movement is very small, while the scarcity in primary markets causes prices to be firmly maintained at the figures formerly quoted. Arrivals are light, and Northern shippers are very scantily supplied.

White, per ctl.	$1.85	@2.00
Gray	Nominal	
Red, seed	1.85	@1.90
Feed	1.65	@1.80
Black, seed	1.65	@2.00

CORN.

Western White is a little easier, but otherwise there is little feature to the market, stocks being small and business quiet. A little California small round yellod is offering, but other grades of California corn are entirely nominal. Prices are firmly held as quoted.

California Small Yellow	$1.80	@1.85
Western State Yellow		1.65
Mixed, in bulk		1.58
White, in bulk		1.64
Egyptian White		1.80

RYE.

The small remaining stock of rye has been cleaned up at the price last quoted, and the market is entirely bare, the prices having failed so far to bring out additional offerings.

Rye	Nominal.

BEANS.

The bean market remains in about the same condition as before, with firm prices and little trading. Stocks on hand are not very heavy, except in lima beans, which are more plentiful than usual at this season, though a large quantity was shipped last month. The growers are not inclined to sell at the present prices, but under present conditions it seems impossible to get any advance. White beans and bayos remain very strong, the latter being a little higher, with limited supplies.

Bayos, per ctl.	$3.25	@3.35
Blackeyes	3.00	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.75	@1.90
Small Whites	5.00	@5.35
Large Whites	4.25	@4.35
Limas	3.60	@3.80
Pea	5.25	@5.35
Pink	2.50	@2.70
Red	5.25	@5.50
Red Kidneys	3.25	@3.50

SEEDS.

No further change is reported in seeds, though alfalfa is now in general demand and higher prices are expected at any time. The movement of other descriptions is increasing to some extent, but presents no unusual feature.

Alfalfa, per lb.	17	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

Trading is now confined to narrow limits, the demand even for local trade being very light, and it is generally considered that no further advances can be made. While the only buying is for immediate needs, the millmen are still holding firmly to the present quotations.

Cal. Family Extras	$6.00	@6.60
Bakers' Extras	6.00	@6.25
Superfine	4.80	@5.10
Oregon and Washington	5.00	@5.75

HAY.

The hay market has been more active this week, with an increased demand, while the arrivals show a decrease. The largest buying is in the country, and inquiries have been received from many places which seldom buy in this market. The opinion still prevails that there will be a further advance in prices, but that there will be hay enough to last through the season. Alfalfa is considerably weaker, as the demand from the dairymen has fallen off, and arrivals from the San Joaquin are large.

Choice Wheat, per ton	$23.00	@26.00
Other Grades Wheat		22.00
Wheat and Oat	22.00	@25.00
Tame Oat	21.00	@25.00
Wild Oat	20.00	@24.00
Alfalfa	15.00	@19.00
Stock	15.00	@19.00
Straw, per bale	60@	85c

MILLSTUFFS.

Another lot of bran has come in from Japan without any effect on the market. With only moderate requirements and adequate supplies on hand, there is no advance locally, though the Northern millmen have raised the price on bran, shorts and middlings 50 cents, giving a firmer tone to this market. Other feedstuffs are steady and unchanged.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	30.00	@31.00
Shorts	31.00	@32.50

VEGETABLES.

Yellow onions remain steady at former prices, though supplies are now sufficient for the current demand, and some offgrade stock is moved at concessions. Green onions are easier. Arriavls of asparagus have shown a marked increase, though with a larger demand, both locally and from other markets, the prices have not declined very sharply. Rhubarb is also plentiful and lower. Peas are easy, while green peppers are a little higher. Tomatoes are lower. Vegetables from the South are rather quiet, owing to the larger supplies from around the Bay.

Onions, yellow, per ctl.	$ 1.75	@2.00
New green, per box		75c
Garlic, per lb.	10	@12½c
Green Peas, per lb.	8	@12½c
Cabbage, per ctl.		1.50
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, per crate	1.25	@1.50
Green Peppers, per lb,	20	@30c
Cauliflower, doz.	65	@75c
Celery, doz.	40	@50c
Asparagus, per lb.	6	@11c
Rrubarb, per box	1.50	@2.50

POULTRY.

Arrivals of Eastern poultry are slightly in excess of last week, but the market has been kept well cleaned up, and the demand continues brisk for all good offerings. Only a few coops of California chickens have arrived, and these have been cleaned up at good prices. Prices in general rule about as last week, hens and broilers being a little higher. A lot of dressed turkeys which arrived early in the week was closed out at 22 cents, but new turkeys are arriving.

Broilers	$ 6.00	@7.00
Small Broilers	5.00	@5.50
Fryers	7.00	@7.50
Hens, extra	8.00	@10.00
Hens, per doz.	6.50	@7.00
Small Hens	5.50	@6.00
Old Roosters	4.50	@5.00
Young Roosters	7.50	@8.00
Young Roosters, full grown	8.00	@9.00
Pigeons		1.50
Squabs	3.00	@3.50
Ducks	7.50	@8.00
Geese		2.50
Turkeys, live, per lb.	Nominal	
Turkeys, dressed, per lb.		22c

BUTTER.

There is no storage or Eastern stock offering at present, but with increasing arrivals of fresh butter the market has shown an easier tendency all week. The demand on the street has been fair, but little trading has been done on the Exchange for several days. Extras are 2½ cents lower, and firsts 2 cents, though seconds are a little higher. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	32½c
Firsts	32 c
Seconds	31 c

EGGS.

There has been a little fluctuation in eggs during the week, with slightly higher prices part of the time, but present figures are the same as last quoted. The production is heavy, and arrivals are fairly large, but the demand prevents any great accumulation. Prices are rather higher than they would otherwise be on account of the competition of some dealers to get stock for storage, though little is being stored at present.

California (extras), per doz.	22 c
Firsts	21½c
Seconds	21 c
Thirds	20½c

CHEESE.

Cheese continues to receive comparatively little interest, and while there has been an advance of 1 cent in fancy new flats, everything in the way of new California cheese is weak. New Y. A.'s have declined 1 cent. Oregon stock, however, is strong, with slight advances on new and storage flats.

Fancy California Flats, per lb.	15 c
Firsts	14 c
New Young Americas, fancy	15 c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Cal. Flats	18 c
New York Cheddars	17½c
Storage, Oregon Flats	15 c

POTATOES.

The feature locally is the dispute between some of the larger dealers regarding the question of surplus or shortage The market at present, however, is by no means overstocked, and with supplies firmly held prices are higher on river, Salinas and Oregon Burbanks. The retail trade shows no disposition to limit its purchases, and the movement is about up to the average. Sweet potatoes are higher.

River Whites, ctl.	$ 1.25	@1.50
Lompoc Burbanks, ctl.	1.85	@2.00
Salinas Burbanks, ctl.	2.00	@2.10
Oregon Burbanks, ctl.	1.70	@1.90
Sweet Potatoes, ctl.	1.75	@2.00

FRESH FRUITS.

A lot of grapes from Spain, packed in cork dust, have arrived in this market, and are offered at 30 cents per pound. Apples, with the exception of fancy offerings, are quiet, though there is some demand for the best lots, both locally and for shipment.

Apples, fancy	85c	@1.75
Apples, common	60	@85c
Pears, box, Winter Nells	1.50	@1.75
Other varieties	75c	@1.00

CITRUS FRUITS.

There is a more liberal movement of oranges this week, and while receipts are still large, somewhat higher prices are obtained for fancy navels. Grape fruit, however, is fairly plentiful and lower. Very few limes are coming in, and the market is firm at an advance. Lemons are unchanged.

Choice Lemons	$2.00	@2.50
Fancy Lemons	2.75	@3.00
Standard	1.25	@1.50
Limes	7.50	@8.00
Oranges—		
Fancy Navels	2.25	@2.50
Choice	1.75	@2.00
Tangerines	75c	@1.50
Grape Fruit	2.75	@3.00

DRIED FRUITS.

While buying for the Eastern market is not of a speculative nature, the demand for immediate consumption has been increasing of late, and nearly all fruits are moving in larger quantities. Prices in general ar einclined to ewakness at the moment, but some advance is looked for before long. Moderate shipments are going forward all the time, and stocks here are well cleaned up for this time of year. Prunes have been moving well, and the Eastern demand for peaches is increasing. The packers are buying about as usual in the growing districts, and quote the prices given below on their purchases. Raisins are quiet both here and in the East. The growers show a disposition to hold back their remaining stocks for full quotations, and packers are apparently takink little interest in their offerings.

Evaporated Apples	4	@5¼c
Figs, black	1	@2c
Figs, white	1	@2½c
Apricots	6	@9c
Peaches	2½	@3½c
Prunes, 4-size basis	2c base	
Pears	2½	@3 c

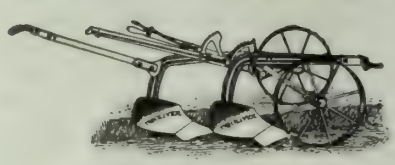
RAISINS.

Loose Muscatels, 4 crown	2½c
3 crown	2¼c
2 crown	1¾c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

The nut market is now quiet in all departments, little interest being taken in either almonds or walnuts by buyers for outsdie markets. While the almonds are rather closely cleaned up, the packers show no anxiety to buy at present, and it is doubtful if full quotations could be realized. The growers have disposed of most of their walnuts, but the market is well supplied.

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Almonds, Nonpareils	11 c
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Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

This market continues dull and without interest, offerings from growers receiving little attention either here or in the East. Local dealers are amply supplied, while the movement in the retail trade is unusually light.

Comb, lb.	10 @13 c
Water White, extracted	7¼ c
White	6¼ @ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Theer is very little movement in the local market, the last crop being well cleaned out of growers' hands. A few contracts tre being made at the appearing range of quotations. Contracting is lively in Oregon, where some business is being done at 10½ cents.

Hops, per lb.	6@ 10c

WOOL.

The prices given on the fall clip are practically nominal, as most of it has already been shipped. As California wool is receiving little attention in the East at present, the opening prices on spring wool are expected to be rather low.

Red Bluff (f. o. b. Red Bluff) free	7 @ 9 c
Defective	less 2 c
San Joaquin (at S. F.) free	5 @ 7½c
Defective	4 @ 6 c
Mendocino, free	7 @10½c
Defective	6 @ 8 c
San Joaquin, spring clip	12 @14 c

MEAT.

Sppplies are rather more plentiful, particularly of mutton, veal and lamb, and prices on dressed meats generally are a little lower. Dressed hogs, however, are firm at a slight advance.

Beef: Steers, per lb.	8 @ 8½c
Cows	7 @ 8 c
Heifers	7 @ 8 c
Veal: Large	8½c
Small	9½ @10½c
Mutton: Wethers	9½ @10½
Ewes	9 @ 9½c
Lambs	11½ @12 c
Spring Lamb	14 @14½c
Hogs, dressed	9½ @11½c

LIVESTOCK.

Steers, No. 1	5¼ @ 5½c
No. 2	5 c
Cows and Heifers, No. 1	4 @ 4½c
No. 2	3½ @ 3¾c
Bulls and Stags	2½c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5½ @ 6 c
Ewes	5 @ 5½c
Lambs, lb.	6½c
Hogs: 100 to 150 lbs.	6¾c
150 to 250 lbs.	6¼c
250 to 325 lbs.	6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., March 9.—The orange market is steady but rather low. That it should be even steady is surprising when the heavy shipments from California and the very bad weather East is considered. This is partly accounted for by the fact that Floridas are now cleaning and only the rag-tag and bobtail of the Florida stock is now available. Also apples are the highest in years, Baldwins selling as high as $6 a barrel in New York city.

The navels have not been showing very good keeping qualities as a rule, and this applies forcibly to the stuff picked during the late rains. It is known that this kind of stock will decay quickly, but nevertheless the growers insisted upon their being picked, and really in some localities there was some excuse for it, as there is a heavy increase in navel production this year in spots and the packing facilities available will hardly be able to handle the output when running daily to a full capacity. Also sizes will be large in these same places and large sizes are already being discounted at the other end. Of course the longer on the tree the bigger the fruit will grow, and it was probably good judgment to pick the big ones as early as possible. A great deal of complaint is being heard regarding the frosted stock that has been going out ever since the freeze of November. It is really a shame to ship such stock, but there is no law against it, and it brings some money, so the name of California and the reputation of her oranges are both hurt by this marketing of stock that was "frostkist" as well as sun kissed.

THE MOST IMPORTANT FARM MACHINE

THE MANURE SPREADER

Are you Saving Money, or are you Losing it by being without One?

You believe that money spent for a mowing machine or a binder is well invested. Still you use these machines only a few days in the year.

You use the hay rake, because it saves you time and labor.

These are valuable machines. They are now counted indispensable by most farmers, even though they stand unused over eleven months in the year.

But a manure spreader is a still more valuable machine Its purpose is to keep up the fertility of the soil. It is the machine you use *all seasons*, and the one on which the real usefulness of all your other farm machines depends.

If you have not already done so, you should consider now the advisability of having an I. H. C. manure spreader on your farm.

You will have choice of three different spreaders in the I. H. C. line—the Cloverleaf, endless apron spreader, the Corn King, return apron spreader, and Kemp's 20th Century, a return apron spreader. Each of these spreaders handles the manure in all conditions perfectly and will give you long satisfactory service.

These spreaders are not ordinary. Their frames are made of air dried wood stock. They have serviceable, tractive power producing wheels, beaters that are unsurpassed for tearing the coarsest manure into the smallest pieces and applying it uniformly, aprons that deliver the manure to the beater with the least possible friction and in a uniform manner. Any one of these machines will, if given proper care, last a lifetime.

The labor of spreading manure is greatly lessened by using one of these I. H. C. spreaders. Not only is the labor lessened, but it is changed into agreeable work.

But the strongest reason for using an I. H. C. spreader is the increased value you get out of the manure. The best authorities agree that manure spread by an I. H. C. spreader has at least double the value of manure spread by hand.

The I. H. C. spreaders pulverize and make the manure fine, and spread it evenly over the ground just as thick or as thin as may be required. The manure is placed upon the ground in a condition that is at once available for plant life. All is washed by the first shower into the soil—none is wasted.

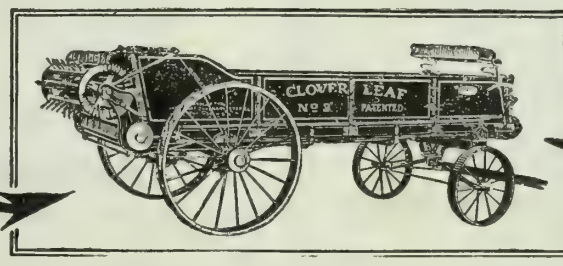
The good effects upon the crop are immediate and the permanent benefit to the land is greater than when the manure is spread by hand. There is no question but that land manured by an I. H. C. manure spreader will give an increased yield of from two to ten bushels per acre over land where manure is spread by hand.

Consider the labor saved, the more agreeable work, the better crops, the more fertile condition of the land—is not an I. H. C. manure spreader the machine you should have?

Are you not losing money instead of saving money by being without one?

Call on the International local agent and investigate one of these machines. He will supply you with catalogs and particulars, or if you prefer write nearest branch house.

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The importers are bringing over a very large amount of lemons and it is hard to see what object they can have. The market is certainly all shot to pieces and it would seem that they are losing on every sale. There are now 114,000 boxes of Sicily lemons available, afloat at docks and in storehouses, as against 107,000 last year and 105,000 in 1907. California shipments are running about 25 cars a day and this is heavier than market conditions would ordinarily warrant, but there is so much fully sized and tree ripened stock on hand that some disposition will have to be made of it and it is likely that it will continue to go out as long as it brings prices anywhere above "red ink."

The citrus fruit shipments for the past few days have been as follows: Thursday, 198 and 24; Friday, 204 and 25; Saturday and Sunday, 235 oranges and 24 cars lemons; total, 9321 oranges and 1628 cars lemons; to same time last year, 8715 oranges and 1568 lemons. Cash asking prices at this end are about at an average of $1.70 for oranges and $1.50 for lemons. This is spot cash and f. o. b. prices are 15 cents higher.

PUBLISHER'S DEPARTMENT.

We wonder how many of our readers have sent for the book on animal diseases advertised by Albert T. Roche in the Stock Department. The book is well worth sending for.

Apparently the special articles appearing in the PACIFIC RURAL PRESS from week to week are very timely and interesting. We judge this to be a fact from the number of calls we are having for extra copies. Last week the editorial on Luther Burbank and the first page article on Hogs in California caused an unusual demand. Our first page article on dates in this issue is another valuable one of the list we have been having from week to week on our first page. In the next issue we expect to have a very timely Good Roads article by Prof. F. T. Bioletti, illustrated with good roads scenes from France. Read the PRESS this year if you want to keep posted on the newest and best in Western farm life.

The National Wood Pipe Co. of Los Angeles, writes us that it has recently secured the following list of good contracts: For the Southern Pacific Railway at Santa Barbara, 6000 feet of 6-inch machine banded redwood pipe, to be used in salt marshy ground; for the Ash Meadows Water Company, Rhyolite, Nev., 20,000 feet of 6-inch pipe; the Grand Canyon Electric Light & Power Co. of Williams, Ariz., will use 15,000 feet of 4, 6 and 8-inch pipe of this firm for the water system being installed; and at Newport Beach, Cal., the LaHabra Valley Land & Water Co. have contracted for 12-inch 200 feet head machine banded redwood pipe.

GEO. C. ROEDING'S NEW BOOK.

"California Horticulture. The Fruit Growers' Guide," meets with pronounced success. The demands for copies of this werk is increasing. Orders are coming from all parts of the country. It is a very exhaustive publication. Describes fully 2000 different varieties of trees and plants. Is superbly illustrated and contains much valuable information to planters. Copies may be had by sending 25 cents in stamps to George C. Roeding, President Fancher Creek Nurseries, Fresno, Cal.

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Feeling that true merit should be recognized, I want to give my experience with Gombault's Caustic Balsam. A month ago one of my horses gave every indication of having a fistula. I was told that his case was incurable, but sent for a bottle of Gombault's Caustic Balsam and applied it per directions. The case yielded to the treatment from the first, and the horse is now entirely cured.—C. T. GREATHEAD, Tancred, Cal.

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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

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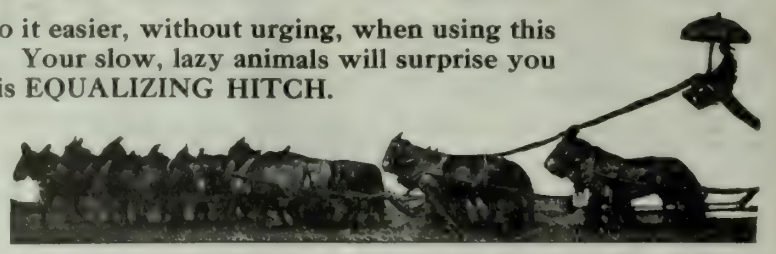
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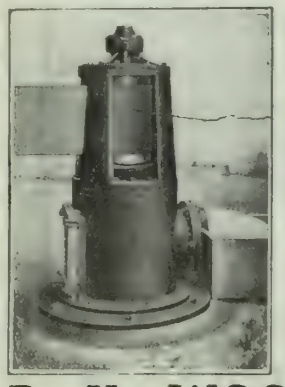




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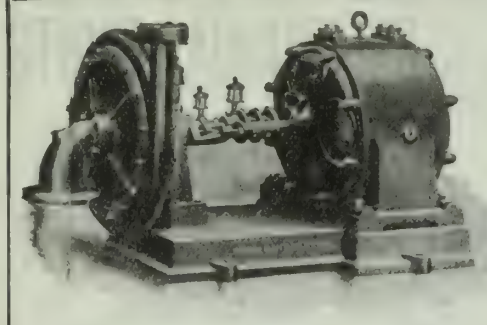


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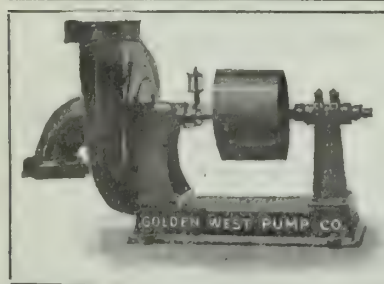
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The enormous rain storms of the past weeks have been great producers of fungi on the growing fruit trees of the Pacific Coast. More than ever will it be necessary between now and the time that the buds open, for the orchardist to spray his trees with lime and sulphur solution in order to prevent Curl Leaf and Twig Borer on his peach and almond trees, and Scale and Fungi on the other trees. The vines should also be sprayed to prevent Mildew, Rust, Thrip and the other insect pests incidental to moist weather. The California Rex Spray Company, at Benicia, Calif., are prepared to furnish the celebrated REX LIME & SULPHUR SOLUTION in any quantity on short notice.

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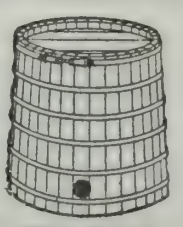
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 12. SAN FRANCISCO, SATURDAY, MARCH 20, 1909. Thirty-ninth Year.

The Grape Growers' Interest in Good Roads.

Written for the PACIFIC RURAL PRESS
By Prof. F. T. BIOLETTI.

California produces at least 750,000 tons of grapes. These grapes have to be hauled to wineries, packing houses and railways. The average cost of hauling will not be far from $1 per ton. If we add to this the cost of hauling the by-products and the supplies of vineyards and wineries, the total cost of hauling, to the grape growers, will be seen to exceed $1,000,000 annually. Good roads would save more than half of this.

The average load per horse in California is about one ton when the roads are good, much less when the roads are bad, and almost nothing for several months in the year in many localities. When the roads are passable, four puncheons of wine is considered a load for a wagon with four horses.

In the south of France, where the roads are always good, two horses will haul five puncheons on level roads and four puncheons on ordinary rolling roads, and one horse will haul from two to three puncheons.

With similar roads we could dispense with half of our draft stock and give them the occasional rest in pasture they need. Our bills for horse feed, stable work, harness and repairs would be diminished in proportion. The wear and tear on vehicles would especially be reduced and we could use much lighter wagons for hauling. We could haul more rapidly and at any season of the year, and would not have to feed horses and pay teamsters while we are waiting for the roads to dry up. We would not lose sales by inability to deliver our produce or fail to do certain necessary work because the needed material could not be hauled over impassable roads.



Two Horses Hauling Four Puncheons of Wine Uphill, Weight About 3¼ Tons.

These are not all the advantages of good roads. The pleasure and speed of driving over good roads is worth something. The added value of the land and its superior attractiveness to strangers would be considerable.

The quality and quantity of our crops would also be favorably influenced by better roads. Table grapes jolted over bad roads are shaken loose in the boxes, rubbed from the stems and rendered more liable to the decays and moulds which prevent their getting to the customer in the state of perfection in which they leave the vine. Wine grapes suffer in the same way and more seriously. The berries are broken and much juice may be lost; they become mouldy and covered with dust containing bacteria and flavors which injure the taste and keeping qualities of the wine.



One Horse Hauling Three Puncheons of Wine Uphill, Weight About 2¾ Tons.



Country Road in South of France Showing Careful Grading and Piles of Broken Rock Always Ready for Repairing.

What influence the dust has on the growth of grapes near bad roads, on their blossoming, setting and ripening, we do not know, but it is certainly not favorable.

With all these advantages, the viticultural interests of the State could well afford to contribute $10,000,000 to the establishing of a complete system of good roads, and the investment would be profitable. The cost of maintaining good roads in perfect condition, once they were made, would probably be less than the cost of messing up the mud sloughs and dust trails that we call road repairing now. As an experienced teamster said in his expressive language to a "good roads" meeting: "We have been spending a [remarkable] lot of money to keep some [remarkably] poor roads in [remarkably] bad condition."

It is just this consideration that deters many from supporting the good roads movements. If the proposed expenditures would certainly give us good roads, and if we were certain these good roads would be kept in repair, no reasonable objection could be advanced against them.

We are spending a great deal of money on roads at present. The main reason that we don't get better results is the lack of knowledge, experience and co-ordination on the part of the road builders. Because a farmer has lived fifty years in the community or plays a good hand at pedro it does not follow that he can build or repair a road. In France all the roads are planned and surveyed by the general government, and all the work is done under the supervision of competent trained men. This insures the best grade and surface of which the location and the materials available are capable. When the roads are built, they are kept under constant and close supervision by equally competent and trained men, and no part of any road is ever allowed to get into bad condition. "A stitch in time saves nine." Piles of broken rock are kept on hand, distributed along the sides of the road, and the slightest break or unevenness in the surface is repaired immediately.

Recent legislation may make it possible for us to obtain the good roads we all desire. It is almost impossible for one section to do much without the co-operation of neighboring sections. "A chain is no stronger than its weakest link." One mud hole may render useless miles of good road, and a hundred yards of steep grade may neutralize the ease of hauling over miles of level plain.

We must therefore commence with a well devised general plan and work out this plan under the direction of skilled, trained road builders. From the moment a section of road is finished it should be kept under constant supervision. A macadamized road allowed to get out of order is in many ways worse than an ordinary dirt road, but the expense of keeping a good road in perfect condition all the time is less than we spend on dirt roads to keep them merely passable six or

(*Continued on Page 231.*)

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., March 16, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	T	40.23	35.35
Red Bluff	.00	28.38	19.64
Sacramento	T	20.23	15.59
Mt. Tamalpais	.00	33.60	18.46
San Francisco	.00	23.22	20.65
San Jose	.00	16.36	10.66
Fresno	.00	8.93	7 42
Independence	.00	7.95	7.24
San Luis Obispo	.05	27.56	16.09
Los Angeles	.00	16.70	12.70
San Diego	.00	8.22	8.13

The Week.

Our correspondence, which is a very good measure of agricultural tendencies and movements, clearly indicates the continuance and increase of interest in settlement and investment in California lands which we have noted several times during the past few months. We judge that the favoring railway rates this spring will bring unusual numbers of home seekers and the State will be in fine shape to please them. The drier air and increasing heat is turning the whole State into beautiful stretches of park-like verdure. The thousands of acres of new eucalyptus plantings (of which may heaven favor both the trees and the planters) will give new shades of green to the landscape—without referring at all to the hues of those who are being led into some of these ventures. It is not at all too much to claim that the summer yellows of the plains will be largely reduced by eucalyptus forest plantings which will be delightful to look upon, and will add to the variety already secured by the stretches of fruit trees, vines and alfalfa. The newcomers this spring will find much activity in all kinds of planting and rural building and fencing which is always inspiring and encouraging to people who drop from car steps into new places.

We hear from time to time of the progress of the undertaking to locate people upon 80-acre farms, already supplied with buildings, fences, alfalfa and home fruit plantings, as outlined some weeks ago in these columns. We trust the venture will please all concerned, for it seems a very rational way to proceed. There is room for thousands of such farms on good land in our great interior valleys, and if the new plan really gives people more good land and less hot air, it will be easier for them to make a living and have contentment therewith.

Valley enterprises are in fact now so fully underway that it is fair to expect not a little increase in valley land prices, and the unearned increment will work with those who are not content with just enough land to swing a cat, but desire to have a real farm and not a cemetery lot to bury great expectations in. It is not likely that the valley will get full right away—that will take a generation or two—but it is none too soon to have a thought also of the other lands which invite farmers—we would say small farmers if we were not afraid some one would think we had reference to those polka-dot bandana patches of alfalfa or eucalyptus which promoters are passing off on people as farms. Some one some day will perhaps weave a dozen of these together into a good farm on the rag-carpet principle, and then there will be something agricultural doing. But we are thinking rather of what will supplement this valley development when prices rise. Although we are personally impressed with the superiority of good smooth valley land for farming purposes, all people are not of that opinion; some of them like the small valleys and surrounding billows and breakers of the hills. Fortunately there is plenty of such land available. The coast district north of San Francisco is full of such lands and considerable interest is being manifested in them. We often think of the mountain valleys eastward of the Sacramento valley, which formerly were very prominent in our dairy and meat supplies before the valley alfalfa began to do as much as it does now. This country has been largely repressed by valley development, but its opportunity is coming. The line of the Western Pacific is going to open the vellays and hillsides of Plumas and Sierra counties to quick westward movement of produce, and these lands will no longer be an appendage of Nevada, as they have chiefly been for a score of years. Keep your eye upon that part of the State; it is going to grow and spread its new life over Lassen and Modoc counties also.

As we think not only of these special growths, but of the whole development of the broad area naturally tributary to San Francisco, we are bound to hear complaints that San Francisco is not doing what should be done for the development of her trade with countries around the Pacific. Of course we ought not to claim much right to lecture the metropolis, because we have too much of the rural and too little of the urban point of view, but when we hear that other Pacific ports are cutting San Francisco out of the export trade to Pacific border countries, we cannot help wondering what is the matter. We hope the present generation of San Franciscans is not going to forget the nerve and strength of its fathers whose pride was in the large trading houses of the flat lands and in the nearby wharves and ships. It looks mightily as though something was changing and that San Francisco of today was taking too much delight in fine hotels and clubs. We remember the fathers in the late afternoons laboring still upon invoices and amid an environment of bales, boxes and bags—a time of the day when their sons have already advanced several blocks on the cocktail route. One hundred and forty years ago Portolo looked upon San Francisco bay from the hills back of Oakland. The city properly proposes to celebrate the anniversary of this significant event this autumn, and plans are being laid for it. What a tide of commercial interest would have surged up around such a proposition twenty-five years ago, and what an effort to make the celebration impressive upon the attention of all trade connections. The echoes of the event would have reverberated all around the Pacific ocean. Is there such a definite and concrete purpose discernible now? Perhaps there is, but the chief transaction of the celebration committee which we have noticed is the offer of a prize for the most beautiful women? Is all the vigor of the city going to slump into social delights and ambitions? We hope not. We hope even this suggestion of such a thing is not warranted, but is the result of a glance from an agricultural point of view upon things which we do not understand.

However, we indulged in wonder last week whether the present generation of farmers were not too much a burden upon instituted and organized support and were in danger of losing individuality and initiative because they were being so fully protected and provided for. It is true this it not yet an accomplished fact, but the desirability of it seems to press heavily upon the consciences of some people. We now wonder whether the weakness of the trade forces of San Francisco, if indeed they be weak, which we do not assert, may be owing to the fact that the present generation of trades is too much protected and provided for by virile Eastern organizations and combinations which kindly undertake to think and act for them. The great fire smoked out many of the old parties who might have been active for some time if they had been allowed to go along. There was a sort of involuntary retirement of old men as a by-product of the calamity. There came a chance for a new deal and San Francisco shows up with a hand of jacks and queens instead of kings and aces. Those old captains of industry who labored to build up their firm names and their city's importance and to hold San Francisco as the chief distributing point of the coast have been displaced by representatives of distant concerns, who are all right in their way, but their way is to serve their distant principals. San Francisco only appears to them as a general coast agency, or at most a branch; why should they strive for supremacy as men strove a quarter of a century ago. Look for the old names now on the buildings of the old manufacturing and warehouse district and they are hard to find. Look for their names in the advertising columns of the old and respectable class journals—like the PACIFIC RURAL PRESS, for instance. Aren't they shy? Look back in the files of any of these journals for the printing of a score of years ago. See the pages of announcements of all kinds of manufactures and supplies with San Francisco printed below the firm names—San Francisco the great source of things. All of this means to us that San Francisco just at present is provincial to a degree never before known in her history. It is perhaps the first effect of the setback of the earthquake and fire. It should not long be allowed to remain. There should be some powerful organization to promote local manufacturing and to instill pride of position in the minds of traders. "Made in San Francisco" ought to be stamped upon every manufactured article. "Sold in San Francisco" ought to be stamped upon every invoice and packing case. All reputable journals should be kept well supplied with San Francisco advertising, so that newcomers to the State could read it everywhere and come to know the metropolis not only as the home of the most beautiful women of the world, but as the working place of the most masterful men. If this is not done San Francisco will be cut out—just as sure as there are more such men in our rival towns up and down the coast.

We welcome Mr. Theodore Roosevelt to the guild of journalism. The report is that when he went to the office of his paper in New York to take up his job his first announcement was, "I can give no interviews." Of course he cannot if he wants to make his paper pay; interviews can only be handled at regular advertising rates—that is a prime principle in journalism. We note with

pleasure the new editor's outfit. The account says his headquarters consists of three good-sized rooms, one of which answers the purpose of a combination reception and work room. The second is used by his stenographer and the third is his own. His name appears upon the door of the general reception room. This sounds a little swell, but we expect Mr. Roosevelt will succeed in spite of his surroundings. He could write better stuff from a three-legged stool in the corner of the composing room. Most publishers seem to understand that fact and provide accordingly. Mr. Roosevelt's boss must be new to the business.

Those who are cast down by the rush of country young people to the cities may be consoled that it is a world's way and not a peculiar suffering of this country. A German census just taken shows that the persons engaged in agricultural pursuits, who fifty years ago composed half the entire population, are now little more than one-fourth of the whole. On the other hand, the number of those engaged in manufactures and other industrial callings has increased to more than two-fifths of the total. These figures are discussed with eager interest by economists, who see in the steady exodus from the farms to cities and factory towns a sign that Germany is losing its character as a leading agricultural nation.

This recalls what Prof. John Craig of Cornell said at the Spokane apple show last fall. Alluding to the fact that he saw practically no commercial orchards in Europe, and rather few amateur fruit gardens, he continued. "The German government at this time is making a careful study of apple growing methods in this country. They are bringing the facts home to their own students, and trying to establish in their own colleges the teachings of American methods, but thus far with no results. I do not look for any great increase in the output of apples in Europe in years to come. Their system of orcharding will not be changed." That is no doubt true because these young Germans who go to towns could not possibly get lands to plant trees on, and no money to plant them. They had better come to this country where they can easily do both.

Queries and Replies.

Moving Old Orange Trees.

To the Editor: I have an orange grove in northern California which has been neglected and there are several acres of "skips" where trees have been allowed to die. I can get plenty of seedlings set out about eight years ago, but never budded, nor have they received any attention at all or irrigation since. The trees look green and fairly good now and some of them are as much as two inches through them at about three feet from the ground, some larger and some smaller. Would the fact of neglect and consequent stunting damage the trees for all time; or by being moved, budded and properly cared for and fertilized hereafter could they be developed into good trees? If so would it be best to bud them before they are moved? How are such trees best moved? Where should the buds be inserted—about how high from the ground? How many buds to each tree? Should the tops be cut off before moving them? How should they be planted so as to expect most of them to grow?—Beginner, Butte county.

An orange tree is pretty hard to kill and will live much longer than it is worth having. It is possible to move old orange trees such as you describe by taking them up with as large a ball of earth as you can afford to handle, cutting back the top very severely, moving them at the beginning of the growing season in the spring time. There is no advantage in moving such trees before the ground becomes sufficiently warm to start them immediately upon their growth.

You can bud into the limbs of these old trees during the coming summer, if growth is active enough, or you can bud later into the new growth which is started out by the cutting back, putting in as many buds as you wish to have new limbs for the tree, and working them in near the main forks, in order to secure a low tree. At the same time, it is quite a question whether you would not do better by buying young trees than by attempting such transplanting, which would be expensive even though you got the trees for nothing. Such old trees must be most carefully handled during the first year, with ample water and cultivation until they secure good rooting in their new places.

Summer Growth of Legumes in Olive Orchard.

To the Editor: In a report on the soil in my olive grove last year, I was told that the amount of humus is small.

In order to remedy this I should be glad to know your views upon planting cow peas in April or May next. My idea is to plant the cow peas and keep the orchard furrowed out and irrigated every month, following by the usual cultivation until such time as the growth of the peas would prevent it. Then furrow out for irrigating and leave the furrows open for the rest of the season. I should leave the peas to die in the ground, and plow under the dead vines in the early spring.

Please tell me what you think of this plan. I have tried vetch sown in the autumn, but it was not very much of a success, because the picking and hauling of the olives knocked it about to too great an extent.

If I applied nitrate of soda about the end of March, just as the bloom was beginning to open, would there be any danger of its causing the bloom to drop without setting the fruit? I thought that perhaps the sudden stimulus to growth just at that time might affect the bloom in that way.—Grower, Riverside county.

The answer to your whole communication will turn upon how well the cow pea will consent to grow during your dry season. This you can only determine by trying. As a rule, cow peas do not make good summer growth on uplands, although they may be irrigated. They do pretty well on river bottom lands where there is some moisture in the air even during the dry season. The method you describe would seem to give them every chance to grow, if they are willing to do so, but that has to be determined by experiment.

We should be a little timid about applying nitrate just at the blooming time. It would be more rational to apply it a little later, for it is reasonable to expect that it will cause a sudden stimulus to the growth.

Open Air Mushrooms.

To the Editor: I had a place in my garden in which mushrooms grew well each year until I had the ground broken up to see if I could get better ones, and I got none. What can I do to restore the production, as I liked them better than cellar mushrooms, and am willing to do a good deal to get them back on the land?—Amateur, Fresno.

Your statement about the effect of breaking up land upon natural growth of mushrooms agrees with common experience that agaricus compestris is to be sought on undisturbed land. As for the open-air culture of mushrooms, there is practically none in this country, although pursued to a limited extent in Europe. The reason for this is easily explained. It will not pay to market mushrooms when the supply of gatherings from free field growth is large. The art of growing mushrooms is to have continuous supplies at other times of the year. Therefore practically all cultures are in caves or cellars where proper conditions of heat and moisture can be produced and continued indefinitely.

To realize your plan of restoring field mushroom growth on the lands you have disturbed, sow Australian rye grass and roll the land, if it is of the light soil common around Fresno. This grass will grow and there will come in with it a lot of native grasses and weeds. Let them all grow and die down and make a layer of dry vegetation. Just before the rains come in the fall rake off coarse stems and stuff but leave all fine litter and grass roots. Get some mushroom spawn from the seedsmen and when the fall rains come in good amount, break it up small and scatter thinly over the surface. Do not do this too early in the fall, for you want ample moisture and low heat. If scattered too early, a heat may follow intense enough to kill the spawn. Scatter just in advance of a shower if you can. You may not get a new start of mushrooms the first time, but if your amateur delight warrants you in continuing, you are practically sure to strike it as soon as the ground gets into shape and dead grass roots abound.

The Woolly Aphis of the Apple.

To the Editor: Here in Nebraska we never had any trouble with the woolly aphis. It has been our impression that thorough cultivation and ventilation would render us comparatively immune from woolly aphis; never troubles us to any extent. I have seen injury from it in the upper part of the Pacfiic coast because one nursery that I went into a year and a half ago was full of a weed growth, and it was also pretty well surrounded by orchards and wind breaks. We have not counted on any trouble with woolly aphis, as long as we spray our orchards and give the kind of cultivation which we give, forcing vigorous growth. We believe in an amount of cultivation which will greatly lessen the need of watering, and we are under the impression that an orchard handled under that method is in less danger from woolly aphis than those handled on the other plan, with a good deal of water and lessened amount of cultivation. If this is true, resistant Northern Spy roots are not necessary. What do you think of it?—Reader, Nebraska.

California experiments justify the claim that Northern Spy roots resist the woolly aphis. Such a tree must be secured by a rooting, a cutting or working on roots grown from a cutting and be not simply a Northern Spy seedling root. But, although this has been demonstrated to be the case, very few of the apple trees planted in California are made in that way. The extra cost seems to be such an objection that planters generally take their trees without reference to aphis resistance, while in Australia they claim to produce such trees with little, if any, extra cost to the planters. The woolly aphis is found nearly everywhere in California and is considered a great deal of a pest in large apple growing districts and it is not overcome by cultivation or irrigation, although naturally with good cultivation and irrigation, if necessary, an apple tree grows so vigorously that the aphis injury is relatively of less importance. Such a tree is less effected than a tree which is endeavoring to grow under trying conditions.

California commercial apple orchards are well cared for and this may be one reason why our planters are more regardless of the aphis, but it is working away just the same and there is no doubt but that the profitable age of apple trees is very much reduced by its injuries to root and branch. The top of the tree is protected regularly by spraying, with reference to destruction of the woolly aphis, but the pest is still to be found present on roots, in nearly all parts of the State.

Horticulture.

WHY DO STRAWBERRY PLANTS REFUSE OR CEASE TO MAKE RUNNERS?

We have a line of strawberry lore, partly practical, partly philosophical, which our growers of small fruits may like to study over. We give the chapters in sequence:

[From the PACIFIC RURAL PRESS, Jan. 23, 1909.]

Strawberry Plants and Runners.

To the Editor: Can you tell me how to make strawberry plants brought here from a cold climate produce plants after the first year? The plants brought here produce an abundance of plants, but those plants reset make no runners whatever.—Enquirer, Watsonville.

We never heard of such behavior as you mention, and must doubt the accuracy of your observation. Nearly all the strawberries we are growing in California came from the East, beginning with the Wilson and Longworth Prolific, half a century ago. If plants taken from these original introductions would not make runners, how in the world did we ever get the acreage we now have? There may be something in your immediate locality which represses the plants, but we are quite sure that your conclusions will not stand as a general proposition. Who can explain the matter?

Our Answer Not Germane?

To the Editor: I notice your answer about strawberry plants making runners, in which you seem to doubt the accuracy of my observations in regard to the production of runner plants from the second and third generation of plants coming from the East or from a cold climate. I would state that this does not apply to all varieties of strawberries, as some varieties coming from the East are very prolific producers of plants, while a great many more only produce the first year, the second generation producing few if any. All Eastern varieties produce a great many plants the first year.

What I am interested in more than plants from the East, is a variety I am getting from up in the Sierra near Dunsmuir. For example, five years ago I bought 1000 plants; from those I took 9000 plants and reset them; from those 9000 I got 125; from the 125 I never got a plant. Any light on the subject would be gratefully received.

J. E. REITER.

Watsonville.

An Appeal to Mr. Etter.

When we received Mr. Reiter's letter we concluded we did not know anything about the phase of the subject which particularly interested him and concluded to refer the whole subject to Mr. Albert F. Etter of Briceland, Humboldt county, who has handled many transplanted native species, as his letters to this journal last year fully described. Mr. Etter replied as follows:

To the Editor: I doubt that I can help you in the matter very much with the strawberry question other than to give you my opinion in the matter referred to. It would not seem so difficult to assign the cause as it is to produce a remedy. The question on the very foundation is clearly one of temperament. In plant life we have the vegetative process on the one hand and the fruiting process on the other. That which stimulates one has a tendency to deteriorate the other. Now, in this strawberry proposition, we know that something in the climate of California, possibly also in the soil, stimulates the temperament of many varieties of strawberries that in the East produce but a single crop of fruit, so that they continue to produce fruit for months. This fact in itself is as great a change over to the side of fruitfulness in temperament as the lack of runner-producing capacity varies from the normal vegetative temperament.

If this can be accepted as true, the failure of the California-grown set to make runners, while the one brought from the East will do so, brings the problem to where there is but one rational conclusion: the vegetative temperament of the Eastern-grown plant is retained, or at least not seriously impaired by California environment, while the home-grown plant, even from the very start, is influenced and drawn over to the fruit-producing temperament and the vegetative powers of the plant greatly impaired or obliterated entirely.

In the animal kingdom we have an analogy, as is well illustrated, by high nutrition. We can change the temperament of young heifers of milk-producing type so as to seriously impair their future milk-producing qualities. This does not hold absolute, but there are cases, just as we find with certain varieties of strawberries. Some are affected and some are not.

As regards a remedy in this strawberry problem, it would seem rational to suppose that treatment would consist in bending our energies to develop the vegetative process to overcome as far as may be the stimulating influence of California climate toward over-development of the fruiting process.

This would suggest a treatment of an abundance of nitrogeneous fertilizers and an abundant supply of moisture. Pinching all the blossom buds off would also be recommended. It is possible, however, that we cannot produce conditions strong enough to overcome the opposing influence of climatic environment.

ALBERT F. ETTER.

Briceland.

Faith Without Sight.

The foregoing letter of Mr. Etter appealed to us strongly as a bunch of philosophy, very rational and probably the true solution of the matter. We were curious enough about the facts to push him further with a direct inquiry as to whether such behavior of plants in refusing to run had ever appeared in his experience. To this direct inquiry he replied: "I do not recall that I have had anything just like Mr. Reiter describes, but I base my theory on what I recognize in nature as analogies."

We fully agree with Mr. Etter as to the treatment which would be likely to increase vegetative energy in the plants. If plenty of water and as much nitrogenous fertilizers as can be used without killing the plants are used, we do not see how they can resist bursting out in runners. We would like further communications from all strawberry growers who are interested and have facts or notions to contribute to the discussion.

THE AUSTRALIAN HIMALAYA BLACKBERRY.

To the Editor: I notice an article in your issue of March 6, from the pen of Mrs. W. O. Caulkins, Ceres, Cal., in regard to the Himalaya blackberry; and, if you will allow me, I would like to give a few pointers for the benefit of all berry growers, points that I have learned by long experience and dear lessons.

First—When I hear a fruit grower say his peaches or apples are small or his cherries or prunes were smaller than they ought to have been, I form the opinion in my own mind at once that it was the grower's fault because he did not prune out enough wood or did not thin them enough or neglected to give them a good cultivation. And if I hear any one say their berries were so small this year, I resolve in my mind at once that it is the grower's fault, especially a grower of the Himalaya blackberry. Because they send up so many big shots which grow into runners 25 to 50 feet long, that they need and must have severe pruning to enable the vines to yield fruit to perfection.

We all know that if we did not top our Lawton blackberry bushes and later top the laterals several times during the growing period through the summer and also thin out the canes to four or five and cut back all laterals again in winter pruning, our Lawtons would be small and seedy.

Same with every kind of fruit that grows. We must close up our hearts and cut out and back severely according to what we are working on. The more and thicker the growth the more we must cut. (Of course we must not cut everything alike.) This is where the Himalaya blackberry comes in. Let me tell you right now, if you are not going to prune them severely and train them properly, dig them out; the quicker the better.

Do not understand me to say the Himalaya blackberry is a large berry. But I say, as in my article in the RURAL PRESS January 30, "if you prune, train and cultivate them properly they are about the size of the Lawton blackberry and will yield three times as many tons per acre.

As for lateness: I would like to say our sister grower spoke of the Himalayas as being so late as to catch the lowest price (3 cents per pound). Now I live in the most important berry-growing district in the State, the "Gold Ridge section," with Sebastopol as its capital, and we would be more than pleased if we could get 3 cents per pound for our 3500 tons we grow here annually. We received $35 per ton for our berries last year, and sometimes we only get $30 per ton. But we are rejoicing at present over the prospects of our berry growers' association, which we are forming, and we hope to be able to get better prices through its co-operative assistance in the future.

Now it is acknowledged by all that the Himalaya blackberry is a good canning berry and is wanted by the canneries, is a good berry for general family use, bears enormously, and it ripens between the 1st and 10th of July (same as the Lawtons), also that the canneries receive berries as long as there are any to receive; then why not plant them?

Another point I want to mention is this: I notice the fact that a great many confound the Australian Himalaya blackberry with the Giant Himalaya and the Oregon Evergreen blackberry. But, understand, the Australian Himalaya is entirely distinct from the Giant Himalaya and Oregon Evergreen; the last two named are almost worthless, being small, seedy and soft, while the Australian Himayalas are of nice size, few seeds, nearly coreless, very delicious and are good shippers, but they must be pruned severely.

B. S. KENNEDY.

Sebastopol, Cal.

GROWING PEACHES WITH IRRIGATION.

Mr. Fred Baisch of Colorado is an old reader of the PACIFIC RURAL PRESS and has kept himself well informed on our methods while he has been working out his own to suit conditions in his high interior State. We are glad to find an outline of his conclusions in the Denver Field and Farm and to give our readers the suggestiveness of it.

In the selection of a location for a peach orchard one must always bear in mind that the nearness to a railroad station is very much to be desired, as peaches that are to be shipped must be handled as promptly as possible. A short haul, good roads and nearness to shipping points are all important factors for the economic marketing of a peach crop. I would select mesa or bench land, elevated somewhat above the valley bottoms or streams, protected if possible by higher mountains which would break the strong winds to some extent and which by retaining much of the winter's snow until late in the spring insures cold nights to retard the buds from coming into bloom too early so as to be killed by late spring frosts. A southern exposure or slope means earlier ripening of fruit which sometimes is desirable, but a western or northern exposure is colder and is rather safer by holding back the blossoming period.

Water should be turned in when trees are set, but not again for at least three of four weeks. A shallow cultivation every two weeks will be much better, as this will stimulate growth and give the ground a chance to warm up. It requires far less water to get the best results than a great many people suppose, and more trees are killed by too much water than by too much cultivation. For the second irrigation I prefer to run a furrow on each side of the rows as close as possible. This insures wetting the ground evenly and encourages root growth on all sides. The practice of allowing the water to run down along the trees and touching them frequently causes loss by sun scald.

Five or not to exceed six irrigations are all that young trees require if they are cultivated after each irrigation. One or two good hand hoeings will be manifested by better growth. After the first irrigation the water ought not to be permitted to run more than from six to twelve hours after reaching the end of the rows. The following spring the trees receive their first pruning. This should be done just before they burst out in leaf, say ordinarily in March, and right here we lay the foundation for success or failure. It is as important to prune right as it is to plant right, for

t will make either a well-balanced, shapely, sturdy ree, capable of bearing a heavy crop of fruit or n ill-shaped, straggly growth that will break to ieces and go to ruin in a few years.

I select three of the best branches distributed on different sides, say one near the top, one about four or five inches below and the other four or five inches below the second, so as to avoid forming crotches. I cut these three back to one-third their length and cut away all others clean to the tree. The orchard should be plowed deeply in the spring to within three feet on both sides of the tree, as this will encourage and facilitate deep rooting, which is most desirable. Follow up with harrowing and firming the soil so it will hold the moisture. Cultivate and irrigate about the same as the previous year, except that it is well to run two furrows on each side of the rows about two or three feet apart.

The second year's pruning I leave two or three branches for every one of the first three and cut them back about one-half, cut off all others from the main stem, but leave about one-half the laterals on the headed branches by thinning out. This cultivating and irrigating will apply the third year, except that another furrow should be added on each side to keep drawing the root system out and down. At the third pruning we have a nice, shapely tree, capable of bearing a box or two of peaches without injury and should be pruned less severely than the previous years, yet the main leaders ought to be cut back fully one-half, leaving about half of the lateral twigs well distributed over the tree. The subsequent treatment of the orchard is much the same for the remaining years, as they ought to come into full bearing the following year.

Citrus Fruits.

BY-PRODUCT OF THE LEMON.

To the Editor: I beg to acknowledge receipt of your request that I answer an inquiry of Mr. Caulfield of Fair Oaks in regard to method of preserving and bottling lemon juice. In reply, will say that I have had no experience whatever with the by-products of the lemon. I have investigated it, as you have, at different times, and have each time concluded that as long as we could get a fair price for our culls that we would not be warranted in undertaking the manufacture of by-products. In our own case, we have been able to sell even our culls to fair advantage, and from inquiry that I have made a number of times, it has developed that if one can get as good as ½ cent a pound for culls that it would not pay to go into a manufacturing business. The San Diego Town & Flume Co. of National City, San Diego county, have had more experience along that line than any one I know of. Some time ago I had a conversation with Mr. Bowles in regard to it, and he informed me that his company had, first and last, spent in the neighborhood of $100,000 in factory and apparatus in this business, and that at that time it had not been a profitable investment, and if I remember correctly he advised me at that time if we could get ½ cent a pound for our culls that it would not pay us to attempt handling them in any other way.

Answering your inquiry direct, will say that I had some correspondence from a Mr. Knapp, of Santa Ana, who claimed to have a method of preserving the juice of lemons, and he offered to sell it to us, but we did not see fit to use it, so did not take the matter up further with him. I know nothing whatever as to the merits of his formula. I might say that the by-product of the lemon is one of the principal industries in Sicily. Last year it is estimated that about 23,000 carloads of lemons (or over four times California's total production) was manufactured into citrate of lemon, but in consequence of this large amount having been manufactured the market has been somewhat glutted and the price low. You understand that we cannot think of competing with the Sicilian in business of that sort. A considerable portion of the expense necessary to the manufacture of citrate of lemon is labor, and the labor used for that purpose is paid from 20 to 30 cents a day in Sicily. I understand that the Department of Agriculture is contemplating sending some experts here to experiment with our cull lemons in order to determine whether or not they can be profitably handled.

C. C. Teague.

Santa Paula.

WATER MOVEMENTS IN ORANGE ORCHARD SOIL.

The most careful determination of the movement of water in orange orchard soils from different methods of irrigation is that presented in a special publication of the irrigation investigations of the U. S. Department of Agriculture and entitled "Distribution of Water in the Soil in Furrow Irrigation," by Dr. R. H. Loughridge of the University of California Experiment Station, acting under the direction of Dr. Samuel Fortier, chief of the irrigation investigations. The actual work reduced to systematic form by Dr. Loughridge was pursued in the orchards of southern California by himself and several assistants and covered considerable time. It was promoted by large orange producers, notably by Mr. James Mills of the Arlington Heights Fruit Company, and the results will have much to do in defining our conclusions on methods of orchard irrigation.

The following is a brief summary of the results obtained in the orchards near Riverside as indicated above:

1. The preliminary examination of the land of the orchard before irrigation showed that the upper 2 feet held only about 3.5 per cent of free water as the general average, while below this depth of 13 feet the average was 6.16 per cent. The roots of the trees were mostly confined to the upper 4 feet, and in this depth there was an average of 4.68 per cent, an amount sufficient to maintain a good appearance in the trees, but not to produce new growth; the application of irrigation water caused increased growth.

2. The unobstructed movement of water in loam soils is downward, with great irregularity in rate of progress and in the amount of water retained at various depths. The water beneath the surface does not move from the furrows toward the trees for more than 2 feet, and at a depth below 2 feet the wet area is usually rapidly contracted to a cone shape. The soils in the tree rows, therefore, fail to receive any of the irrigation water, and the dry space increases in width and extent downward; the tree roots, which usually are confined to the upper 3 feet, are thus only partially supplied with needed moisture.

3. The relative proportion of dry soil to that wetted by irrigation across 16 furrows and four tree rows in the sandy loam soil, was as 2 to 3 in a depth of 5 feet. The proportions are as follows, taking the dry soil as the unit: Surface foot, 1 to 3.4; second foot, 1 to 4.3; third foot, 1 to 2.3; fourth foot, 1 to 0.8; fifth foot, 1 to 0.4; and sixth fot, 1 to 0.1.

4. The depth reached by the percolation of irrigation water depends on the nature of the soils and length of time of flow; in the unobstructed loose soil it was 26 feet near the head ditch, 4 feet in the middle, and about the same at 30 feet from the end, and many feet where the excess was received. In the compact, semi-impervious soil it reached a depth of 4 feet, while in the impervious hardpan soil the depth was but little more than 12 inches even after three days' application.

5. The amount of water held by the soil when the downward movement ceased was always greatest in the upper 2 feet and diminished in percentage to the bottom. Thus in the general average of a long trench in the orchard we found under the nine furrows 9.95 per cent in the first foot, 11.19 in the second, 9.14 in the third, and 8.27 per cent in the fourth foot.

6. The presence of an impervious hardpan near the surface causes sidewise seepage of the water, a greater wetting of the surface and consequent increased loss by evaporation and by accumulation and run-off at the lower end of the furrows.

7. Shallow irrigation furrows do not give as good results as deep ones; they allow a large part of the water to rise by capillarity to the surface on either side and thence to escape into the air by evaporation, while deep furrows enable the soil to receive and retain nearly all of the water applied.

The furrows in the orchard in the experiment had an average depth of 3 or 4 inches and from these the lateral seepage was so great as to wet about 85 per cent of the space between the tree rows. During the three days of irrigation in which these soils were being kept wet the rate of evaporation was very high. After this the soil gradually dried out and the loss diminished.

8. On loose sandy loams water percolates with such rapidity near the head ditch that a great part is lost by passing far below the roots and possibly into sand and gravel strata, through which it flows away. Thus on the orchard mentioned the depth of percolation was 26 feet at a distance of 30 feet from the ditch.

It is extremely doubtful that water at a depth of more than 5 feet below the root systems will be of any benefit to the trees in times when needed, for the capillary rise is extremely slow, and especially so if the temperature of the soil be low. Observations made at the time of this investigation in July, when the air temperature was 102° F. in the shade and that of the surface soil 109° F., showed a difference of 28° at a depth of 1 foot and 42° at 13 feet. In another part of the same orchard in July when the temperature of the surface was 130° F. that at 13 feet was 69° F.

9. In orchards with shallow mulches it was observed that the amount of water in the soil six weeks after irrigation was about the same as just previous to the application of water.

The rapidity of movement of water into a soil from the irrigation furrow and at the rate at which it is carried into the lower soil strata is a matter of special importance to the trees whose roots must be in contact with it, and to the orchardist who wishes the soil to absorb all it possibly can and thus avoid waste by either run-off or evaporation into the air. Beyond this the orchardist, as a rule, seems to have no thought and takes for granted that the soil distributes the water properly to the roots. The fallacy of this reliance on the soil has been frequently proven by examination after irrigation, when it was shown that the water had penetrated to a depth of only one foot or less after a three days' flow in the furrows. Every orchardist should know his land thoroughly with regard to its richness in elements of fertility, and especially with reference to its physical characteristics to depths of 6 or more feet, its relation to percolation, and its retention of irrigation water.

The percolation of water into the soil is influenced or controlled by a number of conditions:

By the air of the soil, which must give way before advancing water—for otherwise it acts as a cushion and effectually prevents percolation of the water downward. This might happen in irrigation by flooding or by heavy rainfall, but in the furrow system the air escapes by lateral movement until the surface of the soil is saturated with seepage water from the furrows.

By coarse soil texture in which water would meet with but little resistance on the part of the soil and gravity would cause it to sink rapidly downward.

By impervious or compact stratum, which would quickly arrest the downward movement of the water and cause its accumulation and probable loss by run-off.

By the root system of trees, which seems to facilitate percolation, but only along the lines of their extension and not through the soil.

By the kind of furrows made, whether wide or narrow, deep or shallow.

By cracks or crevices, holes or sand pockets, which of course afford a quick passage of the water deeply into the soil, which may mean a loss if the holes reach a bed of coarse sand or gravel.

Percolation is influenced by the time that water is allowed to remain in the furrow. The water should be made to reach the end of the furrow as soon as possible, and then the flow so regulated that the whole line may receive practically the same amount and to depths of 8 or 10 feet. If the movement is slow and the soil conditions favorable to percolation, then in the soil near the head ditch there is danger of loss by the percolation of the water far beyond the reach of the root systems. This was shown on the west side of the orchard mentioned, where the water sank 26 feet near the head ditch, while at points down the furrows a depth of but a few feet was reached.

AGRICULTURAL REVIEW.

With the Fruit Growers.

Notwithstanding the low price of raisins, a large acreage will be set out to raisin grapes in the lower San Joaquin this spring.

The annual blossom day festival will be held at Saratoga March 27. Preparations are being made for a grander affair than ever before in the history of the town.

Casad & Gerard have just finished planting 160 acres of peach trees on their land at Yam station in Stanislaus county. This firm will also plant 150 acres to sweet potatoes this spring.

The Sebastopol Berry Growers Association has leased the old ice plant and will use it as a packing house and shipping headquarters. They will handle not only the fruit of the members but outside berries as well.

The Rosedale Nurseries of Orangehurst are going into the citrus nursery business very heavily this year. They expect to raise a million orange seedlings, besides which they will put in nearly a half million grape cuttings.

The last of the dried peach crop of Happy Valley, Shasta county, amounting to 45 tons, was sold and shipped last week. The price received was 3.65 cents, as against 4 to 5 cents for the part of the crop sold early in the season.

A representative of the Farmers Union stated that raisins in the Clovis district have advanced from 1¾ cents to 2¼ cents per pound, caused by a great portion of the crop in that district having been sold in the East by the Union.

The question of dry spraying fruit trees was freely discussed at the meeting of the San Jose Grange last Saturday, many members being enthusiastic over its use and others dubious as to its effectiveness. County Entomologist Earl Morris, in summing up the discussion, stated that while the spray seemed to be a success in many cases, yet he was not ready to pronounce it an entire success, and that it would take till this season was over to fully determine its value.

From tree to the consumer in a week, including a 1600-mile journey, is the record made by orange growers in southern California. Wednesday of last week at 5:30 o'clock a special train on the Atchison, Topeka & Santa Fe railroad left San Bernardino, Cal. It contained 25 refrigerator cars, each loaded with 384 boxes of oranges. Each box had 150 oranges, making a total of 1,440,000. This is the first train of the kind to run through from California to Kansas City.

The fruit growers of the Santa Clara valley are taking steps to organize themselves into an association for the handling of dried fruits. At Campbell last week a large meeting was held to discuss co-operative marketing, and at the Pomona Grange meeting at San Jose last Saturday the same question was discussed, with the result that a commitee of five was appointed to meet a like committee from the Chamber of Commerce to take such measures as they thought best. These committees called a meeting of fifty prominent fruit growers of the valley to meet Tuesday morning the 16th, to take some action looking to the organization of a co-operative organization to sell their fruits.

Entomological Meeting for Berkeley.

A meeting of entomologists of the State has been called by Prof. Woodworth of the University of California, to hold a convention at Berkeley, on April 20-23, at which time steps will be taken to organize a Pacific Coast Society of Entomologists. A tentative program, as follows, has been announced: Tuesday afternoon—General topic, Lime-Sulphur Mixture; evening, Oil Emulsions; Wednesday morning, Lead Arsenate, Codlin Moth, etc.; afternoon, Cyanide and Fumigation Work; evening, Exhibitions and Demonstrations; Thursday morning, Parasites; afternoon, Apiculture; evening, Control of Disease Transmitting Insects; Friday morning, Research Work in Anatomy and Physiology of Insects; afternoon, Entomological Teaching.

Raisin Day April 30.

We have the apple day and the orange day, and now the raisin day is announced for April 30. The Southern Pacific railroad is backing the scheme to help advertise raisins; it will advertise the day in every town in the East, and every agent of the company is a member of the committee to push raisins. This plan was adopted at a meeting held at Fresno last week which was attended by prominent raisin men and railway officials. A committee to finance the advertising expense is now at work raising a fund which it hopes will reach $10,000. The Fresno Chamber of Commerce will carry on a propaganda work, advertising the plan independently of, though harmoniously with, the railway company. If every family in California, every house in the country, as well as in the cities, will use one pound of raisins on April 30th, the hold over raisin crop problem will be practically solved.

Roseville Pre-Cooling Plant Nearly Completed.

The big pre-cooling plant, costing about $750,000, is nearing completion at Rosedale, and will be ready to cool and ice fruit cars the coming season. The buildings are about 900 feet long and 120 feet wide, and the plant will have a capacity for cooling a whole train of cars at one time. The advantage in the pre-cooling system over the old refrigeration system is that the cars and fruit are both cooled before being iced and closed for the journey over the plains, allowing fruit to ripen on the trees and preventing decay setting in before becoming cool. Under the old system the warm fruit, partially ripe, was placed in a warm car and sealed up as soon as iced, which caused the fruit to steam and frequently decay. The new method has been tried out and the percentage of decay materially decreased, besides the fruit having a better flavor from being allowed to ripen on the tree, commands a better price.

Planting Vineyards in Sutter County.

The Marysville Appeal states that a large acreage is being set out to grapes this season, and cites the following instances: At Terra Buena, Mark Pease has planted 20 acres of Thompson's Seedless and will set out 20 acres of the same variety for David Canning. Mr. Barnickle will plant 15 acres to the same kind, as will J. G. Lindberg and Warren Humphreys, each planting 10 acres. On the Bryan tract a Greek is planting 100,000 grape cuttings, and many others are doing the same, as this season all the vines that could be secured have been bought up, and the demand was not supplied.

Co-operative Winery for Lodi.

Word comes that grape growers, owning several hundred acres of grapes, have organized to build an independent winery at Lodi. Construction work is to commence at once so that the winery will be ready to handle the next crop. It is to be run as an entirely independent concern and will manufacture and market its own product.

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Agricultural Notes.

Wheat growers may now purchase as many prison-made jute bags as they wish, according to a recent order of the board of prison directors.

The Yuma Experiment Station is to be moved from the Arizona side of the Colorado river to the Yuma Indian reservation on the California side.

The Grange Company of Stanislaus county is to build new warehouses at both Keyes and Hughson for storing hay. They already have grain warehouses at both these points.

The alfalfa acreage in District 10, Sutter county, is being largely increased this season. Mrs. A. E. Drexler will seed 1000 acres and fully that much more will be planted by other parties.

The people of Yuma valley will celebrate the completion of the Yuma dam March 30. This great work being done by the government will make of a desert one of the garden spots of the world.

The new company of San Francisco parties who have the exclusive right to all of Luther Burbank's productions is looking for a suitable piece of land near Sebastopol, Sonoma county, to carry on the Burbank work.

A new association for the marketing of cantaloupes has been formed at Keystone, Imperial county, by the Japanese melon growers of that vicinity. The capital stock is $5000, with the entire board of directors being Japanese.

The State legislature last week passed a bill appropriating $6000 for the establishment of a State experiment station in the Imperial valley. It is probable that the station will be located near the Collegiate Institute at Heber.

The T. R. Sperry farm in District 10, north of Marysville, consisting of 312 acres, has been purchased by a syndicate. Twenty-two acres of the place is now in fruit, and the new owners propose to plant most the remainder to eucalypts.

A company of Oakland and San Francisco men have purchased about 1600 acres of land in northern Yolo county, near Dunnigan, which they propose planting to eucalyptus. The work of setting out the trees will commence very soon.

The grain acreage around Suisun, Solano county, is reported short on account of the heavy rains, though a considerable acreage has been sown to barley during the past three weeks. The hay crop in that section promises to be unusually heavy.

The supervisors of Monterey county have granted an appropriation to the Agricultural Association of that county of $1000, to aid it in holding a fair the coming season. Also the board has appropriated $600 in aid of a permanent exhibit to be maintained at Monterey.

Prof. Neils Ebbsen Hansen, chief plant explorer of the U. S. Department of Agriculture, has recently returned from his third trip to northern Siberia and high latitudes of Europe with three varieties of Siberian alfalfa, a clover which grows north of the Arctic circle, and many varieties of seeds suitable for semi-arid regions. His object is to combine elements of alfalfa of various regions and produce a plant that will stand cold weather.

The crop reporting board of the Bureau of Statistics at Washington estimate that there is held by farmers at this time about 143,692,000 bushels of wheat of the 1908 crop, which is a slightly smaller amount than was held by the farmers a year ago of the 1907 crop. The 1908 corn crop in farmers' hands is estimated at 1,047,763,000 bushels, which is about $100,000,000 bushels more than was held at the same time last year. The amount of oats being held by the farmers is 278,847,000 bushels, a slightly less amount than held a year ago. In all three cereals the quality is a little better than the average.

Pacific Coast Fair Association.

Secretary Filcher has organized the greatest circuit of fairs ever undertaken on the Pacific Coast. Through the efforts of the secretary of the California Fair it will be possible for breeders of fine stock throughout the country to exhibit their herds in succession at Sacramento, the Oregon State Fair at Salem, the fair at Portland, at Seattle and at Boise, Idaho, the latter from October 11 to 16.

Sheep shearing in Kern county is now in full blast and clipping machines are being used quite extensively. It is stated that there are 300,000 head of sheep in that county to be sheared. Wool buyers are on the ground offering about 15 cents per pound for the fleece.

Dairy News Notes.

Prospects are good for the building of a creamery at Kerman, Fresno county, at an early date.

The Silver Crest Creamery Co. is a new incorporation which proposes to build and operate a creamery at Sacramento. The stockholders are Alameda and San Francisco men.

The Sunflower Creamery, of Tulare county, reports that during 1908 it had produced 245,200 pounds of butter and paid its patrons on an average of 28 cents per pound for butter-fat.

A new creamery is to be started at Brown's Valley, Yuba county, soon, with Charles Burris, one of the leading dairymen, in charge. At present cream is being shipped by stage to Marysville at a cost of 50 cents per can freight.

The Santa Ana Jersey Farm is a new incorporation with capital stock placed at $100,000, and J. T. Raitt, the veteran dairy man, is manager. The company will operate a dairy in Santa Ana, and proposes to build concrete cow barns and milk-houses at once.

Henry Bird, proprietor of the Suisun Creamery, informs the Suisun Republican that from January 1, 1908, to January 1, 1909, he manufactured 215,974 pounds of butter, and during the same period he paid out for butter-fat to dairymen in the vicinity and nearby points $48,588.07. On account of 1908 being a dry year the output was cut considerably short of what it should have been, but Mr. Bird expects to turn out between 250,000 and 300,000 pounds of butter this year.

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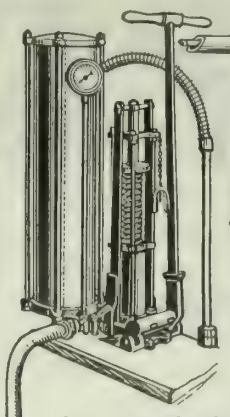
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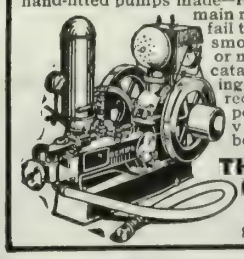
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Apiculture.

UNSPACED FRAMES VS. SELF-SPACED FRAMES.

Written for the Pacific Rural Press by Mr. Ralph Benton, of the University of California.

One very common inquiry made by beginners contemplating the investing of more or less money in bees and bee fixtures, some for profit, some for recreation, is whether unspaced or self-spaced frames are more desirable. Having constant occasion to advise people in this matter it may be profitable to discuss some of the points in favor of and some of the disadvantages that go with each of these styles of frames.

The most common scheme of self-spacing is perhaps that known as the Hoffman self-spacing system. In this as is well known the spacing is accomplished by widened end bars, the widened portions extending about a third of the way down. One projection presents a flat surface and the other a knife edge. The frames are then nailed so as to be reversible from side to side and yet so as to always have a flat surface and a knife edge meeting. Another modification of the same principle is found in what is known in California as the Merriam frame, in which the projections for self-spacing are not only at the top but also similarly at the bottom.

The advantages of any frames of this description are obvious. Several frames can be shoved along in the hive at a time. Two or even as many as three can be handled as one in operations such as changing hives, etc. The frames are always spaced. More than this, they are always ready with but slight wedging for moving.

Some of these advantages are not found in the case of staple-spaced frames, in which on alternate sides small staples are partly driven in, forming the requisite three-eighths inch space between frames. The use of staples in spacing has found great favor with some who use the short top bar. The staples here are placed in the end bars just below the projecting suspension piece of the top bar. This then gives the frame accurate spacing lengthwise, at the same time permitting the use of shorter top bars, the advantage of this lying in the fact that the short top bars rest free from the ends of the hives and so propolization is minimized.

On the other hand we may here enumerate briefly some of the advantages of the plain or unspaced frame. One of the most striking advantages is noticed when one considers the ease with which a frame may be withdrawn from a colony. The Hoffman frame is usually so wedged in the hive and even propolized that when one has no extra space in which to operate in, numbers of bees are rolled up, crushed and excited and even honey jammed and set running. This, at least in the eight-frame hive, was thought to have been solved when a division board was added. But in actual practice with the average bees kept these flimsy division boards are so glued in with propolis that a frame must needs be first removed before one dare attempt to even loosen the former. A second great advantage in having a plain frame is seen when one comes to extract, in the greater rapidity and ease with which one may uncap a frame unimpeded by having to trim around a self-spacing projection. At the same time much unnecessary dulling of the knife may be avoided—this especially where staple or metal spaces of any description be used. This applies as well to end stapling when one remembers the necessity not infrequently when extracting during a heavy honey flow of trimming off burr combs not only from the sides but also on the ends of the combs of a strong colony. The constant hitting of the knife in rapid operations on staples only unnecessarily dulls the edges of the knife.

The short top bar is at best a most unhandy style of frame. In handling combs rapidly as is necessary with one who keeps bees commercially (a number of California beekeepers have from one to two thousand colonies of bees) a long top bar is a great saving of time and at the same time a great convenience in all general manipulations, particularly in shaking bees and in handling combs on the uncapping can or tank. To prevent propolization the rabbiting may be made deeper—the whole thickness of the average dovetail hive end piece would not be too deep—and then close the rabbiting by cleats across the ends of the hives which would serve as handles. Or better still, let the beekeepers keep bees that do not gather propolis. There is a great difference in the amount of propolis gathered by the different races of bees. Tunisians gather perhaps the most of any and the Carniolans the least of any.

As for spacing frames this can most easily be done by one accustomed to handling frames by the use of the thumbs—thumb spacing it may be called. In fact, bee masters in practice, even when using self-spacing frames, will find themselves instinctively spacing the frames with eye and thumbs. As for handling frames two or more at a time, there is really very little need for such manipulations. When moving bees, a set of wedges attached to a strip in appearance like the teeth of a hay rake may be slipped in the hive between the frames in as little time as it would take to secure self-spacing frames at the sides of the hive, so that the plain frames are just as convenient for moving in reality as any other style of frames.

To recapitulate briefly: The advantage of short top bar self-spacing frames are: (1) Shoving frames in the hive, (2) spacing frames, (3) in moving bees, (4) in handling two or more frames at a time, and (5) in helping to minimize propolization. The advantages of plain frames are: (1) Ease in removing frames, (2) no projections for dulling honey knives, (3) a better place to grasp and hold frames in handling, (4) ease in wedging with locks, (5) ease in thumb and eye spacing, (6) in reality less surface to propolize; e. g., no surface or edges that touch each other, and (7) much less chance to crush bees in shoving frames together in rapid manipulation. These advantages in favor of plain frames we believe far outweigh any advantages in any self-spacing frame in use.

THE BAFFLING BEE PARALYSIS.

To the Editor: I had last fall what I expect is serious trouble with my bees. There had been but little honey made in the valley since July. Being very busy I had not watched my bees. I gave them plenty of room and was not expecting trouble. I started to look over the bees, and finding they were greatly reduced in numbers thought they had been swarming out. To make sure, I looked up the queens and in most cases found the clipped queens. I went through twelve hives and found them much the same, the bees covering three or four frames about as well as they had covered twenty. They all had honey. The brood frames were clean, showing where the bees had hatches, but more eggs had not been laid in them, as the colonies had gradually contracted their space toward one side or toward the center. There was fully as much brood and eggs as the bees could cover, which was but little, about one-

DEAD
CITRUS
WOOD
Is more or less prevalent in every orange and lemon grove, i. e., trees that are unprofitable. How many such have you in your orchard? Would it not pay you to put paying trees in their stead?
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third of say two frames. Upon looking in front of the hives I found a few dead bees (not many). I did, however, find perhaps ten or twelve in front of each hive that were lying on their sides (in most cases), their bodies and wings motionless, but moving part of their legs, sometimes only one or two legs. I would call it of little account if the colonies were not so greatly weakened, but this must have been the way they all went. I would find one that would fly about three inches, then run a few inches, fly again three inches, and so on. I watched it go about six feet. It could run as fast as ever, but could not fly. It looked apparently as if it were filled with honey. It was in front of the hives I had been looking over. I had used very little smoke, almost none. Many of the bees that were nearly helpless were quite young, while some showed to be old bees. One bee was crawling, having one front leg it could use. In all cases the rear legs were useless first.

I suppose the bees are a cross of different breeds I do not know. They have the three bright bands; the queens are quite brown, turning lighter after eight to ten months. I have no queens over one year old. I had, up to July, about 50 stands in fair condition; they would fill (with bees) two-story ten-frame hives pretty well, and a few would fill three-stories fairly well. I also had about 25 or 30 nuclei.

In the description of the disease from bacillus gaytoni, the bees lose their hair, crawl from hives, wiggle their bodies until they die. In my case they did not lose their hair; many looked just as any young bees do. Only a few looked like old bees with hair worn off the top of the body.

I expect it is paralysis. Kindly advise what to do.—H. Cross, Imperial valley.

Answer by Mr. Benton.

The contracting of the brood-nest and the diminution of strength described by Mr. Cross would not alone diagnose a case of paralysis. Indeed, it would be surprising under the circumstances of neglect for several months, coupled with a lack of honey-flow, if the bees did not decrease materially in numbers. Bees normally, in the absence of a honey-flow, decrease brood-rearing operations and the old bees dying off at a rapid rate results in a considerable change in strength of numbers. Then toward fall and winter brood-rearing is regularly suspended and the bees cluster more compactly in order to retain the heat of the cluster.

The fact, however, that Mr. Cross found diseased bees about the entrances, and especially that these bees do not appear to be simply old bees, but have the appearance of young, and what ought to be active, vigorous bees, would indicate a disease at work. He suspects paralysis, but fails to find what he has seen described as a typical case of paralysis. The fact is that the name "paralysis," as used, is a common designation for a "sick bee," and as a result various symptoms may be noted. There are perhaps three or four fairly distinct and recognizable variations, the cause of no one of which is definitely known.

Bacillus gaytoni was advanced by Prof. Cheshire as the agent at work in the shiny and trembly variation, but this bacillus has not since been isolated and it is doubtful that such a pathogenic organism as Prof. Cheshire described exists.

Another variation is the one Mr. Cross has described in detail, in which the bodies of the bees swell, and, crawling away in different directions, die singly. The shiny appearance does not appear. In fact it is doubtful whether the loss of the hairy coating of the body is a true pathogenic symptom. Simply old bees lose their hairy covering, as do also robber bees. It is not unlikely that the shiny appearance of diseased bees is largely due to the nagging which such bees receive at the hands of their fellow workers.

Still another variation is where the bees die very rapidly, piling up at the entrance, often in large numbers. This form is common in California, and when it appears frequently devastates a whole apiary of its flight-bees, proving a very serious drawback at times, especially just at the opening of the honey harvest.

Nearly all forms of bee paralysis respond fairly well to a good dusting with flower of sulphur. If the application is to be made from above at all, the unsealed brood should be removed. Dusting the bottoms of the combs, the bottom board and the entrance proves effective, in that the disease is one of the adult bees and a remedy applied in these places will reach nearly all of the bees as they pass in and out. Ralph Benton.

University of California, Berkeley.

UNIVERSITY TO HOLD INSTITUTE FOR BAKERS.

The department of University Extension in Agriculture of the College of Agriculture of the University has arranged to hold a special California State Bakers' Institute on Wednesday, March 24. The meetings will be held in room 2, Agricultural building, beginning at 10 a. m. on the day named. The general public is invited to attend the various sessions of the institute.

The close relation between the College of Agriculture and Experiment Station of the University and the bakers' trade and the relation of these two to the consuming public is a close one and should be better understood. The present institute will serve to bring about this better understanding.

The following program has been arranged:

Wednesday Morning, 10 O'clock.—Address of welcome, Prof. E. J. Wickson, director Agricultural Experiment Station; University Extension in Agriculture in Its Relation to Commercial Industries, Prof. W. T. Clarke; Relation of College of Agriculture to Millers and Bakers, Prof. G. W. Shaw; Fermentation in Bread-making—Yeasts, Malt Extracts, Mr. Hans C. Holm.

Wednesday Afternoon, 2 O'clock.—The Standpoint of National and State Pure Food Laws with Reference to Bakers' Raw Materials, Prof. M. E. Jaffa; Some Phases of the Gluten Questions, Prof. G. W. Shaw; Bacteriology and the Baking Industry, Dr. C. M. Haring.

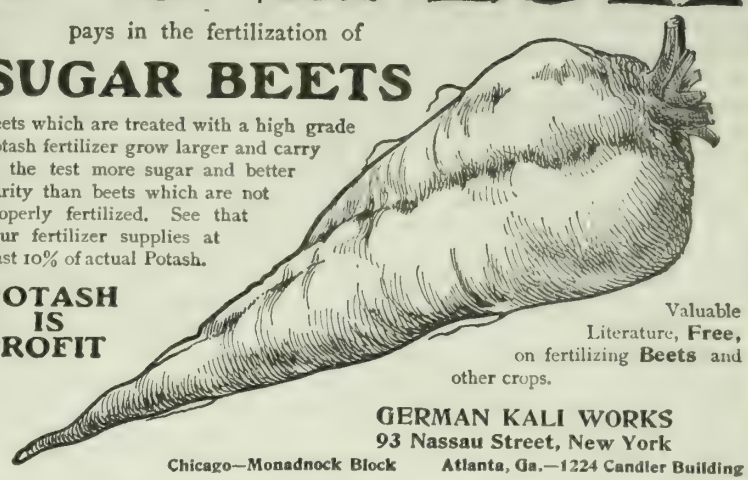
Wednesday Evening, 8 O'clock.—The Mutual Interests of Baker and Housekeeper—Sanitary Delivery of Bakers' Products, etc., Miss Bertha C. Prentiss, supervisor of domestic science, Berkeley public schools; Food Value of Bread, Prof. M. E. Jaffa; Bakeshop Hygiene and Sanitation, Dr. Allen F. Gillihan.

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Peaches	4-6 ft., $15.00; 3-4 ft., $13.00
Apricots	4-6 ft., $13.00; 3-4 ft., $11.00
Plums	4-6 ft., $16.00; 3-4 ft., $14.00
Walnuts	4-8 ft., $30.00; 3-4 ft., $20.00

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CANTALOUPES—Eden Gem, Waters Solid Net, Van Buskirks Netted Rock. The best strains of the popular Rocky Ford.
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The Field.

A RATIONAL ACCOUNT OF DRY FARMING.

By Mr. E. R. Parsons of Colorado at the Dry Farming Congress at Cheyenne:

I commenced operations with 160 acres. With the help of cows, pigs, bees and chickens our income amounted to about $3 per day. I now have about 1200 acres, and make my money out of steers, alfalfa, corn and fruit. My formula has been, "First get your moisture, then raise a crop on it." Figure out that every year will be a dry year with the minimum of precipitation. In my part of Colorado the minimum during the growing season in 30 years has been 2 to 2½ inches. To meet this without fear of failure we need at planting time at least three feet of moisture. The most profitable way of operating is naturally to raise crops as often and continuously as possible, which necessitates obtaining the greatest amount of moisture in the smallest amount of time. This can best be done by deep plowing, followed by fallowing.

When corn has been harvested after an average season, if the plowing and cultivation have been good, there is usually some moisture left over, probably one or two feet about 10% wet. Then by disking and cultivating as soon as possible and keeping the land open all winter and spring, we can usually secure at least three feet of moisture by planting time, and if this three feet contains about 12 to 15% water, a fine crop can be raised with the minimum rainfall of 2 to 2½ inches during the growing season.

The moisture in a subsoil usually runs well after a wet winter like the present, but should it fall as low as 6 to 8% in the upper three feet, it had better be allowed to lie fallow for an entire season.

Where the precipitation is less than in this vicinity (Parker, Colo., near Denver) it may be necessary to fallow every other year.

I dwell at length on the questions of moisture to show that by eliminating all elements of chance we can make of this dry farming almost an exact science. If you can secure three feet of moist soil by planting time and this soil contains 12 to 15 per cent water, the roots of your crops will go into it, and you thereby bring into action three feet of soil. This is the secret of thirty and forty-bushel crops, instead of fifteen or twenty bushels.

The practical depth for the small farmer to plow is ten or twelve inches, or as deep as he can go with one team of three or four horses without keeping an extra team and man for subsoiling. My experience with sod is that if you plow it three or four inches, Kansas and Nebraska fashion, it dries out and does not rot, and sowing anything on it is like trying to raise a crop on a rag carpet. We disk our sod land when it is wet in summer or fall, getting down about three inches, then plow five inches deeper, then disk again and harrow until the ground is as fine as old land before planting.

My alfalfa costs me in actual work about 75 to 90 cents a ton in the stack. It costs the irrigator in labor and water $1.90 to $2. The same is true with all crops.

To make an exact science of the orchard branch of dry farming, you take no risks whatever by getting your moisture before planting your trees and then by bottling in the subsoil more than the trees can use you render your orchard absolutely drought-proof.

I started by planting a small family orchard in 1886-87. By intense cultivation I secured about three to four feet of moisture from the surface down before planting a tree. We soon had all the small fruits we wanted, and apples began to appear on the trees. By cultivation the moisture kept gaining, and in 1895 this little orchard contained twelve feet of moisture from the surface down. This orchard was planted on what was originally dry buffalo grass prairie, not in a draw, but on a flat hillside, and on the grass land alongside the orchard there was no moisture showing at any depth. In 1895 I planted a commercial orchard of 2000 trees with the same results. The fifth year the cherries and plums had paid for the orchard to date, and since then, with two bad years, I have sold from $3500 to $4000 worth of cherries, plums and apples.

There is an immense field for this business in the plains region, and people will come for miles to get cherries. Sour cherries are the best drought-resisting and hardiest trees I know of, and will stand almost anything except seepage, over-irrigation and flood water. Up to date, by careful cultivation, I have accumulated nearly twenty feet of moisture in the soil from the surface down. On the prairie adjoining there is no moisture at any depth.

The snows of winter may be conserved by a simple device of throwing up back furrows at right angles to the general direction of the wind. By this device you can have your orchard covered with snow drifts when the adjoining prairie is bare and your orchard gets the benefit of the moisture when the snow melts.

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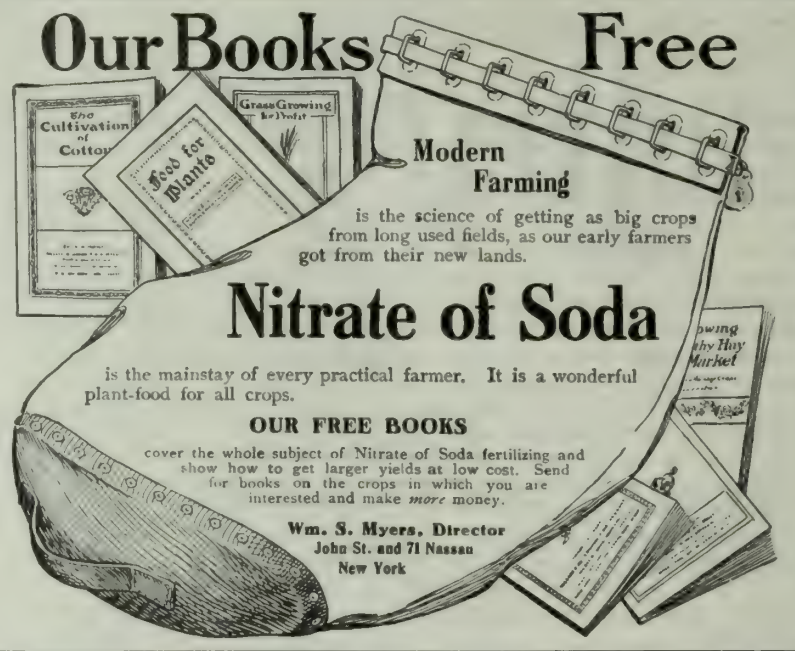
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The Vineyard.

THE GRAPE GROWERS' INTEREST IN GOOD ROADS.

(Continued From Page 221.)

eight months in the year.

That good roads can be built here and that there are men in the country to do it is proved by the excellent pieces of road which have been built by the Road Commission for demonstration purposes. One such piece, not far from Stockton, has passed through the recent deluge, being completely flooded several times, without injury, and remains in perfect condition.

If we want good roads badly enough we can get them, and if we only realize properly their advantages we will certainly want them. All money spent judiciously in this direction is profitably invested, and if we supply the money the men can be found who can do the work.

Several counties have already or are on the point of issuing bonds for the construction of good county roads. The cost is only apparent. The liability represented by the bonds is offset by the increased valuation of all real property, and what increase in taxes the bonds involve is more than compensated by the decreased cost of hauling. Such counties will have an immense advantage over less progressive communities, and will soon outstrip them in development.

VINES AND RISE OF GROUND WATER.

To the Editor: Will you kindly describe the ill effects of the rise of the ground water, or the standing of water not far below the surface, upon the growth and value of a vineyard?—Reader, San Joaquin Valley.

Answering your question as to the effects of water in excess in the soil in which grape vines are grown, it may be said:

First—That saturation of the soil during the winter or dormant season of the vine is innocent of injury and may be beneficial in the destruction of ground insects.

Second—That excess of water during the growing season is injurious—the amount and duration of excess determining the character and extent of injury: (a) A limited excess will promote undesirable growth of cane and produce inferior fruit lacking quality and durability. (b) A greater excess will weaken root growth and action and bring the vine into yellow leaf and weak cane growth. (c) A still greater excess is likely to cause saturation of the soil and the rise of the ground water which will kill the roots of the vines to the point to which it rises and remains for some time. The lower roots are killed and decay and the vine continues its existence by the multiplication of surface rootlets, which makes it more liable to heat injury in the upper soil and to injury by insects which prey upon the upper roots chiefly, like the phylloxera, vine root worm, etc. The rise of the ground water during the growing season not only deprives the vine of the use of the lower layers of the soil, but threatens its life by the destruction of its lower roots, and makes it such a weak affair that it is apt to be torn out in cultivation. Not only this, but the continued submergence of the soil sometimes kills the vines outright.

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HOW ALFALFA IS MILLED.

A writer for the Denver Field and Farm gives this sketch of processes: While alfalfa cannot be ground it can be and is milled. There are different methods of reducing it. One is by beating it in a perforated cylinder by rapidly rotating arms or hammers until it is reduced firm enough to pass through the perforation. This system is used by most of the commercial mills making alfalfa meal. It is the oldest practical method. A serious objection to this system is that it reduces the leaves to dust. Another is the excessive power required to operate it and it cannot be adapted to farm use. Another method is to use an ensilage cutter which is adapted to ranch use, requiring five to twenty horse-power to operate it. The principal objections to its use are that it does not cut the alfalfa uniformly, a large proportion of the product being very coarse and the product is not easily mixed with other feeds.

A third system is equipped with cutting rolls which reduces the alfalfa or other forage entirely by cutting, making a uniform product as fine or coarse as may be desired and without dust or lint. The ranch sizes having capacities of one to two tons an hour can be operated with ten to twenty horse-power and are either stationary or portable. None of these systems grind the alfalfa.

GROWING LIMA BEANS.

Some of our subscribers who may not have seen our earlier and fuller account of lima bean growing may take some points from the following, which we find in the Rural New Yorker from the pen of a Ventura county correspondent:

This land is the Santa Clara valley of southern California; there is another Santa Clara in the north. The land is very "spotted," more, I should imagine, than in the East, so you find pieces very close together, one of which will raise beans, and the other not. This is due to the difference in soil and elevation. Though the valley is "level" it slopes from the Coast range (varying from 16 miles to nothing where the points run out in the Pacific). This gives us a peculiar climate, a good deal of fog and heavy dews in summer, but no rain. Our crop is (we hope) raised without any rain from seed to warehouse. We begin to prepare the ground in the fall, November or December, according to the time of the first rains. The preparation varies according to nature of soil, season of rain, etc., but the rule is to work the ground in the early part of the season with disk or cyclone (an implement practically the same as the Acme harrow, but made to suit local conditions, and much cheaper). We usually plow about March, depending, as I said, on weather and soil, some earlier, some later. Then the ground is worked as before, keeping it perfectly clean of weeds till planting time (about May 1). From planting time to harvest we keep the ground cultivated and hoed constantly, maintaining a dust mulch, and allowing no weeds to sap the soil. The seed beans are carefully hand-picked and planted about 40 pounds to the acre in rows 40 inches apart. We use no poles, as I judge to be the Eastern practice. The vines run over the dry ground and we use a sled—somewhat similar to your corn cutters, though of course the knives run just under the ground, following with a gang of men with forks, who bunch (throw in bunches of one forkful each) throwing six rows together in one so that the machine wagons pass down the middle with pitcher on each side and take the rows as they go.

We thrash with a traveling steam outfit (thrashing from 500 to 2000 sacks of about 80 pounds each per day) bale all straw at once if we can get a press, and sell it if we have a surplus. I refused $8 a tone for mine. We then wait for the first rain to begin fighting weeds. Our best land here for limas is sandy, though the heavier land farther back from the coast gives profitable results. We use no fertilizer; the land, either from improved methods of cultivation or the nitrogen gathered from the air, improves in yield to same crop year after year, seasons being considered.

RIGHT SPRAYING REQUIRES AN EFFICIENT POWER

The thoroughness with which you spray depends largely on the power. Prepare for doing the work right by securing an outfit with an

I. H. Co. Gasoline Engine

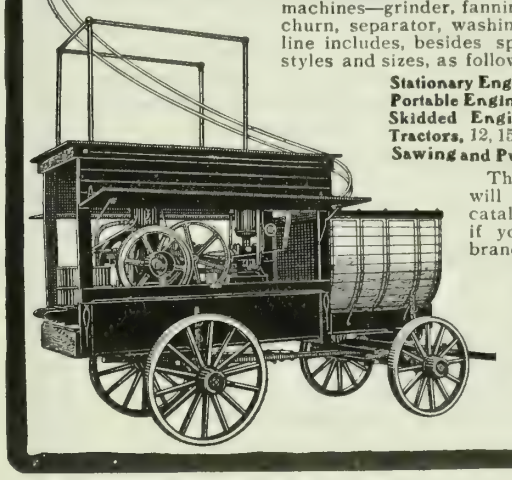
Applying the spray mixture with little force cannot be effective. International Harvester Company Famous spraying outfits furnish all the power you want. They drive the spray mixture into the covered and hidden places. The force brings the poison home to leaf rollers, the codlin moth, plant lice, and other parasites, so that when you have finished spraying, you have really accomplished something.

Famous spraying outfits include a number of different styles. There are powerful 2-horse power vertical engines, both water cooled and air cooled, mounted with force pumps on skids; small 1-horse-power air cooled engines with pump and spray tank mounted on four-wheeled truck; or engine and pump mounted together on platform only, etc.

If you prefer, you may buy the engine and mounting and then connect to it any one of several makes of spraying pumps for which the pump connections are arranged. I. H. C. engines can be used with all makes of pumps.

If interested in spraying, look into the I. H. C. engine and the efficient Famous spraying outfits.

You can buy a Famous spraying outfit and use it during the spraying seasons, and during the remainder of the year your engine can be used for general farm purposes for operating many of the small machines—grinder, fanning mill, bone cutter, sheller, churn, separator, washing machine, etc. The I. H. C. line includes, besides spraying engines, many other styles and sizes, as follows.



Stationary Engines, from 2 to 25-horse-power
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The International local dealer will be able to supply you with catalogs and full information. Or, if you prefer, write to nearest branch house.

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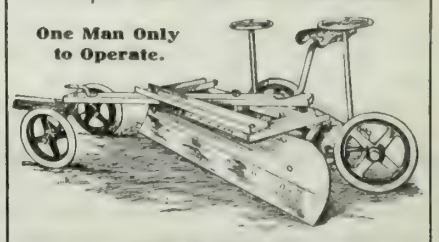
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GRADING AND SORTING POTATOES.

To the Editor: Our laws prohibit the importation of live vegetable matter infested with insects or disease, including scabby potatoes. Our importers claim, however, that river potatoes are not procurable scab-free, and that Salinas are, in comparison, too expensive. The information you can doubtless give me is: (1) Are California potatoes graded? (2) Is this grading based on size of tubers or freedom from blemish, cleanliness, etc.? (3) Are these grades named and what are the names? (4) What is the average or present price of the respective grades? (5) Is it true that California potato growers and shippers can afford to be so indifferent to a market consuming 50,000 sacks and over annually as to refuse to cater to it if it demands a scab-free article?—Enquirer, Honolulu.

There is no official grading of potatoes, so far as we know, nor is there likely to be. Grading is a trade requirement, and so long as the local grade does not require this of potatoes they will sell on their merits and growers will not assume this additional cost of preparation for market. Your recourse, it seems to us, lies with the men who export for your trade, viz., the shippers. If you insist upon a certain grade of goods they will find a way to meet the requirements. If the potato business should ever be organized in the growers' interest official grading would necessarily follow. Until then it will probably go upon unofficial agreement or understanding between those in the trade.

Live Stock and Dairy.

WORK FOR BREEDING STOCK.

Keep the breeders physically active, is the conclusion of two writers this week in journals widely separated geographically. We bring them together for California readers.

Work for the Stallion.—A contributor for the Rural Spirit recently saw at Clatskanie, Oregon, a magnificent big team of stallions at work together; saw them stand side by side, not hitched, as quiet as any team, and in conversation with their owner, Wm. S. Chandler, learned that the horses work this way all winter; are required to pull heavy loads of lumber or do any other service required, and make at least as good a draft team as there is in the neighborhood. One is a three-quarter Clyde, the other a $3000 imported Percheron, and neither has been blemished or apparently injured in any way in the two years that they have been worked together. Mr. Chandler believes that it is not only better for their general condition to work, but that it makes them surer foal getters, as he has a very large percentage of colts from both horses.

The Percheron is a company horse, and it would seem that here is a lesson for many of the horse associations, if they would only heed it. Stallions are frequently bought just before the breeding season and for the sake of dividends are made to cover large territory, make long drives and serve as many mares as possible. In almost every case the horse has been "pampered"—kept as fat as possible, to make a fine showing, and of course has had little exercise. He starts in the season with muscles soft and is then expected to stand the strain of both long drives and heavy breeding. Of course his percentage of colts is small; it could not be otherwise, and the dealer who sold him is blamed, and often serious dissatisfaction aroused in the company that owns him. And then a wrong course is again pursued the succeeding season. Usually he is put where he can be kept the cheapest, where he gets practically no exercise, until the breeding season opens, when he is again expected to travel long distances, instead of which all the energy possible should be conserved for breeding.

If every stallion should be put in the hands of some man who would work him—not try to see how much pulling he can do, but still give him plenty of good steady work—does it not stand to reason that he would be better fitted as a breeder? His being with other horses must also have good effect on his disposition, and this is likely also to be transmitted to his get. Of course, as the breeding season approaches the work should be decreased and the feed increased, so that he will be taking on flesh and feeling good. By this means he is stronger and better able to make what drives are required when the season commences; is "on edge" and has a greater latent store of vitality to draw from, so that he is apt to improve in condition instead of going down, as stallions so frequently do during the breeding season.

The conclusion then is, work the stallion outside of the breeding season, ease up and cease before the season commences, have your horse improving when the season opens, don't drive him too far, and keep him improving. You will have a stronger, better horse, with more vitality and better disposition, qualities he will transmit to his offspring, and he will have more of them.

Work for the Mare.—The other sex is provided for by a writer in the Breeders' Gazette: Proper exercising of brood mares is essential to success in any breeding venture. The best possible manner in which such mares may be given the proper amount of exercise is in moderate work, either on the road or around the farm. We have in mind an Iowa farmer who at one of the winter sales about a year ago bought a high-priced mare which had been shown extensively during the fall campaign and which naturally was in high condition. The purchaser, residing some three miles from his nearest town, drove the mare there and back every week day from the time he received her until a few days before her foaling. She dropped a fine healthy colt and, being put back into the harness in due course, raised the youngster well and got in foal as soon as bred. If this mare had been allowed to loaf around in a small yard or, still worse, had been shut up in a box stall, it is probable that the story would have been quite different. Assuredly it was some little trouble to drive her to town and back every day, six miles in all, and as certainly it cannot have been pleasant for the driver in times of storm and slush, but the end amply justified the means, and as the owner was offered $700 for the colt when it was five months old, he received excellent pay for his time. Farmers purchasing pure-bred mares too often fall into the error of pampering them. They should be made to earn their living like any other other horse on the farm. There are seldom so many brood mares on a farm that they cannot be profitably worked most of the time in cold weather. It pays better to turn the dry mares out and work those that are pregnant, than to reverse this process, as is usually done.

BEANS AS HORSE FEED.

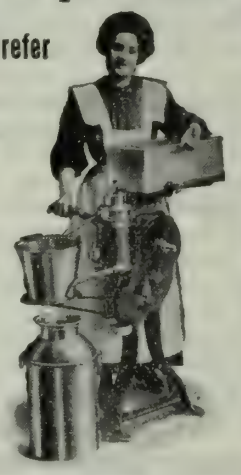
Sometimes our bean growers have too many beans. It seems that they can, with due care as to amount, be used for horse feeding. A writer in the London Home and Farm says: The greatest discretion must be observed in serving beans, and the quantity must be very strictly limited, otherwise they are sure to do harm rather than benefit. For cart horses in heavy work, from three to four pounds of beans, in addition to a liberal ration of oats, is an ample allowance. If the work be extra severe, as much as five pounds per day may be fed to them, but this should be regarded as the maximum allowance it is wise to supply in any case. It is true that in some cases one finds that a larger allowance than this is provided, but it is decidedly unwise to do so, because when the limit of five pounds is exceeded the beans will most probably have an unwholesome effect and give rise to trouble in the form of a heated state of the blood, filled legs, skin eruptions, surfeit, etc. According to veterinary authorities, the immoderate and injudicious feeding of beans sometimes causes inflammation of the feet, or laminitis—a most serious disease. When beans are included in the corn ration of the team horses on farms, as is done in many cases, an allowance of three pounds per day is fully sufficient to meet all legitimate requirements, and there is little object in giving more of

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Caustic Balsam
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this expensive food, excepting perhaps when the work is exceptionally stressful.

For horses of the light class, the allowance of beans should be considerably smaller than what they are, or may be, in the case of heavy cart horses. Thus a couple of pounds of beans constitute a good daily allowance for horses of this class when they are kept in hard work, and this should be fully sufficient, as a rule. Indeed, in many cases a pound or a pound and a half is ample, and when the work is not particularly hard this latter quantity ought never to be exceeded, while it will usually probably be best to limit the amount to one pound or less. It is always well to keep on the safe side, seeing how harmful beans may prove in their effects if the horse is given more than it can properly assimilate. Hunters may be given up to three pounds daily during the hunting season, as they are very severely worked. Particularly toward the latter part of the season, when they are getting very fine-drawn in their condition and carry but little flesh, will a goodly allowance of beans—say up to four pounds per day—be very acceptable to them and prove of much benefit in keeping up their condition. Horses which are kept in irregular work—that is to say, which often stand idle or are only lightly worked, and then at other times have to undergo severe exertion, should not be given any beans even then, because, what with the periods of idleness or comparative idleness, and the general irregularity of the work, the heating effects of beans are sure to tell in their case. Beans prove more wholesome and more suitable for matured and seasoned horses than they do for young animals. Indeed, it is not wise to feed any beans to young four-year-old horses, since they—and still younger ones—are exceedingly liable to feel the heating effects of the food. Aged horses, on the other hand, are much less affected by the rich and heating nature of beans, and can assimilate them much better than younger animals.

IMPORTANCE OF GRASS-FED BEEF.

So many reports on beef business from the Middle West are based upon corn-fed stock that the positions seem misfits at this distance from the corn belt. But there are other cattle, it seems, and a writer for the Breeders' Gazette says this of them:

A survey of the various Western markets at this season suggests that the country is by no means entirely dependent on the corn belt feed lot for its winter supply of beef. At Fort Worth there are grassers in abundance, with a liberal springling of meal-fed stuff. Kansas City presents a variegated assortment of Texans, Oklahomas, Colorados, New Mexicans, Utahs, Oregons, and Arizonas, not to speak of the corn-fed contingent from Missouri and Kansas. At Omaha the hay-fed steer has been more numerous than ever, Colorado, western Nebraska, South Dakota and Wyoming contributing to the supply here. Both at Kansas City and Omaha pulp-fed cattle now get a regular position in the quotations. Sioux City and St. Paul are getting hay-fed cattle from Montana and South Dakota, and the statement is not susceptible of dispute that if the hay-fed and pulp-fed phase of the winter supply had been eliminated the corn belt feeder would have been more money in pocket. St. Louis has received more cattle this year than last, not because of feed-lot contributions, but by virtue of a favorable grass season in Texas and a steady increasing proportion of southern product from points east of the Mississippi river. Chicago is more dependent on feed lots for its cattle supply than any other market, and yet it has not been without its quota of hay-fed, some of which originates as far west as Oregon.

Evidently the beef producing capacity of the West has not yet been tested. While not of show quality, it so happens that much of this cheap Western product fits a niche in the market where its popularity with killers is assured. In the clamor for something low in price the hay and pulp fed steed is the center of a throng of bidders, and the less the cost the more satisfied the buyer.

Cost of production, already pronounced burdensome in the grain belt, is not an item to be overlooked by the feeder in the West, however. Far-away shippers are joining in the chorus of complaint on this score, and many hay-fed cattle have been shipped prematurely because hay exhibited a disposition to advance to a prohibitive figure. Many a load of hay-fed cattle has reached the market merely in feeder condition either because the feeder concluded to sell the balance of his hay or because of severe shrink en route to market, a handicap under which hay-fed beef will probably always labor.

FEEDING ALFALFA WITH SILAGE.

An Iowa dairyman is quoted in the eighth annual report of the Iowa Department of Agriculture as strongly recommending alfalfa in connection with silage for sows. He says: "In the countries where alfalfa hay can be successfully raised there is no better food to feed with silage. We find on one hand the silage is low in dry matter and high in corbohydrates; on the other hand we find alfalfa hay low in corbohydrates and high in dry matter and protein. Fed together in proper proportions these foods make a perfectly balanced ration and it is safe to say that a proportion which would be proper would be to allow the cow to receive all of each of these foods that she will consume. She will thus solve the problem of the balanced ration for herself even better than her feeder can do."

THE Nebraska Experimental Station reports the effects of different feeds upon the strength of the bones of the hog. Hogs fed corn alone had the weakest bones. Corn and shorts gave bone somewhat stronger. Corn and skimmilk, corn, and tankage and corn and ground bone produce increased strength. The bones produced by corn and ground bone were more than twice as strong as those produced by corn alone. The stronger bones were not larger than the others, but the walls were thicker.



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Breast collar 3 inch, V shape. Traces 1¼ inch.
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Analysis (from Bulletin 164, Jan. 1905—University of California.)

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Jacks and Jennets For Sale.
We breed the Best. Don't write—come and See We can show you.
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OTHER ARGUMENTS FOR PURE SIRES.

Prof. S. R. Shaw gives in the North Pacific Rural some points in favor of pure-bred sires which are different from those usually urged and they are interesting.

The usefulness of the bull is greatly curtailed through the common practice of sending him to the butcher at three to four years of age. There is no reason why a bull cannot be used up to 8, 10 or 12 years of age, providing he has been properly handled and fed, except in the case of the animal that inherits or acquires an ugly disposition. Thus it may readily be seen that a bull, instead of being used in one herd only, might be used at the head of three or four through his lifetime. The average purchaser seeks little else than young bulls, yearlings or thereabouts, with the idea that they will be easier to handle and may grow into more money as they mature. There are some disadvantages in selecting a young sire. In the first place, it is difficult to foretell how young animals will develop individually. In the second place, it is impossible to find out anything relating to the character of the animals he will beget. In the third place, it is not a good plan to breed continually from immature animals. On the other hand, there is an advantage in purchasing a mature or even an aged sire. He has reached his full development and one can tell exactly what he is. There is a possibility of finding out something about the usefulness of his get, and the mature animal is more likely to beget a strong, vigorous animal.

In the preceding paragraph attention has been directed to a method by which the number of grade and scrub sires could be greatly reduced without any actual increase in the number of pure-bred sires. There is another plan by which the usefulness of the pure-bred sire could be still further extended without any increase in numbers. If in one particular section a number of farmers could agree upon some one line of production, so that one kind of pure blood could be used, it would be possible for them to form a copartnership in the owner of the male, so that one male could be used on several herds. A system of this kind is particularly desirable in sections where the farms are small and the individual holdings of cattle few. This plan would tend to develop community interests and the production of a definite kind of live stock in that community, the very place in which the most inferior stock is generally found.

I think we are right in assuming that the man who has the small number of cattle is the one who resorts most to mixed breeding. He usually has too few animals to justify him in the keeping of a sire and as a result these females are bred to the bull nearest by whose services are offered at the smallest fee. One year one kind of a bull is likely to be used, the next year another, and so on. It is my judgment that the fewer breeds of cattle produced in a given district the better. The larger the number of breeds the greater the tendency to mix the blood of these. With some few exceptions there is little reason why there should not be harmonious interests in a community, but it too often happens that if one man introduces a certain kind of live stock his next neighbor will introduce some other kind, for no other purpose than to have something different. The two men work at cross purposes, whereas if they were breeding the same kind of live stock they could work to the interests of each other. Live stock improvements cannot take place rapidly until the people in general awaken to the realization of the deplorable conditions which now prevail and cease mixing the blood of the various breeds and using grade and scrub sires.

HINTS ON SWINE BREEDING AND REARING.

In the course of an institute talk, Mr. J. D. Peterson of Kansas claimed that a breeder cannot afford to neglect the animals of either sex. The male has perhaps the greater influence on the herd for the simple reason that every pig in the herd is sired by him, whereas they have not all the same dam. To achieve the best results, a breeder should never allow a standard of his sows to be lowered, and should always couple them with one of a little better grade. One thing must not be forgotten, and it indicates the chief difference between the influences of the two sexes in the herd: A superior boar may be used on a herd of inferior sows with good results, but the use of an inferior boar on sows of high quality will have a disastrous outcome. The one method raises the standard of the herd; while the other inevitably lowers it.

A boar with the male characteristics strongly developed should be selected. He should have a strongly masculine head and a well crested neck. The indications of a good pork-producing carcass that the sows require should be seen in the boar—a broad, straight, deeply-fleshed back, much depth and length of side, and well developed hindquarters. The boar should stand up on his toes. There should not be the slightest indication of weakness in the pasterns of a young one. In a mature boar that has seen hard service, it may be expected that he will be a little down on his pasterns, but a six or eight month old pig that does not carry himself on upright pasterns is not a safe animal to select for a herd boar. Look carefully to the set of the hind legs. The back should be broad and slightly arched, carrying same width from shoulder to ham.

A man may be an excellent judge of stock, able to select those animals for his herd whose use will give the best results in breeding; but, if his system of feeding and management are not such that the animals will thrive and yield a good increase, good selecting is rendered ineffective. On the other hand, the herd may be carefully managed, the feed may be the best and properly combined, the shelter warm and dry, and the water supply pure; but, if the herd is poorly selected the owner is practically throwing away the feed he is giving them.

Hogs require attention, regardless of condition, age or sex, but the management of the brood sows is the surest test of a breeder's skill. If sows are carelessly fed during pregnancy, trouble of some kind is sure to ensue at farrowing; if overfed after farrowing, losses may occur among the pigs from scours or thumps. At no time is the development of the pigs so easily influenced as while they are dependent on the sow's milk—the first month of life.

Portable houses are coming into very general favor, especially in disease-infected districts. The houses I have are 6x8, shed room, 6 feet high in front and 4 feet in the rear, with 2-inch plank floor, and 2x8 plank for runners. Such houses should be very strongly constructed of good lumber, with perfectly tight siding and roof. Such a house will be warm enough for a sow and pigs in zero weather.

Houses of this kind can be drawn by a team and can be moved into the alfalfa field, where a pen may be built in front of each house. Thus each sow will have a little alfalfa pasture for herself and her pigs, and there will be no robbing.

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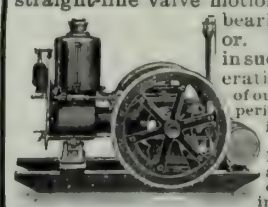
(Signed.) J. J. HUNTINGTON.
Roy Wash.

Mr. Huntington bought a second farm, so had to have another cream separator, and after using one Empire, he wanted nothing else but another. They satisfy the user.

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FOR SALE—Jerusalem Artichokes, the great winter hog feed. Address Fancher Creek Nurseries, Fresno, California.

herds know with any certainty what their heards are doing, and whether they are kept at a profit or a loss few can tell.

Sires of no particular breed, immature and utterly worthless, are often used. If a community will form an association, study the breeds and carefully select the breed that they like best and is best suited to their conditions, and that they will be willing to stand by ever after, then they have laid a sure foundation for future prosperity. The advantages are far reaching and promise great reward, greater, I believe, than we can conceive.

This much we know—that when an association is formed interest is aroused and a desire for better things is inspired. Full blood sires are bought, and if a man feels too poor to buy a good animal alone, two or three will go in together and buy. As good sires are bought, exchanges are made, so that a choice animal can be kept near the same locality during the entire period of his usefulness.

The secretary should be a live business man, be in touch with every member, he should know what stock each one has and what he desires to have. Through him exchanges are made and buyer and seller brought together. When they have stock to sell he carries advertising for the whole association, thus lessening the expense of advertising. He should have the registry books of the breed, so that a prospective animal can be traced and its worth determined.

When animals are for sale, they are reported to the secretary, so that a buyer can find out by him just what can be bought and where it can be bought, and a buyer will go to such a place when he would not go from house to house in the uncertainty of finding what he wanted. In shipping there is also an advantage, as animals can be shipped much cheaper in car lots than singly.

Community breeding opens the way for cow testing associations, and they begin to weigh and test each cow and weed out the least profitable ones. They also begin to test for tuberculosis, and this work can be done cheaper when several are working together.

Lake Mills, Wis., is noted the world over for its cattle. Why? Because they have been working together raising one breed. A buyer has large numbers to pick from, he can buy in large lots, and he can get what he wants, and he is willing to pay the price.

Now, this is business—straight, honest, legitimate business. It will give an uplift to the farmer himself; it will bring comforts to his family and education to his children.

An example of the value of the community working along one line is well illustrated at Lake Mills, Wis., where the farmers and breeders are devoting their energies to Holstein-Friesian cattle. Over $180,000 worth of grade Holsteins are shipped out of Lake Mills annually. Counting the value of the pure breed produced, the total income for stock in that community amounts in round numbers to $200,000 per year. When a scrub cow sells for $35 to $45, the grade is selling for $60 to $80. Twelve-month-old heifers are selling as high as $30 apiece. During a single year from 40 to 50 carloads of grade Holstein cattle left this community for Mexico. One buyer is reported to have purchased during the last few years as high as 800 head.

TWO TEAT TROUBLES.

By Dr. David Roberts, Wisconsin State Veterinarian.

Closed Teats.—A very common trouble in the ordinary dairy is to find an animal with the point of the teat closed, either due to a bruise of the teat itself or to infection of the milk duct which causes a little scab to form over the point of the teat, and unless this is properly handled with care and cleanliness the infection is apt to cause a loss of the entire quarter.

The proper manner in which to handle and treat such cases is to thoroughly wash the teat in an antiseptic solution, then dip a teat plug into a healing ointment and insert it into the point of the teat, allowing same to remain from one milking to another. In this manner closure of the point of the teats can be overcome in a very simple and satisfactory way.

Never use a milking tube if it can possibly be avoided, as there is much danger of infecting the entire quarter by the use of the tube.

Hard Milkers.—This is due to an unnatural condition of the sphincter muscles at the end of the teat and often what might be a valuable cow on this account is one that everybody wishes to avoid.

The proper method of overcoming hard milking is to wash the teats off with an antiseptic solution, dip a teat plug into healing ointment and insert same into the points of the teat, permitting teat plugs to remain in the teats from one milking to another.

A few treatments of this kind will overcome hard milking in any cow, without danger of infecting the teats or udder, but even this treatment should be handled with cleanliness.

THOSE PERSIAN CROSSES.

In a recent issue we gave an account of Persian-Merino crosses by Mr. C. J. Jones, which he calls the "Persiarino." More of the origin and value of the cross is given by Mr. Jones in the Sheep Breeder, in which he connects up California with his enterprise:

I bought some Persian ewes and bucks of C. P. Bailey & Sons (of San Jose, Cal.) seven years ago. I had experimented with a buffalo to a great extent and realized that nature had given a hump or surplus to sustain them in case of starvation, as they never perish of hunger until that hump is all obsorbed. I had seen Persian sheep in a show and immediately made up my mind that that great rump or pendulous fat tail that they carry was made for a purpose; that is, to sustain them during long periods of drought and starvation. As soon as I found where I could secure some I purchased them, three pairs, and went to experimenting. I was game warden at Yellowstone Park at that time and I crossed them with the common Merino ewes. I had the male lambs slaughtered in the summer and took them to the expensive hotels in the park, and as soon as they had tasted of them the manager gave orders for all I had and paid me five cents a pound more than other ranchmen could get for their lambs. I named the hybrid Persiarino, and they became in great demand. I found the coyotes were so bad in that country that I couldn't afford to lose $100 lambs by that pest, so I moved the sheep to Garden City, Kan., where I now have them.

I find that they are hardy beyond anything that could be expected. It proves that the Turk never worked nor provided for his flocks; that they were obliged to rustle for themselves, or, rather nature had to provide for them. They carry about fifteen to twenty pounds on their rump, which is the most delicious part of the animal. This is the lamp of the animal life, and when the blizzards come and the snowstorms rage, the Persian or Persiarinos are warm and comfortable while other sheep often perish by the thousands. The lambs I have come in mid-winter, often in the storms, without any shelter, and they are always up and running in a couple minutes after birth.

Other Cream Separators Merely Discarded or Abandoned De Laval Inventions

It is interesting and instructive to know that nearly, if not quite, every cream separator that has ever been made, and certainly all that are being made at this time, are merely copies or imitations of some type of construction originally invented or developed by the De Laval Company, and either not used by it because of something more practical or else discarded and abandoned in the course of De Laval progress and utilization of later improvements.

As earlier patents have expired some of their features have one after another been taken up by different imitators, so that at all times, as is the case today, every separator made in the United States or elsewhere in the world, utilizes some type of construction originally owned and developed by the De Laval Company, though some of them have never been commercially used by the De Laval Company because of their inferiority to other types of construction used by it.

All cream separator inventions by others have been of immaterial details or variations, upon which patents have been taken, if at all, more for the sake of the name than by reason of any real value or usefulness attaching to them.

But the De Laval Company has always been forging ahead, with its many years of experience and the best experts and mechanics the whole world affords in its employ, so that before any expiring patent might permit the use of any feature of construction by imitators the De Laval Company had already gone so much beyond that type of construction that it was then old and out-of-date in the modern De Laval machines.

The first practicl continuous flow centrifugal Cream Separator was the invention of Dr. Gustaf de Laval in 1878, the American patent application being filed July 31, 1879, and issuing as Letters Patent No. 247,804, October 4, 1881.

This was the original Cream Separator—of the "Hollow" or empty bowl type—and it has been followed from year to year by the various steps of cream separator improvement and development, all De Laval made or owned inventions, the American patent applications being filed and letters patent issued as follows:

The original hand Cream Separator of the "Bevel Gear" type; application filed October 2, 1886, issuing as Letters Patent No. 356,990 February 1, 1887.

The original hand Cream Separator of the "Spur Gear" type; application filed January 17, 1887, issuing as Letters Patent No. 368,328 August 16, 1887.

The original Steam Turbine-driven Cream Separator; application filed December 8, 1886, issuing as Letters Patent No. 379,690 March 20, 1888.

The original "Tubular" shaped "hollow" bowl Cream Separator; application filed April 19, 1886, issuing as Letters Patent No. 372,788 November 8, 1887.

The original "Disc" bowl Cream Separator; application filed May 12, 1890, issuing as Letters Patent No. 432,719 July 22, 1890.

The original vertical "Blade" Cream Separator bowl, covered likewise by the application filed May 12, 1890, issuing as Letters Patent No. 432,719 July 22, 1890.

The original "Bottom Feed" Cream Separator bowl; application filed July 24, 1889, issuing as Letters Patent No. 445,066 January 20, 1891.

The original series of "Star" or "Pineapple Cone" shaped cylinders Cream Separator bowl; application filed August 24, 1893, issuing as Letters Patent No. 521,722 June 19, 1894.

The original "Curved" or "Converging Disc" type of Cream Separator bowl; application filed January 18, 1905, issuing as Letters Patent No. 892,999 July 14, 1908.

The original "Split-Wing" Tubular Shaft Cream Separator bowl; application filed April 29, 1898, issuing as Letters Patent No. 640,358 January 2, 1900—which invention, with a number of later improvements, is the type of bowl construction used in the De Laval machines of today, still covered by protecting patents which prevent its appropriation by would-be competitors.

The patents thus enumerated are but a few of the more important of the more than 500 original Cream Separator patents owned, controlled and developed by the De Laval Company during its thirty years of creation and development of the Cream Separator industry throughout the world. They are recited because they show in the most illustrative and conclusive manner possible De Laval originality and leadership from 1878 to the present day.

In addition to these patent-protected features, the De Laval machines have within two years been mechanically re-designed and re-constructed in every part, from top to bottom, so that the new 1908-1909 line of De Laval machines are today, even more than at any past period, fully ten years in advance of any other cream separator made.

These are the Rock-of-Gibraltar-like facts against which the mere "word claims" of would-be competitors fade away like the mists of night before the rays of the morning sun.

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The Poultry Yard.

A FLOCK RECORD.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

A flock record of utility fowls kept to get at accurate results, and not to boom the business or the fowls, is of interest to the poultry raiser and especially to those figuring on starting into the business. We give herewith such a record. Some fifty fowls being about the right number for each yard or colony house in practical egg farming, we give the outgo and income from forty-eight pullets for the five months from October 1, 1908, to March 1, 1909. This flock consists of White Leghorns from an incubator hatch of March 22, 1908. The house which has proved very satisfactory, not one of the fowls having had even the slightest cold in an exposed location by the bay, is 6x14 feet, elevation 7 feet front and 5 feet back with shed roof. The space on the north end which takes in the slant of the roof (2 feet front and straight across to the joining of the siding and roof at the back) is open, protected only by 2-inch mesh wire. The 18-inch door for the fowls is also on this end and always open. A large door is midway in the front or west side. This is kept closed at night and in chill weather. The house sets 18 inches above the ground (30 inches would be better) and has a tight board floor with all cracks in the siding well battened. Six perches of 3-inch scantling rest on side pieces 2 feet from the floor. These side pieces are inch-thick scantling nailed through inch blocks at the point of contact with the wall, which gives an open space between, thus making no harbor for mites. In the dry season the nests are on a shelf outside on the north end, but during the rains boxes were placed inside at this end and the three perches nearest them set up in the daytime; though one box left outside has been used all winter and has seldom been wet, which is proof of the advantage of a northern exposure in our climate. Their yard was 34x100 feet until the last of December, when it was plowed and half of it taken for barley to furnish green feed later on, since which the fowls have had only half the yard room; they have, however, had an hour's range each day on grass. These pullets have been well fed on grains—wheat, cracked corn and rolled barley—but have had no forcing and hardly enough meat and green feed, having to depend for the latter upon alfalfa hay and sprouted barley until into January. A few of the pullets began to lay the first week in September and 232 eggs were laid in that month, but they did not get fairly onto their job until October, so the record begins at the latter date. The highest number of egsg (908) were laid in November; the lowest number (711) in January. Six of the pullets went into molt in January. The eggs were sold to a grocer under the wholesale quotations of "extras." The average price of this grade of eggs was 49 cents for the months of October, November and December; and 37½ cents for the two months of January and February. Number of eggs laid in the five months, 4083.

Value of eggs laid in the 5 months.	$151.80
Cost of feeding for the 5 months..	41.50
Net profit above cost of feed....	$110.30

This record brings out some points which should be noted. The first is that where all feed must be bought it costs some $2.15 per year to feed mature fowl. Even at this high figure this flock, with only an ordinary output for any laying breed fairly well handled, "made good"—in fact, paid better than any stock the farmer handles. But consider what the results would have been had these pullets 'laid off" instead of "on" during the fall and winter months, as for a fact the hens in many a yard did—nearly $42 to the bad; then multiply this by many times four dozen hens, and where are you? This point shows the risk in the business for the inexperienced. The poultry keeper who cannot make his fowls lay in the fall and winter cannot succeed in the poultry business. The producing fowl is a money-maker; the non-producer or half-producer is a money-taker.

Again, in this record all feed was bought and at the highest price—wheat, $2.35 per ctl.; corn, $2.40 per ctl., and mill-stuff accordingly. Where there are waste products, as on the farm or in strictly poultry centers where feed is obtainable at carload rates, the expense would be greatly reduced and the profits correspondingly increased. But in any case the poultry raiser must know how to han dle his fowls and he can afford to keep only producers.

Questions and Answers.

We have had inquiries in regard to packing eggs in galvanized tubs as being cheaper than jars. The water glass is an alkaline solution; only wooden, earthen or such like vessels should be used. Wooden kegs or tubs are good if perfectly clean and sweet, and may usually be had at little cost. An old poultryman who has had much experience in preserving eggs by this method, advises that a wooden spoon should be kept to lift the eggs from the solution, as by constant reaching for the eggs with the hand the solution becomes more or less contaminated.

COLD STORAGE EGGS.—E. W. Van S. of Lodi writes: "I would thank you for information through your valuable paper on the preservation of eggs in cold storage. Must the eggs be clean—may they be washed—must they be infertile? For how many months approximately may the eggs be expected to remain in a good marketable condition in cold storage?"

As in other methods of preservation, eggs for cold storage should be clean, unwashed, infertile and not more than two days old for best results. But very few eggs go into cold storage in this desirable condition. They must, however, be clean. Though washing injures somewhat the keeping qualities of the egg, it is much less injurious than dirt. Usually the soiled spots on the egg may be removed by wiping with a clean, soft cloth slightly dampened; if this it not sufficient, wash it in pure cold water and let drain till dry before packing. The superiority of the infertile egg for market purposes lies in the fact that it is unchanged by a warm temperature which starts incubation in the fertile egg and the consequent deterioration.

Eggs are seldom kept in cold storage longer than a year. As a rule they should be placed in cold storage in the spring and used the following fall and winter. It has been found that eggs packed later than the month of May do not keep well. Eggs for storage should be rather closely packed to prevent a too free circulation of air about them and the consequent evaporation. While in storage they require turning twice a week or the yolk settles to one side and adheres to the shell. When taken from cold storage they should be left unopened for a day or two so that they become gradually warmed to the temperature of the room; this prevents "sweating." In this country the packers keep a temperature of 31 to 34 degrees, but in England a temperature of 40 to 45 degrees is considered equally satisfactory, while the eggs keep for a much longer time after being taken out of the cold storage.

The case and packing for the eggs should be sweet and clean and the air in the storage quarters pure, as the eggs absorb odors and impurities.

Poultry Notes.

THE TABLE EGG CRISIS.—C. M. Miller, a leading Chicago dealer in table eggs says in The Standard: A practically bare market exists in all the principal American cities, and I would therefore earnestly advise poultryment to double their poultry output for the coming year! The impression prevails that there must be a shortage of hens to account for the diminished supply, which is below the normal of preceding years. It looks to the consumers who are paying 45 and 50 cents per dozen for strictly fresh eggs that poultrymen and farmers have, during the season, blindly marketed their hens on account of the high prices charged for feed. The over diminished supply of hens that are left are unable to keep up with the demand for fresh eggs. Incubator men and breeders of market poultry need to get busy at once and to realize quickly that they are not sumciently progressive to satisfy the demands of an urgent and waiting market: a market which has been one of continuous advances in prices since last April, with only a few pauses for breath.

COLD KINDNESS FOR THE GAME COCK.—Chicken fanciers and sportsmen in general, says the New York Sun, are mourning the execution of 84 game cocks, valued at about $8000 as fighting cocks, by the Society for the Prevention of Cruelty to Animals, at their ambulance house in East Twenty-second street. The birds were taken in raids made recently at New Rochelle and Jamaica, L. I. At the former place one of the society's agents was found enjoying the main and was convicted and fined $50. Before the New Rochelle consignment was turned over to the society, the police had several offers of $100 each for the various birds if they would return them to their owners. One man offered as high as $500 for a single bird. This was the famous one-eyed rooster said to be the champion of New York State. He was owned by a Mount Vernon butcher, and weeks before each battle he was fed on chopped beef and sherry wine to make him pugnacious, and hot butter was put on his tongue every day to prevent him from getting the "pip." The society would not permit the birds to be returned to their owners, nor would they allow them to pass to any private ownership, for the reason that it might encourage the breeding and fighting of game cocks. The whole consignment was therefore destroyed in a gas tank.

Mercy looks a bit strained in this case. Fighting is the breath of the game cock's nostrils and he is treated like a prince by his owners. To be snatched from this congenial life in the name of kindness—well, if the game cock had a voice in the metter it would be raised in vigorous pro test. While cock-fighting is not a very high-class sport it is less cruel than some other things allowed, and it seems to appeal to all classes of men (even one of the society succumbing to its fascination): and surely it is less demoralizing than man-fighting. How would the various 'heavy-weights" and "light-weights" like to be snuffed out in a gas tank in the name of kindness?

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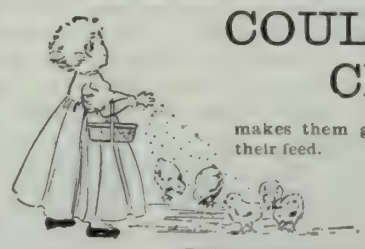
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PETALUMA, CALIFORNIA.

The Home Circle.

Mirage.

We'll read that book, we'll sing that song,
But when? Oh, when the days are long;
When thoughts are free and voices clear—
Some happy time within the year.
The days troop by with noiseless tread,
The song unsung; the book unread.

We'll see that friend and make him feel
The weight of friendship, true as steel,
Some flower of sympathy bestow.
But time sweeps on with steady flow
Until, with quick reproachful tear,
We lay our flowers upon his bier.

And still we walk the desert sands,
And still with trifles fill our hands;
While ever, just beyond our reach,
A fairer purpose shows for each,
The deeds we have not done, but willed,
Remain to haunt us—unfulfilled!

—Anonymous.

Helps and Hints for the Home.

(Questions answered in this department and suggestions solicited.)

"What Shall I Cook?"—One of our Home Circle who signs herself "A Farmer Woman" writes: "I have found many helpful things in the 'Chats.' Now, I want to suggest something which would come handy for me, and I think for many other women who haven't time to think up and hunt up new dishes in cooking, and that is a few such each week that would be seasonable and not too much work to prepare."

We are glad of this suggestion, for it is the province of the Pacific Rural Press to be helpful to its readers, especially the farmer folks; and we can best make it so by knowing the little points where information will come in most opportunely. The housewife who is at the head of all the indoor work and considerable of the out-of-door chores has little time to "think up and hunt up" and is apt to fall into a set routine of cookery which admits of too little change for best results in either relish or health. And truly the question, "What shall I cook?" gets to be a puzzler to any housewife when it comes to serving some eleven hundred regular meals in a year, not to mention the extras. In our efforts to help answer this important question we ask our readers to assist by sending in recipes for favorite dishes, and also to tell of ways they have found for simplifying and making less irksome woman's work in the kitchen.

Suggestions for the Week's Bill of Fare.—The Sunday breakfast may usually be partaken of with more leisure than any other of the seven, and is often the only one which brings every member of the family together. It is therefore worth while to take extra pains in making the breakfast room cheery with comfort and brightness; the table fresh with clean nappery and perhaps a sparkle of the "company" silver and china, while a handful of golden poppies, which are at their brightest these March days, will make a center of sunshine.

Menu.—Oranges, halved, sprinkled with sugar and placed in either a glass fruit dish or in fruit saucers. Mutton chops, breakfast potatoes, baked omelet, corn gems or cold bread, rice griddle cakes. Coffee with whipped cream.

Mutton Chops.—Trim off all surplus fat and the outer skin, the latter gives a strong taste to the meat; season with pepper and salt, put in a hot skillet, cover tightly and fry some ten minutes till evenly browned on both sides; to give them a nice finish, after they have been cooked five minutes, dip each chop into beaten egg, roll in bread crumbs mixed with a bit of chopped mint leaves and fry a crisp brown. Serve very hot on a platter with a garnish of mint leaves or watercress.

Breakfast Potatoes.—Peel and slice the potatoes very thin; have boiling on the stove a little salted water in a granite saucedish, put the slices in this and cover tightly; as soon as the potatoes are tender, when the water should be all evaporated, add a half cup of cream or a little milk and a lump of butter. Skake up but do not stir them; let steam a minute and serve in a hot vegetable dish. The point is to cook the potatoes quickly in just enough water to leave them dry when done. Cold potatoes may be used in place of raw ones; slice thin and have hot milk or cream to drop them in; let them steam till hot, add butter and seasoning.

Baked Omelet.—Beat the yolks of six eggs; add one tablespoon even full of flour mixed smooth with a teaspoon of salt in a teacup of rich milk; have the whites of the eggs whisked to a stiff puff and beat them into the rest; turn the omelet into a hot pan well greased with a tablespoon of butter; bake in a rather hot oven till a delicate brown; five or at most ten minutes is long enough. Place a hot platter over the pan and turn bottom side up; this will leave the omolet in the platter bottom up. Cut in squares with a hot knife and serve at once.

Rice Griddle Cakes.—These are the queen among griddle cakes and properly cooked they are much more digestible than any others and may be eaten by the delicate as well as the strong. To one heaping cup of cold rice cooked dry so that the grains are separate, add a quart of sweet milk, the well beaten yolk of four eggs; beat into this one quart of flour sifted with three full teaspoons of baking powder and one level teaspoon of salt, now add the whites beaten stiff; fry to a rich brown on hot griddles greased with plenty of sweet drippings or lard; put between hot plates in the open oven while frying and serve in this way. For special occasions these may be buttered as baked, spread with jelly, rolled and sprinkled with sugar and served on a hot platter. This makes a very handsome and delicious dish.

Dinner Dishes.—Breaded chicken, rib roast, cabbage salad, creamed carrots, mashed potatoes, parsnips with roast. Dessert: Apple tapioca pudding, lemon pie.

Breaded Chicken.—Cut the chicken in pieces as for frying, season with salt and pepper and roll in beaten egg, then in grated bread crumbs mixed with chopped parsley; lay in a baking pan, cover with bits of butter, add a pint of boiling water; cover the pan tightly and bake in steady oven till the chicken is very tender, basting often. Lift the nicely browned pieces onto a hot platter; work a spoonful of flour smooth in butter and stir in the boiling gravy, adding sweet milk until the gravy is of the proper thickness and salt to taste. Garnish with parsley and slices of lemon, and serve with mashed potatoes.

Rib Roast.—Place in a very hot oven till the meat is slightly browned, then season with salt and pepper and dust with flour; put a little hot water in the pan and let the meat cook more slowly till well done. A half hour before this have parsnips split in two and boiled tender, lay them in a pan with the meat and brown them nicely; if not well browned when the meat is lifted set the pan on top the stove and complete the browning; lay the parsnips about the roast on a hot platter.

Apple Tapioca Pudding.—This is a delicate and wholesome spring dessert and easily prepared. Put two-thirds of a teacup of pearl tapioca in a quart of cold water with a half teaspoon of salt; let it cook till the tapioca is clear; add one scant cup white sugar, a little nutmeg, a half cup of wine or red jelly. Have six or eight large apples pared and cored, or they may be cut in quarters if not easily cored, place these in a deep pudding dish, sprinkle with sugar and pour the tapioca over them; bake till the apples are tender; serve cold with whiped cream.

Fashion Notes.

Eyelet work embroidery is the fashion of the hour. Everything from linen lamp shades to summer gowns is done in eyelet work.

Two of the most popular colors for the season are wisteria purple and a deep tone of old gold.

Hosiery now comes in colors to match the costume. Rose color and raw silk shade will be favorites, but black and white will remain the stand-by colors. Shoes also come in colors to match the gown.

The newest thing in waist materials is cotton crepe. This is not alone handsome and stylish, but it is inexpensive and serviceable as well, for it does not require ironing. It will indeed be a boone to women, many of whom have to deny themselves white and light-tinted shirtwaists on account of laundry bills and lack of time for the starching and ironing.

The hats this season are fascinating, says Paris Modes. For the most part they are small and dainty, made of braided or woven straw and simply trimmed. On the whole, the flowers will be small and dainty to suit the hats, with not a few streamers. The large obstructors of traffic are rapidly disappearing and it looks as if we were really going to be comfortable in the matter of headgear this spring.

Mrs. Jawback.—I suppose you consider your judgment far superior to mine.

Mr. Jawback.—No, my dear. We proved the contrary when we chose to marry each other.—Cleveland Leader.

Lawrence had just cried: "Don't give up the ship."

"I've got to," answered the subordinate. "I failed in the test walk."

Herewith the hero expired.

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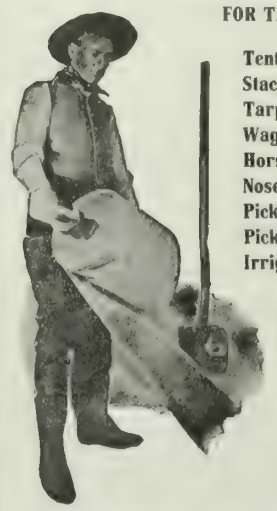
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WHAT THE WOOL TARIFF HAS DONE.

Mr. Theodore Justice, who made a brave showing before Congress for the maintenance of the wool tariff recently, makes in the Sheep Breeder these particular points:

The object of the Dingley act was to increase the revenue and foster American industries. Schedule K of the Dingley act during its life has earned $300,000,000 revenue. It was therefore a success as a revenue measure; it not only checked the destruction of our flocks but has expanded them. It has expanded manufacturing of wool until the latter now has an output annually of approximately $380,000,000, and the manufacture of ready-made clothing has been so greatly stimulated that I predict that the next census will show the product of ready-made clothing closely approximates that of manufacturing wool, and the competition among ready-made clothing manufacturers has compelled them to adopt methods of economy which have been so successful as to offset the increased cost of wool by reason of the wool duties.

Having shown the committee that the present wool duties are not oppressive, I then demonstrated by the charts and diagrams that whenever the duties upon wool of the first class have been 11 cents, or more than 11 cents, the flocks increased, and that when the duty had been less than 11 cents the flocks dwindled away, and that 11 cents was the danger line, and that in revising the tariff it was evident to any impartial mind that a reduction of the duty upon wool of the first class below 11 cents would, as heretofore, menace the wool-growing industry.

THE MARKETS.

San Francisco, March 17, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

The local market is unchanged, as far as values are concerned, and trading is still rather light. A slightly weaker feeling developed a few days ago, but without causing any decline in the official quotations, and holders are asking the same prices as before. Values here are lower than in the North, and it is understood that some of the large milling interests are buying in the Northern markets. The demand here is active, with liberal shipments in this direction.

California White Australian	$2.00	@2.15
California Club	1.90	@1.95
California Milling	1.95	@2.05
California lower grades	1.65	@1.80
Northern Club	1.90	@1.95
Northern Bluestem	2.00	@2.15
Russian Red	1.87½	@1.90
Turkey Red	1.97½	@2.10

BARLEY.

Arrivals have been large all week, and while a moderate amount has been moved for export, there is a liberal supply on hand. The market is decidedly firm, however, with fairly active buying for local requirements. Higher prices are again quoted on everything but Chevalier, choice feed finding ready sale at $1.45, while most holders ask 3¾ cents more. Brewing and shipping grades are 2½ cents higher.

Brewing	$1.50	@1.52½
Shipping	1.50	@1.52½
Chevalier	1.55	@1.70
Good to choice Feed, per ctl.	1.45	@1.48¾
Common Feed	1.40	@1.42½

OATS.

All prices are held as last quoted, but trading is extremely quiet. White oats are higher in the North, but the local demand is too small to bring any further advance, though stocks are limited. A little movement is reported in this direction from the North, but most of the business in that quarter is of a local character.

White, per ctl.	$1.85	@2.00
Gray		Nominal
Red, seed	1.85	@1.90
Feed	1.65	@1.80
Black, seed	1.65	@2.00

CORN.

There has been no arrivals of any consequence, and the demand shows no increase. The market, however, is governed by prices in the producing districts, and all the Western grades are higher. California yellow and Egyptian are unchanged.

California Small Yellow	$1.80	@1.85
Western State Yellow		1.70
Mixed, in bulk		1.60
White, in bulk		1.65
Egyptian White		1.80

RYE.

A sale of a small lot is reported at $2.00 per ctl., but the absence of other business this quotation indicates the condition of the market. While the local demand is not large, the market is practically cleaned up, and the high figure quoted has failed to bring out any offerings.

Rye, per ctl.	$2.00

BEANS.

The movement of beans continues about the same as last week. The market on bayo beans is particularly strong, as there is only a limited supply on hand, and the price is a little higher. Dealers expect a further advance, as the statistical position of this description, it is believed, would justify a considerable rise in value. White beans still find a strong and active market. This variety appears to be very scarce, and with some eight months to wait for a new crop, there is every reason to expect that prices will be maintained. Limas are steady, with growers holding for firm figures.

Bayos, per ctl.	$3.30	@3.40
Blackeyes	3.00	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.75	@1.90
Small Whites	5.00	@5.35
Large Whites	4.25	@4.35
Limas	3.60	@3.80
Pea	5.25	@5.35
Pink	2.50	@2.70
Red	5.00	@5.50
Red Kidneys	3.25	@3.50

SEEDS.

The market is now fairly active in most varieties, alfalfa being in especially strong demand. With only moderate supplies, local dealers have advanced their prices 1 cent per pound, and expect to be well cleaned up within a month or so. A further advance is looked for.

Alfalfa, per lb.	18	@19 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy		Nominal
Yellow Mustard		Nominal

FLOUR.

No further advance has been made by the local millmen, and it is difficult to obtain the present quotations except for immediate needs. Trading is almost entirely local, with a dull but fairly firm market. An easier feeling is reported in the North.

Cal. Family Extras	$6.00	@6.60
Bakers' Extras	6.00	@6.25
Superfine	4.80	@5.10
Oregon and Washington	4.85	@5.75

HAY.

Shippers in the interior have shown much greater willingness to sell than last month, and the arrivals during the past week have been very heavy, amounting to more than has arrived in any week for six months. The proportion of inferior grades of alfalfa and stock hay from the San Joaquin valley has been unduly large, and such hay is disposed of with difficulty. The better grades, however, are still in strong demand. The large arrivals have weakened the market a little, but prices are not materially lower on desirable grades. Renewed firmness is expected next week.

Choice Wheat, per ton	$23.00	@26.00
Other Grades Wheat	21.00	@23.00
Wheat and Oat	21.00	@23.50
Tame Oat	21.00	@25.00
Wild Oat	20.00	@22.50
Alfalfa	15.00	@18.00
Stock	10.50	@13.50
Straw, per bale	50	@85c

MILLSTUFFS.

Shipments of millstuffs from the North have stopped almost entirely, as the prices there are higher than in the local market, and the mills are producing scarcely enough for local consumption. The demand here is only moderate at present, the abundance of green feed having checked the consumption. With light supplies, however, firm prices are maintained on most varieties. Rolled barley is quite strong, on account of the advance in the raw grain.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.50	@35.50
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	30.00	@31.00
Shorts	31.00	@32.00

VEGETABLES.

Both asparagus and rhubarb are now becoming fairly plentiful, and while a steady demand for shipment has sustained prices unusually well, considerable decline is noted in both articles. Celery is steady as formerly quoted. Only a few small lots of vegetables are arriving from the South, and peas are still very firm. Oregon onions are in strong demand, all good lots bringing about $2.00, though two shipments from Australia which are now due may ease the market a little.

Onions, yellow, per ctl.	$1.85	@2.00
New green, per box	65	@85c
Garlic, per lb.		10c
Green Peas, per lb.	10	@12½c
Cabbage, per ctl.		1.50
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, per crate	1.25	@1.50
Green Peppers, per lb.	20	@25c
Cauliflower, doz.	65	@75c
Celery, doz.	40	@50c
Asparagus, per lb.	4	@8c
Rhubarb, per box	1.25	@1.75

POULTRY.

Only two cars have arrived from the East this week, and receipts of California poultry continue very moderate. The demand for all lines is very active, and while a few descriptions are a little lower than last week, values are still quite firm. Large and extra hens and young roosters are in especially strong demand. A good demand for extra fat poultry, including ducks and geese, is expected for the Jewish holiday, April 6 and 7. Shipments for this trade should arrive about the first of the month.

Broilers	$ 6.00	@6.50
Small Broilers	5.00	@5.50
Fryers	7.00	@8.00
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@7.00
Small Hens	5.00	@6.00
Old Roosters	5.00	@5.50
Young Roosters	8.00	@9.00
Young Roosters, full grown	9.00	@10.00
Pigeons		1.50
Squabs	2.00	@3.00
Ducks	4.50	@8.00
Geese		2.50
Turkeys, live, per lb.	Nominal	
Turkeys, dressed, per lb.	Nominal	

BUTTER.

Butter has been quite weak since last report, prices showing some decline nearly every day. The demand is of about the usual proportions, though on a falling market buyers are inclined to limit their purchases. The arrivals have been rapidly increasing, and receivers generally are carrying a considerable surplus from day to day. The decline on extras amounts to about 4 cents, with other grades lower in proportion. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb.	28½c
Firsts	27½c
Seconds	26½c

EGGS.

Eggs are stronger than last week, although values are only steady at the advance. There has been a fairly liberal movement to the North, and while the arrivals are larger than before, prices are sustained by competition for supplies in the producing districts. There is also a moderate movement into cold storage, though prices are rather high for storing. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	23½c
Firsts	22 c
Seconds	21 c
Thirds	20½c

CHEESE.

California flats continue weak, with a slight decline from last week's figures. Y. A.'s are also lower, but steady. New Oregon stock is firm at last quotations, and storage goods, both California and Oregon, are higher.

Fancy California Flats, per lb.	14½c
Firsts	14 c
New Young Americas, fancy	14½c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Cal. Flats	13½c
Storage, Oregon Flats	15½c

POTATOES.

Potatoes continue firm, with a good demand most of the week, though the market is rather quiet at present. Arrivals of river stock have been small, causing a larger movement of Oregon Burbanks, which are a little higher. Other varieties are unchanged. Sweet potatoes are firm, but no higher.

River Whites, ctl.	$ 1.25	@1.50
Lompoc Burbanks, ctl.	1.85	@2.00
Salinas Burbanks, ctl.	2.00	@2.10
Oregon Burbanks, ctl.	1.75	@1.90
Sweet Potatoes, ctl.	1.75	@2.00

FRESH FRUITS.

A few strawberries are now coming in from the South, and bring about $2.00 per crate. While the local demand for apples and pears is light, there is a continued shipping movement of choice apples, which are becoming scarce and are held for firmer prices. Pears, however, are weak, as the storage stock now offered is in poor condition.

Apples, fancy	$ 1.00	@1.75
Apples, common	60	@85c
Pears, box, Winter Nelis	1.25	@1.50
Other varieties	75c	@1.00

CITRUS FRUITS.

With fair weather, oranges have been in good demand, liberal arrivals being cleaned up without difficulty. The movement is mostly on the cheaper grades. Lemons and grape-fruit find a steady market at former prices. Limes have been closely cleaned up, and are bringing decidedly high prices, though a large arrival is expected in a few days.

Choice Lemons	$2.00	@2.50
Fancy Lemons	2.75	@3.00
Standard	1.25	@1.50
Limes		10.00
Oranges—		
Fancy Navels	2.25	@2.50
Choice	1.75	@2.00
Tangerines	75c	@1.50
Grape Fruit	2.75	@3.00

DRIED FRUITS.

The shipping movement of dried fruits is still comparatively light on most varieties, though it has increased considerably in the last few weeks. Scarcely any apricots are offered, and while Eastern buyers are not showing much interest at present, they are likely to need supplies in the near future. The outlook for prices is accordingly good. Peaches have been moving to some extent in the east, and packers look for a better movement from now on. Several large shipments of prunes have been made of late, and while there are some large lots held in the country, the outlook is fairly good, with an increasing demand for consumption in the Eastern markets. Figs are very closely cleaned up and are quoted a cent higher. Apples are also firm, with very light offerings. The raisin market is moving along in the same old rut, with little or no inquiry from outside markets, and the packers are taking on only a few small lots which they can get at their own prices. They are asking the prices quoted below on raisins, but growers are unable to realize more than 2 cents in the sweatbox.

Evaporated Apples	5	@6¼c
Figs, black	2	@3 c
Figs, white	2	@3½c
Apricots	7½	@10 c
Peaches	3¼	@4½c
Prunes, 4-size basis		2¼c
Pears	3	@5 c



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Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown.....	70c

NUTS.

There is no change in this market as far as prices are concerned, and the movement from grower to packer is about over. Scarcely any almonds are now held by growers, the quotations being almost entirely nominal. A moderate jobbing movement is going on, but all varieties are quiet and stocks are quite sufficient for all present demands.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

While practically no honey has arrived in this market for some time past, dealers have been able to dispose of very little this season and are now making concessions to effect sales. Accordingly, while the quotations are nominally unchanged, it is unlikely that any ordinary lots can be moved at full figures, though choice comb honey is scarce.

Comb, lb.	10 @13 c
Water White, extracted	7¼c
White	6¼@ 6¾c
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

About the only business going on at present is the making of contracts for the new crop, the range of prices being as last quoted. Buyers appear to be taking more interest in the new crop in Oregon than in California. Most of the old crop has been sold for some time, and a good part of this year's output is sold in advance.

Hops, per lb.	6 @10 c

WOOL.

A few sales of the spring clip in the San Joaquin valley are reported at the quotation given, and more activity is expected within the next few weeks. Prices are only steady, Eastern buyers are inclined to neglect California wool. There is little new business in fall wool.

Red Bluff (f. o. b. Red Bluff) free	7 @ 9 c
Defective	less 2 c
San Joaquin (at S. F.) free....	5 @ 7½c
Defective	4 @ 6 c
Mendocino, free	7 @10½c
Defective	6 @ 8 c
San Joaquin, spring clip.....	12 @14 c

MEAT.

Beef is still rather scarce, and prices so far show no decline. Mutton is arriving more freely, however, and moves at lower prices, and spring lamb is also a little easier. Pork continues very firm.

Beef: Steers, per lb.	8 @ 8½c
Cows	7 @ 8 c
Heifers	7 @ 8 c
Veal: Large	8 c
Small	9 @10 c
Mutton: Wethers	9½@10½c
Ewes	9 @ 9½c
Lambs	11½@12 c
Spring Lamb	14 c
Hogs, dressed	9½@11½c

LIVESTOCK.

Steers, No. 1	5¼ @ 5½c
No. 2	5 c
Cows and Heifers: No. 1....	4 @ 4¼c
No. 2	3½@ 3¾c
Bulls and Stags	2½c
Calves, Light	5 c
Medium	4½c
Heavy	4 c
Sheep: Wethers	5½@ 6 c
Ewes	5 @ 5½c
Lambs, lb.	6½c
Hogs: 100 to 150 lbs.	6¾c
150 to 250 lbs.	6¼c
250 to 325 lbs.	6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., March 16.—The trend of the citrus market seems to be downward. There is an enormous amount of fruit now rolling and on side tracks in the big market centers. There can be no relief until this stock has cleaned up to some extent. The shippers appear to be trying to help out the situation by holding down the output to a reasonable basis during the past week, averaging 155 cars of oranges, a total of 1085 for the seven days, and 16 cars of lemons, a total of 110 cars. This is not too much fruit for the time of year, but the bad weather they have been having in the East had caused a lack of demand and the fruit had accumulated to such a degree that it was really alarming, the city of Boston alone having from 30 to 50 cars of oranges on tracks after each day's sale.

There is much inquiry for seedlings. Probably this is stimulated by the knowledge that navels will run very large later in the season and that the seeds will be small enough to fill in very nicely. One big Baltimore firm bought 25 cars of Highlands seedlings recently at $1.55 and 10 cars of San Gabriel seeds at $1.50. It is understood that one block of 50 cars of seedlings were sold recently at Palmero for $1.20, why this small price is not understood unless frosted. A few seedlings are being offered from Orange county for $1.30, but they are worth more money. These prices are all for immediate shipment and higher figures are being made for shipments in April and later.

Valencias are having some call and it is said that there will have to be some immediate shipments of Valencias from the young trees in order to lighten them, they having an exceptionally heavy crop this year. There seems to be some difference of opinion as to the extent of the Valencia crop this year, but it can be said positively that it is going to be large. From 50 to 100 per cent larger than last season. The true figure probably lies somewhere between, something over 50 per cent and less than 100 per cent. Six to seven thousand cars of Valencias this year and ten to twelve thousand next year.

A few cars of Orange county Valencias have been offered at $2.25 cash for March shipments and there was a report to the effect that another grower had a block that could be bought at $2, but he had so many inquiries about the matter that he got scared and refused to sell. These offers are on small blocks only and for immediate shipments, manly to relieve trees.

The lemon market is all shot to pieces, and no wonder. At this writing there are 150,000 boxes of Sicilys in sight and the California shipments are 20 cars a day. There is some reason in the California shipments keeping up. The rains increased the size of the fruit and tree ripened everything, so that it must be shipped now or not at all. This is likely to cause something of a shortage in summer lemons at the time when lemons are most likely to be in demand. To date there have been shipped 10,391 cars of oranges and 1753 cars of lemons. To same time last season 10,398 cars of oranges and 1638 cars of lemons. Notice how close the shipments are when compared with a year ago at this time.

PUBLISHER'S DEPARTMENT.

New advertisements in this issue are: Pacific Correspondence Schools, who are prepared to help students pass their teachers' examination; John Swett & Son have a supply of Lippia, the drought-resistant lawn plant; the Fancher Creek Nurseries advertise the great stock food, "Jerusalem artichokes"; and the H. C. Shaw Co. call attention to their Rotary Disc Plow and Harrow. A rather new innovation in the way of selling farms is announced by the Ickes-Lane-Neff Co., who have lands in the Sacramento valley ready for the occupancy of the buyer. Just before closing our forms the Wm. T. Martin Machinery Co. gave us an advertisement of their road machine, which ought to be in general use over the State.

EVERY ISSUE WORTH $2.

In a letter received this week from H. H. Burrell of the Burrell vineyards, near Merced, he says: "Enclosed find check covering my subscription to the PACIFIC RURAL PRESS for the current year. I consider every number full value of the subscription price, for I find one or more items valuable to a greenhorn in handling fruits, alfalfa or poultry."

That is just what we are striving to make the RURAL PRESS worth to the farmers of California. We know that the old time subscribers of the paper who have read it for years are today the prosperous farmers of the State.

In our horticultural department a new question is raised, and the editor invites berry growers to send in their experiences which will be valuable to others.

Subscribers are also urged to use our Query and Reply Department. Every one has problems on the farm and this department is where you can have them solved. By replying to your question many others who have the same difficulties will have the answer as well. By sending in an inquiry the RURAL PRESS becomes of real personal value.

HORSES SELLING AT HIGH PRICES.

E. Stewart & Co.'s sale of horses in San Francisco, March 16, showed that the prices on horses had suddenly taken a jump to a big figure. They sold 225 horses of the Double Square Brand, raised in Utah and which will find their homes in Honolulu, Hawaii, and in different parts of California and Oregon. The prices ranged from $200 to $290 a horse, and there were good drivers, work horses for any use and heavy draught horses in the lot. Mr. Stewart told a representative of the PACIFIC RURAL PRESS that this week heavy draught horses were selling as high as $630 each in New York and he had many of the same type in the lot sold. There are still 400 head of these horses at Stockton which are to be sold at the Stewart Company's sales stables in San Francisco on Tuesday, March 30. Prices are rapidly going up and prospects are they will keep climbing.

CALIFORNIA IMPROVED FARMS

ICKES-LANE-NEFF CO.

COLUMBUS, OHIO. **WOODLAND, CAL.**

Are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. They offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley, on which they agree to build and complete, according to plans submitted, a house of 6 rooms and a barn and shed of proper size, to irrigate and fence the farm, and plow, harrow and sow 40 acres to alfalfa. They also plant a mixed orchard of 500 trees and vines best suited to the soil, 500 eucalyptus trees, and furnish the purchaser 2 horses, 2 cows, 10 hogs, 25 chickens, a suitable farm wagon, plow, harrow, mower, hay-rake and double set of harness. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land itself.

Of the 22 farms, about one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

"I have had occasion to consult Prof. Wickson's 'California Fruits' on many subjects and have found what I wanted in every case. The book might well be styled an Encyclopedia of California Horticulture."—L. Lathwesen, San Jose.

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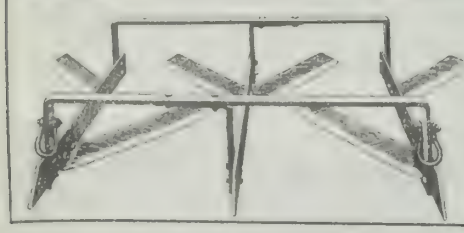
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

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CALIFORNIA STATE

Stock Interests of Mendocino County.

Written for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

We have recently had the pleasure of visiting Mendocino county, and naturally noticed the live stock conditions. Most of us think of Mendocino as one of the great redwood producing regions and do not stop to consider its other important industries. While the lumber industry is of first importance, the live stock business has been steadily, though we must confess slowly, growing. As the redwood and timber lands have been denuded the lands have been turned into small farms wherever possible, but when we consider than nineteen-twentieths of the country is mountainous we readily surmise that a large portion of the county is mainly valuable for what pasturage it affords. The agriculture of this section is mainly confined to the valleys, while the majority of the land being mountainous is used for grazing stock. In the valleys, stock raising is limited to a certain extent to the farmer's needs, each farmer raising a few horses, cattle and hogs. Many of the farms, however, are connected with the sheep and cattle ranges, which extend back into the hills where stock raising is carried on more extensively.



A Pastoral Scene in a Coast Valley.

Sheep, hogs and cattle are raised in large numbers, and the sheep in the county furnish annually nearly 100,000 pounds of wool. The principal stock country is back from the coast toward Potter, Anderson and Round Valleys, where the mountains are more open and not quite so steep as those near the ocean.

Potter and Round valley and the country adjacent to them are more stock producers than Anderson valley, which supplies a large portion of the county's wool output. The quality of the wool is on a par with Humboldt wool and is considered superior to most of the wool produced farther south.

The range conditions of the eastern portion of this region are very fair and the abundance of water from springs and streams give a permanent supply for stock the year round.

The dairy business of the county is only in its infancy in the interior. The Ukiah valley is well adapted to dairying, and we believe that this section will soon be a growing dairy region. Alfalfa can be readily grown on the river bottoms. A creamery was built in Ukiah a year ago, which should prove an inducement to the farmers to engage in this business more extensively.

In Little Lake valley, which is situated in the center of the county we find more attention given to dairying, the region furnishing excellent pasturage for cows. Several large creameries are in operation here and butter and cheese are important products. The north coast region is given up mostly to lumbering and only a small amount of stock raising is indulged in. These lumber camps and towns on the coast require considerable meat, nearly all of which is brought over the mountains on foot from the more eastern ranges of the county. While on the coast we saw some very good beef stock which had been driven in from Round valley, and was then running on cut-over redwood land until needed for the slaughter house. The majority of these lumber mills maintain a small killing establishment, the beef being bought inland and driven over the mountains.

The south coast region is the most important section as regards the dairy business. Point Arena is the most prominent town of this section and the center of the dairying interests of the county. This coast region is rolling and extends in a strip along the ocean and back to the redwood belt, about three miles inland. It is well grassed and gives pasturage to large numbers of dairy cows. The larger part of this region is held in small, well cultivated farms, each farmer running from 10 to 100 head. A co-operative creamery is established near the town. It is owned and operated by a joint stock company of the farmers in the vicinity. The creamery buys the milk direct from the dairymen and pays according to the butter-fat content. Point Arena butter has been known and favorably thought of for some time. It is shipped to San Francisco by steamers which run up and down the coast.

The grazing conditions of the cut-over redwood lands are not particularly good. But recently the reseeding of these lands to range grasses seems to promise more for the future stock interests of the coast sections.

The Angora goat industry promises to assume an important place in the future stock interests of the county. At present on the coast a large number of farmers on stump land are using Angora goats to help clear the land of brush, and there are many other farmers on lands of this character which could advantageously use this animal.

Of Interest to Dairymen.

A few months ago the Supreme Court of the State handed down a decision which we believe will be of interest to dairymen who are supplying market milk. The decision was on the case of a dairyman supplying market milk to the city of Los Angeles from a herd of Holstein cows. The city milk inspectors had condemned the milk from this dairy, as it was not up to the butter-fat standard required by the milk ordinance of the city. The dairyman took his case to court and was defeated. His lawyer appealed the case and the Supreme Court sustained the lower ruling and also sustained the city ordinance regulating the sale of milk within its boundaries. The appeal was based on the fact that the State law requiring 3 per cent butter fat in the milk was violated by the city ordinance which requires 3.5 per cent butter fat.

The city of Los Angeles requires milk sold in the city limits to meet the following standards: Total milk solids, 12.5 per cent by weight; butter fat, 3.5 per cent; water, 87.5 per cent. Whereas the State law requires the following: Not less than 3 per cent butter fat, 8.5 per cent solids not fat, and 11.5 per cent total solids. The interesting point in this decision is that the milk was absolutely pure, coming directly from a Holstein herd.

Pacific Rural Press

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E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., March 23, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.93	41.16	36.89
Red Bluff	1.66	30.04	20.40
Sacramento	.74	20.97	16.21
Mt. Tamalpais	1.02	34.62	19.20
San Francisco	1.31	24.53	18.86
San Jose	.62	16.98	10.84
Fresno	.36	9.19	7 88
Independence	.04	7.99	7.22
San Luis Obispo	1.34	28.90	17.08
Los Angeles	1.64	18.34	13.30
San Diego	1.01	9.23	8.49

The Week.

During the last two weeks we had the pleasure of a long run on the "demonstration train" provided by the Southern Pacific railway in order that the Agricultural College of the University of California and the State Horticultural Commission might bring directly to the attention of the people the results of their research, instructional and executive work. It was the fourth run of such a train in this State and covered the main line from Los Angeles to the Imperial Valley and some of the side lines in the orange districts of Los Angeles, San Bernardino and Riverside counties, aggregating nearly 750 miles of running distance. There were three cars closely packed with exhibits, displaying good, bad and indifferent agencies and conditions working in all locations from clouds to bedrock—all of them in some way affecting agricultural work and enterprise and therefore important for farmers and fruit growers to know. These exhibits were well classified and labeled and were explained to thousands of people, who passed through the cars at stopping places, by about a dozen competent demonstrators connected with the various undertakings of the State institutions above mentioned. In addition to the exhibit cars, the railway furnished everything desirable for the maintenance and comfort of those who ran the display and those who ran the train—so that the latter comprised not only a widely comprehensive school on wheels, but also a hotel on wheels, and all the power and service necessary to make the wheels go round and secure the greatest amount of public service in the least time. The common report was that the railway was expending something like $300 per day as their contribution to the effort to show as many people as possible what it is desirable for them to see and know, to the end that whatever line of farming they have undertaken should be rendered more successful. The demonstrators undertake this work, in addition to the regular duties for which they are paid by the State, both for the sake of the good they may do and the better understanding of the State and its industrial needs which they derive from close contact with the people in their different localities, and this is of real value to them in their efforts for the advancement of California.

Such are, in brief, the methods and arrangements for rolling the work of the State educational and executive agencies out from the laboratories, class rooms and offices, in which their chief activities are manifested, into the open country where these activities can make close contact with the realities of industrial life. Perhaps the most significant thing about the undertaking is the welcome which is extended to it. The general comment indicated surprise that so many interesting and important things could be collected into such narrow space, and that so many people would secure an instructive look at it. The most frequent remark of those who studied the exhibits and listened to the explanations made by the attendants, indicated edification and appreciation. Many people said they understood better many things which reading and conversation had not made quite clear, and secured suggestions which they believed they could follow with advantage toward the clearing up of other matters.

Although there were unquestionably many such direct and significant communications of practical knowledge which will be helpful to those who desire to do things aright and who will be benefitted in the quality and quantity of their products, there is beyond this a most forcible suggestion of the right way to attack agricultural problems, both in institutional work and in individual experience. It is the application of the true scientific method of research and instruction to agriculture. It is the way of our modern agricultural schools: that is, to deal with the real things, to learn their nature and to demonstrate it by the use of the things themselves and not by descriptions or pictures of them—although both the latter are indispensable for records. Carrying the real things to the people is possible by demonstration trains, and they therefore constitute a most important new phase of University extension work. They have been notably successful in all States which have undertaken them.

The first thought, perhaps, in sending out a demonstration train is to reach thousands who are not reached by public and private publications, and that is a most important end which is notably attained, but our observation is that it is probably the best informed people in the throngs who are most interested and edified. The visitor who approaches an object and says to the demonstrator: "So this is humus—actually the real thing. I have read and heard about it, but though I know of its origin and effects, I never saw it all by itself, and I had a very hazy idea of what it looked like." To such an observer the sample vivifies knowledge and quickens thought, and he gets much more from his seeing than one who has to be told what the thing is, what it is for and how to get it—and yet the awakening may be as important to one man as the full sight is to the other. The demonstration does to each what he most needs, and in no other way can it be done so well.

For these few reasons, and for a multitude like them, we are convinced by our own experience in demonstration train work that it is one of the most important features of our educational work. It will be continued until other parts of the State are reached. It is likely to affect educational efforts in lines apart from agriculture. The fact that it is being voluntarily financed by the Southern Pacific railroad evidences the possession by that corporation of a public and patriotic spirit which is very acceptable to the people.

Our troublesome friends, the yellow kid reporters, have broken out in a new spot, and are likely to bring the State into another kind of disrepute. They are now working sensations on the weather, as it were, by unanimous consent, for Sunday morning's papers of San Francisco and Los Angeles displayed a 14-stroke lightning storm in the former city and a blizzard in the region of the latter. In San Francisco all the damage claimed, after one penetrated the scare lines, was one flagpole, which might have been broken off by the wind accompanying an ordinary rainfall. In Los Angeles the account was that snow was deep and that a balloon party was lost in a blizzard. The net income of the effort to the distant reader would be that San Francisco was electrocuted and Los Angeles snow-buried—both conclusions being condemnedly false. If there was anything of the kind described in the Los Angeles district it was in the high mountain region where nobody thinks of living. We were passing through the locality at the time stated and found the air almost summery—but note of that fact would have melted the blizzard story. The real truth is that there has been a fine spring rain in almost all California valleys since our last issue, and it has been of incalculable value in bringing onward field crops—especially as, owing to the rainy winter, so many crops went in later than usual. The real secret of great produce is ample spring rains to finish what the early water has started well, and we are getting this surety in good shape this year.

This assurance is particularly good, because the whole Coast is short of both hay and grain. Look at the hay prices in our market report this week. There has been for a fortnight back a disposition to clean up and ship in everything that looks like hay, and yet prices have been nearly twice as high as figures which were formerly considered above cost at least. Although grain hay conditions have been rather ill of late, the alfalfa hay supply has advanced, and the high price of hay has been as much due to increased demand as to reduced supply. The whole thing has been of course relative, and the situation has been affected by the wonderful amount of development work which has been proceeding in spite of financial stringency in 1907-08. Development work is in one respect at least like an army: it goes upon the belly of the mule or the man, as the case may be, and when it is an equine affair it means hay. People who have had hay for sale may thank this fact for their full pockets. By the same reasoning the outlook for hay is good because development is really likely to advance at accelerating speed, and the increased production in this good year is not likely to be in excess of the demand although the tonnage be considerably greater. We have really never had so much respect for a bale of hay as we have had during the last year. If we only had enough of them we should be inclined to use them instead of granite blocks in building a new agricultural building for the University.

Another thing in which there will be a fell clean-up on the Coast before another in-gathering, is grain. So far as barley goes, it is like hay as above noted, and it stands in the same relation to the future. Of wheat the outlook is brightened by the condition of things in the upper States of the Coast. The report comes this week that the wheat shortage in Washington and Oregon is closing the interior flour mills. By May few, if any, of them will be in operation. They will be closed until the new crop wheat is obtained next August. Puget Sound flouring mills are offering up to $1.25 per bushel for bluestem wheat for immediate use, and Eastern flour may be required to piece out

the season. Private reports state that the quantity of wheat left in the farmers' hands in eastern Washington is the smallest ever known. Many farmers are paying fancy prices for seed wheat. They sold their entire crop, expecting to buy seed at a lower figure. All these things add to the visible value of this week's spring rains.

Queries and Replies.

Bermuda and Alfalfa.

To the Editor: Is Bermuda grass detrimental to the growth of alfalfa? Can it be readily eradicated from soil of a loamy nature? How can it be handled to advantage if impossible to destroy?—M. J., Colusa.

We should not try to get Bermuda grass into alfalfa, but if one had Bermuda grass, we should be disposed to get alfalfa started to keep it reduced as much as possible. Fresno experience is that Bermuda and alfalfa make a good combination, and that this is about the only way to hold down the Bermuda. It is practically impossible to eradicate it. The way to keep it down as much as possible, if you do not care to put in the alfalfa, is to run a weed cutter, or a flat-toothed cultivator, with the teeth kept sharp and set so as to under-run the whole surface. Continually pulling up the shoots or starting up the surface with an ordinary cultivator does not accomplish this result, because the success of the method described above consists in never allowing a shoot to come to the light; consequently never to become green, nor to add to the strength of its root by the action of the air upon the foliage. If, then, the shoots are continually cut below the surface and never have a chance to reach the light, the plant is smothered. This under-cutting must be done at regular intervals, say once a week during the dry season, without any show of color on the surface, or else it will fail. This is, of course, an expensive process, because it has to be pursued so often, but the reduction of the plant under the treatment soon becomes evident and the success of it is witnessed by the fact that it is almost universally adopted by those who have nerve enough to undertake the reduction of this plant.

Improvement of Adobe Soil.

To the Editor: I have some 20 acres which are adobe and I desire to improve them. This adobe is not the genuine, but a very near approach. In summer the cracks are not wider than an inch or two and seldom over two feet deep. When it is wet one can scarcely get it from the plowshare, it is so sticky. Would soiling with peas, clover, etc., improve it? What kind of clover, red or crimson, and when ought it to be sown? Could clover be sown with grain and made into hay in spring? Would "lining" benefit adobe? I think it is very fertile, if it were or could be made loose and friable.—Farmer, Sutter County.

Adobe is capable of improvement by continual cultivation when in good condition for working; by plowing in as much green stuff as possible; by the use of ordinary farm manure (the coarser the better), and by the addition of lime—several applications of 500 pounds to the acre will have a good effect in rendering the soil more friable. Applications have been made to a total of a ton to the acre. The use of lime is, however, restricted by the expense, when one has to treat a large tract. The behavior of adobe under the plow is much better if you strike it in just the right condition, neither too wet nor too dry, and there is considerable to be learned from experience in this direction. It is, of course, desirable to grow clover and other green crops for plowing under. Red clover does not do much without irrigation. You can get a heavy crop of crimson clover in the late spring from an early sowing. Usually, however, you should take a more hardy legume and make your growth in the winter. You will not get much clover generally by sowing with a grain crop, though you can do well with field peas and oats for hay. But if you wish to improve the adobe, the stuff should be plowed in green or else fed to stock and the manure used on the land.

About Scotch Grass.

To the Editor: We have a number of rather heavy sand cuts on the roads, which we find slide a great deal during the wet weather. The writer has seen in the East a seed of great vitality, which is known commonly there in the agricultural districts as "scutch grass." We have thought that this weed, if set out in the cuts to which we refer, would prevent the sliding very much. It has roots of considerable length, which form a perfect network in the ground. It grows so closely together that it is only gotten out with difficulty, once it is planted in a certain place. You may have come across some plant which, if planted in such places as we speak of, will serve the purpose we have in mind. If so, we will be glad to hear of it, and any information you can give us in this connection will be very much appreciated.—Reader, Humboldt County.

The term "scutch grass" is used in connection with two grasses. Though very different in hardness, they are similar in growth; viz: in the production of a vast number of running roots rooting readily at every joint, and therefore exceedingly difficult of eradication. One scutch is Bermuda grass, quite freely grown in different parts of California, and generally admired because it will stay in a place in spite of all efforts to extirpate it. This is a summer growing grass, and is generally propagated by cutting up the roots. The other scutch grass is known in the East as "quack grass," a pestiferous weed in the gardens of the Northern States. It was reported favorably from your county some years ago as a pasture grass, and a correspondent of ours desired to get seed of it. We tried to assist him by inquiry at the East, and all the seedsmen replied that they did not have the seed, and could not afford to offer it on sale because they said no one would buy seeds of them if it was known they had "quack grass" seed in their stores. Quack grass grows like Bermuda grass, and is just as persistent. It is also hardy, and would probably grow well during the winter time as well as maintain its life during the summer.

A plant which is not open to the objections which hold against quack grass is Lippia, which you will see prominently advertised in our columns, and which commends itself very highly for the purpose you have in view.

Vetches and Alfalfa.

To the Editor: I wish to know about the culture of Vicia sativa. Do you think that this plant will do well on a sandy soil, where there are spots of red soil, and where the hardpan is from two to three feet below the surface and where the annual rainfall is about eleven inches? When is the best time to sow, and how much per acre? Do you think this hay is as good for milk cows as alfalfa, and is it good for horses? How much of this hay do you suppose one could expect per acre on such ground as I have described? I think the land is fair small grain land.—A. L., Modesto.

Vicia sativa, the common vetch, is a very satisfactory winter growing plant in most parts of California, and the soil which you describe would probably produce it satisfactorily. It should be sown early, preferably just after the first rains, in order that it may make its growth while moisture is ample. It is a good plant to form a succession with alfalfa, because one will give you winter and the other summer growth. However, they will not, of course, do well together on the same land; if the alfalfa takes hold it will knock it out the first round. Whether you will find it satisfactory as a hay crop you will have to determine by experiment. It is nutritious enough when cut at the right time. Most that is grown in California is fed green.

Tangier Peas or Vetches.

To the Editor: Please let me know where I can get Tangier pea seed, and do you think they would do all right to cultivate in between sorghum after the last irrigation, about the end of September?—L. R., Anaheim.

Although Tangier peas grow well in the coast district of California, we are not sure that enough have been grown to get supplies into the local seed trade. You can get points on that by corresponding with our seedsmen who advertise. This Tangier pea is probably better for winter growth than for any other purpose, in California, and for the experiment which you have in view possibly cow peas would be better to try in your coast locality, especially as you have irrigation water for them. But cow peas are subject to be cut off by frost and that would be the trouble late in the season. Another plant which would be more hardy would be the hairy vetch, and you might try some cow peas and some hairy vetch in order that you might know better what to do in the future. The latter would grow along into the rainy season after the frost knocked out the sorghum.

What Kind of Alfalfa?

To the Editor: Will you please inform me what variety of alfalfa is best adapted to conditions in the San Joaquin valley, where there are some spots of alkali? Do you recommend other varieties for other parts of the State? Can alkali spots be treated in any way so that alfalfa will grow on them?—Farmer, Tulare County.

Although the superiority of various kinds of alfalfa is not yet fully worked out, and although we are not making specific recommendations along this line, there are many facts to indicate that the Turkestan alfalfa is a better winter grower and rather more hardy against alkali than the common variety. Another variety, called the Arabian, is also very promising, being even a better winter grower than the Turkestan. These varieties should, however, as yet be planted only experimentally. There is likely to be determination of desirability upon other grounds than free winter growth. Some of the newly introduced varieties make a solid, pithy stalk which is less readily eaten by stock than the softer, hollow stalk growth. In this respect the Arbian is superior—in fact, we hear some growers who are trying a little of it say that the animals gnaw it out of the ground while they will pass over the solid-stemmed sorts to get to it. These solid stalks will also make a coarse, trashy hay. For these reasons our present position is that it is perhaps quite as important to know how a variety grows as when it grows. The whole question must still be considered as upon an experimental basis.

As for the relative resistance to alkali, that may be true to a degree, but we have no hope of securing any alfalfa that will thrive when the percentage of alkali becomes a little too high. To render alkali land acceptable to alfalfa we know no permanent method except to wash out the alkali by fresh water on top and a chance to draw out salt water below. Where the total alkali content is small and chiefly at the top, alfalfa will take hold merely by washing the alkali down. How long it will hold on depends upon what amount of alkali there is below to be brought up by surface evaporation.

Horticulture.

STARTING APPLE TREES.

Mr. B. R. Tucker of Hood River, Oregon, a famous apple region, recently gave, at a local horticultural meeting, an account of his way of starting apple trees from planting in orchard as one-year-old nursery trees. His method is not new, but the recounting of it may help some of our readers who are new to tree training on this coast. He said:

I would cut back to 28 or 30 inches and let all buds grow except root sprouts the first season. I would then select four buds to start my framework for the future tree, the form of which I would have already formed in my mind. The four branches I would endeavor to start as near as possible, first one about 12 inches from the ground, the other three at as near as possible opposite sides of the tree and as near equal distance as possible, as branches close together in growing, the bark comes together and will not adhere, rendering them easily broken.

After one year's growth I would select branches for frame, cut all others off and start training to my ideal shape, cutting back when dormant in spring, to promote growth until plenty of wood is grown for bearing purposes, not letting them bear but very lightly until old enough to bear without sapping the vitality of the tree for too small profits. Four or five-year-old trees lose more vitality producing four or five boxes of apples than in producing 12 or 15 boxes at 12 years old.

If my main branches for frame throw out large branches I cut them off, leaving the smaller one for bearing purposes, retaining main branch to top, giving four spaces between the main branches to insert the ladder to pick apples on inner branches and make a support for ladder for picking the top fruit. After having growth enough to bear the amount of fruit the tree is cabaple of bearing according to space and character of soil, I would then do my cutting back in summer to retard wood growth and promote the growth of fruit instead. I would keep trees cut back comparatively low to avoid extra pressure from wind and make picking easier, less expensive and less wood to support. As different localities and different varieties require different pruning it is impossible to give any general rule.

If the tree grows too much toward the center, cut the branch close to bud facing out, and if spreading too much, cut close to bud facing inward. In general, first and last train the young tree as the child, in the way you wish it to grow, and never cut a limb unless you know just what you cut for. Maintain equilibrium, admit light and air, cut back limbs that straggle and make extra growth to the length required to bear the amount of fruit the tree is capable of bearing without injury, and save extra hand pruning and grow better fruit in general. Use common judgment, avoiding extremes in pruning or non-pruning, as either costs too much money to experiment with. The nearer you get it right the better for your pocketbook. If you grow fruit of Hood River apple class, after your trees pass 10 years of age if properly handled they should produce $800 to $1200 per acre, if they are of the best commercial varieties.

Citrus Fruits.

ROUGH AND OVERGROWN FRUIT.

Written for the Pacific Rural Press
By Mr. Thomas C. Wallace.

It is not uncommon to hear growers say that the free use of stable manures, or in fact any kind of coarse mulching gives coarse fruit. They even assert that after a time the continued use of such materials lessens the productiveness of the orange tree. This is important if true, and becomes more so in view of the cry which goes forth that the production of humus in the soil is the first and most important work in making it productive. I have looked into many of the cases where the free use of manures has seeminly had the result claimed and convinced myself that the growers are correct in their opinions.

I have recently observed a very striking case which confirms this. It was in a very light soil naturally poor in humus, but as well poor in lime. Part of this grove received an extra dose of manure last summer, and the result is coarse, even rough, fruit. In all cases under my observation where this roughening of the fruit has followed the free use of manures the soils have been light in character and poor in lime. The free use of gypsum on all such has invariably been attended by highly beneficial results. We hesitate to discourage the use of materials to make humus because without it vegetation becomes weak, but experience shows that cover crops supply all the organic matter necessary for such soils. In heavy soils the decomposition of the manures is much slower and excessive stimulation of the tree is not likely to result. True, more actual humus is produced in a heavy soil than in a light soil from a given amount of manure or cover crop, because the free access of air in the light soil carries on more rapid destruction of the materials, and consequent liberation in the soils of much carbonic acid, as fully half the structure of the manure or refuse materials is carbon. Under such conditions humus is not produced, as it seems to be a semi-stage of decomposition which requires a diminution of air to accomplish. In the heavier soil the condition for humus formation are more favorable as the decomposition is slower, and consequently carbonic acid is not so rapidly formed from the processes through which the materials pass.

We now ask ourselves what this carbonic acid has to do with rough and overgrown fruit.

We know that plants can supply themselves with all the carbon they need from the atmospheric air about them, though vegetation is practically half carbon, but as well we know that experiment has shown that plants are somehow stimulated by water charged with carbonic acid; and we know also that in light soils where decomposition is rapid, excessive carbonic acid is held by the soils and not always freely passed off as gas into the air. I only mention these points to suggest a reason for the results which undoubtedly follow rich roughage manuring of light soils poor in lime. In a rich lime soil carbonic acid finds a sympathetic mineral to combine with and form stable compounds which do not freely pass into the plant's roots, and this is more true of a gypsum than other lime compounds. In practice I have found gypsum effective. This also accounts for the beneficial results noticeably obtained in some light, yet well manured, soils by complete fertilizers more than half of which are simply fine ground lime stone or rich lime ashes. A prominent orange and lemon grower, owning over 200 acres in bearing, bought two lemon groves recently, one of which had been steadily treated with stable manures for six or seven years, while the other had as steadily been fertilized with a "complete" fertilizer without any roughage manure. As he expressed it, the lemons from the first grove were rough, coarse, thick-skinned and altogether poor, while those from the second grove were hollow and poor. We see from this that the soil must have consideration, and while we should put some class of material as stable manure or cover crops into a light soil, we must do it with care, and if it is not a rich lime soil a supply of lime in the form of gypsum or some equally valuable lime compound is imperative. On the other hand, while a heavy soil can be treated more liberally with manures, we can improve the tilth of the soil and the quality of the fruit by the application of gypsum to floculate the heavy clay and make it more easily tilled, while we can also save money by using less stable manure. It should be borne in mind that only a small portion of the manure or cover crop ever forms true humus, but there is ample proof that it has a powerful influence on vegetation which may not be due to direct feeding action, but only to the influence of the acids formed dissolving the plant food. In fact the old humus theory which considered humus as a source of carbonaceous food for the plants has long since been discarded.

We may find an explanation of the results on citrus fruit as due to manures in the habits of the tree itself. The citrus tree being evergreen is always in a position to sport growths which are likely to be in the fruit on the tree as in the leaf or wood. Such sporting occurring in the fruit would naturally cause a thickening of the skin and even irregular growths in it. Note the condition of what is known as summer fruit which comes from late unseasonable blossom and is invariably coarse and practically useless. This is not entirely due to climatic conditions, but as well must have accompanying soil conditions for development. The logic of all this seems to be that in our endeavors to "get humus" we must use judgment as well as enthusiasm, and not crowd the soils with undue quantities of vegetable refuse and manures which we cannot control. We should use moderation and be guided by actual practical happenings. The formation of humus in a soil is a slow process and soils vary in the amount of possible development in a season. The only rule applicable in this respect is, learn the capacity of your soil, and while "getting" humus use gypsum or some suitable lime compound where necessary to steady growth and production.

Forestry.

FORESTRAL BARRENNESS IN THE CALIFORNIA FOOTHILLS.

By Dr. Willis L. Jepson of the University of California for the Commonwealth Club of San Francisco.

The foothill region surrounding the valleys of the Sacramento and the San Joaquin is in general a region barren of trees, although often carrying a very open or scattered stand of blue oak or digger pine, or occasionally some other species. This barren foothill region, lying chiefly between 100 and 2500 feet altitude, has been for a long time and is still to some extent yearly extending its area, especially upward; that is to say it is, as it were, eating into the main timber belt above, in those places to altitudes of 3000 or 4000 feet.

The main factors in bringing about or perpetuating barrenness, as here considered, are two. First, changes in climate. Second, human occupation. This first factor is correlated with the geological history of the region and is beyond man's control. In the Eocene epoch of the tertiary, as at intervals in other periods before or after, the great valley of California was an inland salt water sea. The climate of its shores was, however, radically different from the present-day hot dry climate which prevails in that region from May to October with a mild temperature and low average seasonal rainfall from November to April. In the immediate vicinity of that sea and stretching far northward there existed a great forest composed of species which could not now grow in the region without man's assistance. One of these species was Sequoia langsdorfii, a variety of sequoia closely related to existing species. At the same period or at a somewhat later time a great forest stretched southward through the south Coast ranges and along the California coast, and extended out over a more or less extensive land area which now rests beneath the Pacific ocean save for certain emersed remnants known as the Santa Barbara islands. That forest has, of course, disappeared, although certain very small and pinched fragments of it are found isolated at long intervals along our coast line and thus give us evidence as to some of the species composing that south coast Pleistocene forest. One of these stranded arboreal islands is at Monterey, where, in an exceedingly restricted area, are found five coniferous trees, one of which is not found elsewhere: three others are of very limited occurrence elsewhere, and four of them are confined to the California beach line.

The changes in topography and climate which have exterminated all but a few vestigial species of an earlier more extensive forest belong to a geological past. So far as man's relation to the present physical conditions of the State is concerned, our climate may be considered a fixed one for all practical purposes.

Passing now from the geological factor to the human factor. For a vast period of time, the limits of which are not yet determined, the native tribes of California in practice of a rude agriculture, for the purpose of driving game or of keeping open their trading or hunting trails, fought the forest with fire and fought it successfully, driving its aggressive hosts back into the forest in every place where the efforts of the Indian were not too much handicapped by a high rainfall. The

forest thus in certain zones went over into barren areas, especially in the foothills and valleys in such places where forest existed, or went over into scattered stands of large trees (for firing repeated at short intervals favors the development of large individual trees), or went over to chapparal.

There was, to be sure, as time went by, fluctuations one way or another, but as a rule barren areas when once completely denuded of trees never went back to forest, because forest tree seedlings after a fire were frequently under certain disadvantages. They could not so readily secure a foothold on eroded slopes; they could not endure unaided the six months' summer drought; or they were not able to resist the fierceness of the grass fires set by the Indians in the summer time; or they were choked out by the denseness of the brush or chaparral which succeeded woodland.

These generalizations as to the effects of fire apply to all trees of the region, but obviously broad-leaved stump-sprouting trees fared better than pines, which do not, of course, stump-sprout. Persistent firing is especially fatal to species depending on reproduction by seed unless they are especially protected against the attack of fire, either directly or indirectly. An example for provision for direct protection against fire is afforded by the big tree or redwood, both of which have bark remarkable for its great thickness (½ to 2 feet thick) and its non-inflammability, and wood which is so little resinous that it is popularly assumed to have none. An example of indirect protection against extinction may be brought out by comparing two of our species of pine. The reproductive cycle of the yellow pine, the most abundant tree in the Sierra Nevada forest, is 25 to 40 years. This is an ordinary period for a pine, but is too long to counterbalance by seeding the effects of destructive fires repeated at short intervals. Such destructive fires occur most persistently in semi-arid areas. At its present day lower limits, marked by decreasing precipitation, there is, therefore, a sort of dead-line over which it does not pass, or only in a half-hearted or irregular way. On the other hand, certain other pines became self-adapted to periodical fires. These pines abbreviated their generative cycle to a few years and we know them as the fire-type pines. One of these is the knob-cone pine, which produces cones as early as its fifth or sixth year. The cones remain closed; that is, they do not open to release the seed, ordinarily, except under a forest fire, when the species promptly resows a destroyed area with its own seed. Seeds kept in the cone retain their vitality for 10 to 15 years, perhaps even 20 years or longer. Such pines in their present seeding habit may properly be said to be a product of periodic fire devastation prolonged in our region over a vast period of time.

Firing of the country, practiced by the Indians for an indefinite period, has been kept up in an irregular but effective way by the white settler either by accident or design or both. I may instance one special illustration of forest going over to chaparral within a period of two or three years. In the summer of 1907 I was trailing a great ridge of the western slope of the Klamath range. This ridge was a vast and arid area of chaparral without forests or springs, but the evidence that it had only recently gone over from forest was still present, for the prostrate whitened masts of pine and fir were in particular places found by the scores half concealed by the thin shrubs of the chaparral.

The time has now come when re-forestation of foothill or chaparral areas, less useful for agriculture than for timber growing, is to be considered. The nature and extent of the fire evil is so great that fire control must first of all be presumed as a preliminary necessity to all other work. It should be noted that I use the term fire control and not fire prevention. Conditions vary greatly in different parts of the State, and even locally, and it may for some years be necessary to use fire to prevent more destructive fires. This is a large question and calls for expert decision on the ground. As to re-forestration it is also difficult at this time to speak in general terms. The stock to be used in re-forestration is one of the first and most important considerations. With some exceptions to be noted hereafter, it can best be obtained by amelioration of those native trees which have been most directly subjected to but have survived the conditions which have brought about arboreal barrenness in the foothills or chaparral. In some cases the species is ready to hand, and in other cases there should be selection practiced or a combination by crossing of local forms or strains. Let me illustrate briefly what is here meant. The knob-cone pine, a product of fire conditions, is ready to hand for one kind of re-forestration purposes. It is practically the only, or almost the only, tree for establishing cover on waterless rocky slopes at certain altitudes. Its greatest service will be to bring about a restoration of surface soil and prevent destructive run-off. It may often perhaps not always be succeeded by yellow pine, which is in itself a most useful species for seeding wherever the climatic conditions meet its requirements—a railfall of 18 to 45 inches and extreme temperatures of 15° to 100° F.

Yellow pine is our most abundant and one of our most valuable timber trees, and without doubt our most valuable species from the standpoint of the forester. It grows rapidly, reproduces itself aggressively, and is constitutionally adapted to a wide variety of conditions. As a result of its adaptability it is rather variable and trees in different or in the same localities differ markedly in wood quality. Commonly the lumber is marketed as white pine, sometimes as Tahoe pine. Certain trees producing inferior wood are known to the woodsmen as bull pine, although the lumber is not marketed under that name. On the other hand, the boards which come out of the sawmill may be of such high quality that they are indistinguishable from sugar pine except by a few experts and are graded and sold as such. Now it is highly desirable that a high-grade wood strain or race of the yellow pine should be artificially bred. At present, so far as I know, yellow pine seed is not selected by seed collectors for the trade, nor is seed selected on any of the National Forests when collected for forest nursery purposes, nor probably would mere seed selection achieve the purpose here held in view. Only breeding under control would determine whether it be possible to secure a strain of high-class timber value, but the magnitude and permanent character of the interests involved justify this and similar experiments. There are large possibilities in this direction, that of selection and crossing. One of the great and interesting questions to be solved is that of inheritability of wood characteristics. I believe that yellow pine holds within itself a world of forestral possibilities which at present we no more than dimly apprehend.

In point of number of species the oaks far surpass the conifers in the foothill districts. Although we are fairly rich in number of species, we are weak in number of individuals; that is, we practically have no considerable oak forests. Moreover, the California oaks have a poor reputation as to timber quality. Yet it is to be said that here is a fertile field for experiments on account of the constitutional adaptability of these trees to semi-arid conditions. There are evidently numerous native strains of each species, many of which differ in wood quality. It is not generally known, but it is true, that certain manufacturers have been quietly using California oak for floors, furniture and tool handles.

We have in California fourteen species of oak. But in the matter of breeding, species are of no moment. Within each botanical species there are, at least with us, numerous local strains or races differing markedly among themselves. These assuredly should form the basis for the choice of units for selection and crossing, not the botanical species of which they merely form a convenient classificatory part. Ask a settler's opinion regarding the timber quality of digger pine and the chances are that you will get an unfavorable verdict. Yet I have found rural artisans who have secured from this tree wood of remarkable strength and toughness. There are obviously, among the digger pines, distinct local varieties, and all these are in need of study. I have had similar experience with blue oak. One reason that some of our trees are condemned is because methods of wood treatment have not been discovered.

Among our oaks I find certain natural; that is, spontaneous hybrids. One of these is very vigorout and has with settlers locally a wood reputation superior to that of either parent. Seed of several spontaneous oak hybrids collected in the woods last fall, I now have in nursery beds at the University of California, from which I expect to get a stock of seedlings this spring. The securing of oak or other rases which will be of value and suitable to arid foothills, so poor or rocky as to be useless for agriculture or high-class timber growing, is a difficult problem, but one which ought not to be regarded as impossible of solution. When pleading for the encouragement of tree planting in the arid or desert districts, especially the remoter, such regions would have done for fencing material and fuel without the hardy juniper, a tree which the uninformed traveler is likely to despise for its small size and mean appearance.

Barren foothills within the summer fog belt of the coast present a different and far easier problem. They may readily and promptly be covered with the Monterey and other coast pine which are remnants of the ancient forest. At one time in the fifties before we were spoiled by high-grade and very cheap redwood and sugar pine, San Francisco very heartily used Monterey pine lumber. That time will come again, for we shall not always be able to employ fine timber for rough uses. Eucalyptus also offers luring possibilities where absence of frost and superior soil conditions meet favorably, but the eucalyptus problem is one for a special paper and especial treatment, because we have yet to acquire most of our wisdom concerning its manifold perplexities. I have no doubt that most of the eucalyptus problems will be solved, for we have made small and interesting beginnings—but all that will take time and much patience and hard work.

The problem of wood in the arid foothills, as to the practical or field end of it, will, I hope, be solved wholly or mainly by the land owners themselves. I am not in sympathy with the ever growing tendency of towns or rural communities to run to the State Legislature at Sacramento or to the National Congress at Washington asking for things they could well do for themselves. With the increasing complexity of our local civilization it is increasingly important that we should become increasingly self-reliant locally also.

The broader scientific studies which affect the whole State and are concerned with principles general in their application might well, however, be fostered by private endowment, as is frequently done in European countries. This paper would urge that there be a place somewhere in our system for a purely scientific study of our trees in order that there may be broad and enduring foundations on which to build up plans for the solution of this and numerous other problems growing yearly in importance with the growth of the commonwealth. It might well take the form of a scientific arboretum where the characteristics, life history habits, and qualities of our trees could be brought under continuous observation and exact experiment. In other words a study of the tree as an individual is necessary to a thorough understanding of our forest possibilities as well as study of a community of trees called a forest. I am well aware that the public is reluctant to spend money for purely scientific investigation. This is because purely scientific investigations rarely yield any obvious or immediate money return. On the other hand, the public, in intensely popular phase, "wants what it wants when it wants it," and State and National scientific men are constantly called upon to give an answer by return mail to problems which may really require years to solve. Nearly all scientific men are feeling this pressure, that is, of being called upon to produce results before they have had time to lay a proper foundation for them. Public wants cannot always be anticipated, and scientific exploration of the unknown should run far ahead of practical needs. Far reaching studies of the character here outlined along this and along many related lines are necessary to a period of long-continued industrial development. Such studies and results form the proper basis for practice in the development of natural resources. Such studies are in no sense necessary for practice in the exploitation of natural resources. But when the idea of development has replaced the idea of exploitation then we as a commonwealth shall be ready to enter upon an era which shall be dominated by a policy which our most patriotic, capable and far-seeing men of today hail as the discovery of a truly national policy—the policy of conservation.

AGRICULTURAL REVIEW.

With the Fruit Growers.

C. P. Taft of Orange has sold his crop of loquats from ten acres to a Los Angeles buyer for $4000.

The Grand View Heights Citrus Company will set out 40 acres to oranges in the Konda tract, south of Porterville.

The California Citrus Union estimates the value of the citrus crop shipped from Porterville the past year at $250,000 net to the growers.

Ten thousand fig trees are now being planted on the Bounds tract near Butte City. There will also be planted 300 acres to sugar beets on the tract this spring.

The California Fruit Canners' Association recently purchased the dried fruit crop of the Hearst place in Butte county, amounting to eight carloads.

P. C. Higgins, a well known olive grower of Carpenteria, has recently purchased 75 acres of the Gorham place near his ranch and will immediately plant the tract to olives.

At a recent meeting of Florida orange growers a committee of seven men were appointed to visit the several orange sections of California during April to learn the latest methods in growing and handling citrus products.

The Gilroy Advocate says that representatives of the California Wine Association are signing ten-year contracts with the vineyardists of San Martin and Rucker, at an average of $16 per ton and a bonus for certain varieties.

The Reedley Exponent tells of two growers from that locality returning from the East, where they had successfully marketed 50 tons of assorted dried fruits, which after paying all expenses, netted them over 3 cents per pound.

According to the New York Journal of Commerce, all varieties of California fruits, excepting raisins, are meeting with greater demand. The low prices on prunes are causing the market to be cleaned up of old stock. Peaches are in good demand with Coast stock scarce, and apricots are getting more attention with an upward tendency to the market.

An 8¼ acre orange grove at Lindsay is reported to have been sold last week for $34,000. This is doubtless the highest price ever paid for an orange grove in the State, but it is claimed that the income from the place for the past four ears justifies the price. The place was purchased by A. R. Wilfley of Denver, who has other investments in that locality.

Albert F. Etter of Briceland, Humboldt county, tells us that he will have the material to work with and proposes to go deeper into strawberry breeding than ever any man has heretofore. He will have furnished him native species of strawberries from all parts of the world to experiment with. From what Mr. Etter has already done, we may expect great results in the years to come.

The Burbank Products Co., Inc., has leased land at Sebastopol, Sonoma county, and the work of putting it in shape for a nursery is now being done. A shipment of 10,000 apple tree seedlings, 10,000 cherry and 500 prune trees has been received from Iowa, which will be planted and grafted to Burbank productions. Walter B. Clark has been secured from the California nursery at Niles, to have charge of this new propagation work.

Dried Peaches Selling Well.

At the rate dried peaches have been selling during the past few weeks, the old crop will be entirely disposed of before the new crop comes on. Prices have been about 4 cents in the sweatbox. It is stated that there are left in the San Joaquin valley less than 900 tons, and that the crop in southern California has been all sold. The movement of peaches has been due entirely to demands from the East, there being no speculative market.

Outlook for Fruit the Coming Season

President Nagle and Manager Walker of the California Fruit Exchange of Sacramento returned last week from an extended trip through the East and Canada, where they went to look up markets for the coming deciduous fruit crop. Mr. Walker is reported as saying that the out look for a good demand at good prices is very much better than last year. They found money conditions better, fruit buyers anxious to get in touch with California fruit, and railway concessions east of Chicago.

Grape Men Active at Lodi.

Dispatches from Lodi state that the growers interested in establishing a new independent winery at that place have sold 600 shares at $100 each. From present indications the new wine association will have plenty of capital to carry on its work.

The San Joaquin table grape growers, with headquarters at Lodi, have made arrangements to buy their supplies in quantities, and claim that they have saved 25 per cent on shooks, and from 50 cents to $1 per sack on sulphur, over former prices.

Spineless Cactus.

The extensive distribution of spineless cactus is now under way at the National Introduction Gardens at Chico. Already nearly 5000 cuttings have been sent out, and there are 1000 more to go. The zone of distribution is through California, parts of Arizona, and from there a strip through to the Gulf of Mexico. The cuttings or joints are sent out free, the only demand being that the recipient follows instructions and reports progress.

Agricultural News Items.

The Leach ostrich farm of San Jose is to be moved to Sacramento.

The National Corn Show will be held at Omaha, from December 6 to 18, 1909.

St. Helena has decided to hold a three days' fair next fall from September 7 to 9 inclusive.

Grant Towle, who has a ranch near Monterey, is having a large acreage planted to eucalyptus this spring.

Last week San Joaquin county at a special election voted to issue $1,890,000 worth of bonds to be used in building roads.

The north half of the Stabler tract, comprising 120 acres, near Yuba City, planted to grapes and prunes, will be sold in small tracts to settlers.

Thirty acres of bearing asparagus beds owned by Mrs. Mary S. Smith, near Yuba City, are realizing for the owner about $200 per acre this season.

The new beet sugar factory at Santa Ana, now in the course of construction, will be finished in time to handle the large crop of beets now growing around there.

Machinery is on the way to operate the big pumping plant in the Moreno valley. It is expected to pump 200 inches of water for irrigation purposes when the plant is installed.

D. W. Lewis, who has an asparagus farm near Corcoran, has shipped about 30 tons of the plant to Los Angeles already this season. The plants have been a little late this year owing to the cold rains.

The Hamilton City sugar factory will plant 1000 acres to beets in the vicinity

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Orange and Lemon.

Nursery Stock and Alfalfa.

Fertilizers.

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who have used our goods once, will always come to us for their fertilizers. We are making a special study of plant life and are therefore in a position to manufacture fertilizers that exactly meet the requirements of each plant. Let us know what you intend to plant, and we will name your special compositions. Write for our new booklet "The Farmers Friend," for 1909.

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"Anchor" Brand, Velvet Flowers of Sulphur; **"Volcano"** Brand, Sublimed Flowers of Sulphur; **"Tiger"** Brand, Sublimed Sulphur; "[illegible]" Brand, Refined Flour Sulphur; **"Fruit"** Brand, Powered Sulphur, **Roll** or Stick, **Virgin Rock** and Crude Sulphur. AGENTS FOR **"Fleur de Soufre"** Extra Fine Sublime Pour Blanchiment (for bleaching and spraying.)

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SEED

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(Successor to TRUMBULL & BEEBE.)
61 California St., - - - - - San Francisco.
Please mention this paper.

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SPECIALTIES: Franquette Walnut, grafted on Black Walnut root. Absolutely genuine.
Wonder Walnut.—New: The largest, most prolific, and youngest bearer known. Twelve nuts grown on a **one year tree** in nursery row, placed side by side, measure 22 inches; each measuring 5½ to 6½ inches in circumference. Thin shell, blight resistant. Fully tested for years. Limited stock of grafting wood and trees.
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Ornamental, Shade and Deciduous Fruit Trees.
A Good Class of General Nursery Stock
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On Black, Soft-shell and Resistant Roots.
Seedlings, Citrus, Deciduous, Berry Bushes, etc.
A. R. RIDEOUT, MAGNOLIA NURSERY, WHITTIER, CAL.

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Large Stock—All Varieties
Hardy and Selected Rapid Growers
Write for free illustrated booklet.
LLOYD R. TAYLOR, Modesto, Cal.

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GROWN IN SUNSHINE

with roots balled while growing in flats. Saves all roots; make sure success when removed to the field and good growth the first season.
Sample lots at wholesale rates. Can take from flats and send in tight packages to save cost, risk and time.

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Fancy Recleaned Utah

ALFALFA SEED

Also California Sorghum Seed.
MILLER & LUX, Incorporated,
1308 Merchants Exchange Bldg.,
San Francisco, Cal.

of Princeton. This land was in grain, but the heavy rains ruined the stand. The prospects for a good crop of sugar beets in the Sacramento valley are excellent.

Guisseppe Garibaldi, nephew of the famous Italian patriot, is in California, looking for land upon which to plant a colony of his countrymen. From his published statements he has no land scheme, but wishes to help the Italian colonist secure land on which he can help himself.

Last week the Orange County Celery Association closed a contract with the California Vegetable Union for handling the 1909-10 crop. The Union is to receive 1¾ cents on celery sold for less than 18 cents and 2¼ cents for the product sold for 18 cents or over. The Union has had the contract for selling for the Association for a number of years.

Live Stock and Dairy Notes.

The district around Williams, Colusa county, sells to the bay cities an average of $50 per day of hen fruit.

The Pacific Butter and Cream Company of Oakland has leased the creamery at Livermore and have already commenced to operate it.

One party in Petaluma is reported to have shipped 160,000 newly hatched chicks one day last week. This new industry of hatching and shipping chicks is growing very fast.

The Colusa Butter Company paid 39.10 cents net per pound for butter fat delivered during February. The average price for California butter during the month was 35.60 cents.

The race track at Pleasanton has been sold by Thomas Ronan to H. E. Armstrong, a former lumberman of Portland. Mr. Armstrong announces that he will make the track one of the best for training purposes in the world.

Dr. Paxton, who has been in charge of sheep inspectors in Tehama county, reports less than half as many scabby sheep in that district this year as formerly. Shearing will commence in that locality about April 1 and dipping April 15.

Louis Bell Oco and three others have purchased the cheese factory in the Dallas district, Kings county, together with 140 head of dairy cattle, horses, etc. The business will be continued under the name of the Frasco Cheese Factory Company.

F. O. Brandt has ordered the machinery necessary to equip a first-class creamery at Healdsburg. Heretofore the cream raised in that part of Sonoma county was sent to Santa Rosa or Petaluma, but the new plant will change this, besides stimulating farmers to increase their dairy output.

A Money Making Dairy.

The Sutter County Farmer tells the following story of money being made in the dairy business: The dairy of Mark A. Girdner has made a fine showing during the past year, from March 1, 1908, to March 1, 1909. From less than one hundred cows he has received a gross income of $586.78 per month. The amount of cream sold was 66,080, from which the butter record was 25,186.09 pounds, and the receipts were $7,041.35. This is from the sale of cream alone. In addition to this he sold over $175 worth of milk-fed hogs per month, besides getting a large increase in his herd in the way of young stock.

SAN FERNANDO NURSERY CO.
San Fernando, Cal.

	Per Hundred.
Peaches	4-6 ft., $15.00; 3-4 ft., $13.00
Apricots	4-6 ft., $13.00; 3-4 ft., $11.00
Plums	4-6 ft., $16.00; 3-4 ft., $14.00
Walnuts	4-8 ft., $30.00; 3-4 ft., $20.00

Ornamental Shrubbery and Roses.
Burbank's Spineless Cactus, $2 per Plant.

THE STATE DECLARES FOR THE GRAPE.

Through the recommendation of Andrea Sbarbaro, president of the Grape Growers of California, Senator Price of Sonoma county introduced the following resolution, which was adopted by the unanimous vote of both the Senate and the Assembly, just before the legislative adjournment this week:

"Whereas, The State of California is now becoming pre-eminently a grape-growing State, where wine can be produced as cheaply, of as fine a quality and in as large quantities, as in any country in the world; and, whereas, there are at the present time over 250,000 acres of land in the State of California devoted to the viticultural industry, representing an investment of over $100,000,000; and, whereas, a very desirable class of people are coming into this State and taking up the improvement of vast areas of land which have hitherto been productive and of little value, planting vineyards on land absolutely unsuited for any other purpose and hoping to find a market for their grapes for table consumption, for the making of raisins, and for the manufacture of wines. Now, therefore, be it

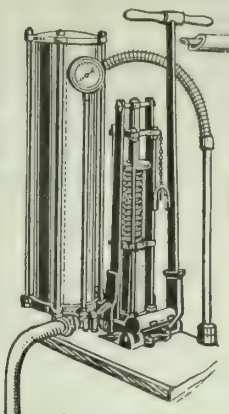
"Resolved, by the Senate of the State of California, the Assembly concurring, That we strongly recommend the encouragement of the viticultural industry in this State, and we favor the enactment of legislation, either by the Federal Government or by the State Legislature, or the passage of regulations or ordinances by any of the counties, cities or towns of the State, that would foster this most important industry, which is destined, if properly encouraged and cared for, to be one of the greatest industries of the State."

Several colonies of Dunkard farmers are to locate in Stanislaus county in the near future.

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Nitrate Sold in Original Bags
NITRATE AGENCIES CO.
64 Stone Street, New York
Keyser Building, Baltimore, Md.
36 Bay Street, East, Savannah, Ga.
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San Francisco, Cal.
603-4 Oriental Block, Seattle, Wash.
Address Office Nearest You
Orders for All Quantities Promptly Filled—Write for Quotations

CHOICE
LEMON TREES
Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Cirtus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.
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SAN DIMAS, CAL.

CRIMSON WINTER RHUBARB
March, April and May, best time to plant Rhubarb.
$1.50 per doz., $6 per 100, $40 per 1000.
All kinds of small fruit and berry plants.
J. B. WAGNER, Pasadena, Cal.
The Rhubarb and Berry Specialist. Dept. I.


More Money For You
Greater productiveness of trees—larger, cleaner, and finer fruit—more money. Isn't that fruit growers' reasoning? Nothing will contribute to this end more than effective spraying. And **Effective Spraying** can best be attained with
Bean Magic Spray Pumps
Effective spraying means **High Pressure Spraying** and till the advent of the Bean Magics a high pressure could not be maintained with a hand pump for any length of time, on account of the body-racking effort needed to operate it. The Bean patent spring divides the work between the two strokes of the handle and works against only one-half the pressure shown on the gauge and saves exactly one-third the labor.
Our illustrated catalog No. 21 describes ten sizes of hand pumps, and contains much valuable spray information, and formulas. Catalog No. 22 describes Power Sprayers. Both books sent free. Write for our special offer; state number of acres and kind of fruit.
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Headquarters for all kinds of Seeds. Catalogue upon request—FREE.
NAVLET BROS.
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KING RASPBERRIES—A Fine Berry.
The best early long distance shipper. 30,000 strong well rooted plants. $10.00 per 1000, $2.50 per 100. **Placer Nurseries,** 109 Orchard St., Newcastle, Cal.

FRENCH PRUNE TREES
TEXAS PROLIFIC ALMOND
Several thousand; very low prices.
LEONARD COATES NURSERY CO., Inc.
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Grafted Walnuts
Seedling Walnuts
Eureka Lemons
Blue and Red Gums
Grape Vines and Camphor Trees
And General Stock.
GEO. B. WARNER, - - - Santa Ana.

FRUIT TREES—TREES OF ALL KINDS
We make a Specialty o Muir Peaches, Bartlett Pears, French Prunes, and the Commercial Smyrna Figs
Send in list of your wants and get our prices before writing elsewhere.
MAYWOOD COLONY NURSERY COMPANY
W. Herbert Samson, Prop., Corning, Cal.

WALNUT TREES
Grafted or grown from carefully selected seed. Postal gets prices.
A. A. MILLS, Anaheim, Cal.

BARTLETT PEARS
I have a large stock of Bartlett Pears that cannot be excelled for size and quality, grown on whole roots one year old. Prices reasonable. Those desiring in any quantity, address,
R. P. EACHUS, LAKEPORT, CAL.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J. St., Sacramento, Cal. Send for catalogue.

Are You Planting Trees?
WRITE US AT ONCE
CONCERNING YOUR WANT
We are selling out fast. Can still supply some of the best standard sorts in all varieties. Stock is dormant, thrifty, well rooted and will give perfect satisfaction. It is not too late to plant. Don't delay. Write us now and secure the trees and vines you need.
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Growers of Commercial and Ornamental Eucalypti.
EKSTEIN & EKSTEIN, Modesto Euc. Nursery, Modesto, Cal.
EKSTEIN BROS., Vignolo Euc. Nursery, Anaheim, Cal.

SAN FERNANDO VALLEY.

Written for the PACIFIC RURAL PRESS
By ALLEN G. LLOYD.

Almost a century before the call of the gold, some of California's loveliest and most productive spots had won the attention of expeditions from Spain, and been selected as sites for missions and model pueblos. The new land was very fair, even to the eyes of the padres from sunny Spain.

Those shrewd old colonizers, loyal and devout, gave the name of their king to the attractive stretch still known as the San Fernando valley, and here founded one of their most historic missions.

The productiveness of the mission in its third year was shown in a careful record of 1000 bushels of grain, and pasture for 526 horses, mules and cattle and 600 sheep, while its healthfulness was attested by the fact that its baptisms more than doubled the deaths. Here in the hall of the stately old mission Fremont, long afterward, signed the treaty which ceded California to the United States.

It is not generally known that the first California gold dust was washed out in a canyon bordering on this valley, several years before Marshall made his historic strike. It panned $19 to the ounce and rounded the Horn to the Philadelphia mint.

But the fortune of San Fernando valley lay in its charming location and fertile soil. In 1826 an experiment station was here established in connection with the mission, and today the same rich earth tilled by the missionary fathers responds to modern science of cultivation at the hands of the San Fernando Nursery Company, near the old mission building so wonderfully preserved with its long arched collonades framed in the foreground by stately Yuccas.

Three years ago the green grain waved over the expanse, a large portion of which is now covered with citrus, deciduous and shade trees, great beds of roses, palms and vines, and almost every plant known to the semi-tropic regions of the earth, with cyprus, grevilla robusta, acacias, palo verdes, loquats and Japanese persimmons.

There are no less than twenty varieties of eucalyptus, the indigenous gum tree of Australia, the wood of the future both for fuel and cabinet work, from tiny sprouting gums to stalwart young saplings; palms in fifteen varieties, giant castor beans, magnolias and oleanders and every shrub and berry.

Burbank's famous edible triumph, the spineless cactus, for which such wonders are claimed, here flourishes. No less than seventeen varieties of the new dairy food are grown in this nursery, the manager, Mr. W. J. Mann, being confident that the waste lands of the south will eventually be turned into cactus pastures.

Amid the wealth of floral bloom are roses and carnations of every hue, heliotrope, foliage plants, geraniums, begonias, pansies, magnificent fuchias and hydrangeas, great masses of gay petunias and superb Canterberry bells.

Among the rarer trees are the bottle tree or brachychiton, the camphor tree, and the carob or "St. John's bread," now in flower pots, but in its stately manhood attaining a height of fifty feet, also the casuarina, resembling the pine. The rubber tree of South America, the source of so many Brazilian and New York fortunes, is shown to do well here, as indeed it does at any point in the State south of Fresno. It is not impossible it may yet be added to our industries. The arbitrary "belts" are being one by one discarded in California. Twenty-five years ago the successful growth of citrus fruits was experimetnal in the northern half of the State, and now the markets show that oranges and lemons thrive as well and are actually shipped earlier in Butte county and at Orangeville, in Sacramento county, than at Pasadena and Riverside, owing to greater remoteness from the sea breeze and increased protection from the coast range. Latitude which elsewhere governs geography and history seems in a great measure to suspend its sway in the great central valley and foothills of California.



Old Mission San Fernando, In Los Angeles County.

But, to return to San Fernando, old mission Indians tell today of the easy prosperity of their fathers from their flocks and herds that roamed the valley, hides and tallow being then the chief exports. The dwellings were of adobe with ponderous walls similar to the old landmark still resisting the suns and rains of its second century surrounded with orange and lemon groves.



Fremont Pass Connecting San Fernando Valley With the Upper End of the Santa Clara Valley.

As we have said, the wealth of citrus groves is not confined to the southern end of the State, but no doubt many factors combine to make San Fernando valley the future citrus gem of the south. The western side of the valley has hundreds of grain ranches. It is here the Los Angeles Farm and Milling Company harvests 65,000 acres of grain every year, being the largest grain ranch in the State. Thousands of sheep and cattle roam its hills and, after harvest, fatten on its miles of stubble.

This valley also contains, close by the town of San Fernando, the largest olive orchard in the world, covering 2000 acres with its silver green foliage. There are factory facilities on the ground for handling the immense crop of stored olives and the oil. Thousands of gallons are perfected in gigantic basement tanks and carloads of pickled olives are sent out each season.

Such is a brief sketch of the beauteous vale of San Fernando Rey de Espagna and its products old and new, but the near future still fairer fortune in store for the favored valley from other and extraneous causes. The nursery's transformation in three years suggests what would

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Plenty of Sunshine.
NOW SOW SEEDS FROM MORSE.
Be sure the name C. C. MORSE is on the label.
PLANTS TREES BUSHES SHRUBS
Everything the Garden Needs.
If you haven't got our new 1909 Catalogue, send us your name and address at once. You get it free for the asking.
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PLANTS——BULBS——TREES
Germain's Improved
CHILIAN WATERMELON
This magnificent watermelon is so popular in Southern California that it has practically excluded all other varieties.
This melon is almost round in shape, dark green, mottled with darker green, rind exceedingly thin, not over a quarter of an inch in thickness, but hard. A splendid shipper. Flesh deep crimson clear through, crisp and of delicious flavor.
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Our 1909 catalogue, 116 pages, profusely illustrated.
Sent free on request.
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Berry Plants
STRAWBERRY PLANTS.
In Strawberries we still have **Brandywine, Excelsior, Klondike, Jesse** and **A-1.** Also
Early Surprise Raspberry, Kansas Black Cap Raspberry, Himalaya Blackberry.
Write for special prices on Himalayas.
Phenomenal Berry, Mammoth Blackberry, Logan Berry and Dewberries.
Burbank's Crimson Winter Rhubarb.
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G. H. HOPKINS & SON,
Burbank, Cal.
BUY DIRECT FROM THE FARM.

MODESTO NURSERY.
Complete Line of Citrus and Deciduous TREES,
BERRIES, VINES AND ORNAMENTAL STOCK.
Write for PRICES NOW.
SHERLOCK & CARDWELL, Modesto, Cal.
Box 272.

arise from an abundant supply of water for the whole valley. This crowning blessing is assured and at the present time is being brought to fulfilment as rapidly as money and engineering skill can accomplish the work.

The magnificent scheme of the city of Los Angeles for the conveyance of its water supply from Owens lake by tunnel and viaduct a distance of 250 miles is an undertaking of national interest. A force of 600 men are now at work on the last tunnel, north of the town of San Fernando. Twenty thousand inches of water will be conveyed to the highest elevation of the tillable land of the valley. Here $1,000,000 is to be expended on a power house to create electric energy. The city's maximum supply is 4000 inches, so that there will remain 16,000 inches for the irrigation of the valley. This will be stored in immense reservoirs at the town of San Fernando and will thoroughly irrigate 2200 acres. The storage reservoirs alone will occupy 1400 acres, stretches of water of great possible beauty as well as priceless utility.

In this age of urban extension the City of the Angels may yet embrace within her civic confines these crystal lakes fed from distant mountain streams. No fervid fancy is needed to picture what this grand engineering work, when completed within four years, will mean to the valley, which will surely blossom like a veritable "Garden of Allah."

The great need of man, especially in an advanced social state, is pure water in abundance. There is one more requirement that spells prosperity—and in all the ages of history has marked high stages of civilization, and that is good roads—easy highways for the transportation of the fruits of the earth and for the intercourse of commerce.

In order, as it were, that nothing may be lacking to this fortunate valley, it will receive about half a million of the $3,500,000 voted last July in Los Angeles county to uphold the hands of the highway commission. This half million will be expended on about 55 miles of roads in the valley, connecting it with the city and with the interior beyond the mountain range. The historic Fremont pass, now difficult for wagons and motors, will be replaced by a tunnel of about 470 feet, and the Tejunga wash is to have bridging of about 3000 feet in length. Engineer A. E. Loeder, sent from Washington in charge of the work, is now pushing it to completion. The town of San Fernando is 21 miles from Los Angeles and connected for many years by railway. An electric road is now in course of construction.

AGRICULTURAL FEATURES OF THE COMING TARIFF.

Naturally much interest and even anxiety has been felt in the outcome of the long inquiry as to the desirability of tariff revision upon the productions of California. On the whole, there is great cause for satisfaction that our products are to receive continued protection, and in a few cases some additional protection has been proposed by the Ways and Means Committee of Congress, the report of which was brought before that body last week. Although there may be changes as the result of discussion in Congress, which may cover several weeks, there is every reason to expect results which will favor continued development in this State of the special industries for which California has become famous throughout the world.

The following are the items in the proposed tariff which are of chief local interest:

SPECIFIC DETAILS.

An increase in the duty on grapes from 20 to 25 cents per cubic foot of capacity of barrels or packages.

An increase in the duty on lemons from 1 cent a pound to 1¼ cents.

An increase in the duty on figs from 2 to 2½ cents per pound.

An increase in the duty on olive oil in packages of less than five gallons.

Ripe olives, formerly on the free list, are made dutiable at the same rate as green olives.

Mustard seed, formerly free, carries a 30 per cent duty.

The schedules on wines and brandies remain unchanged from the present duties.

Prunes remain at the present duty.

Oranges retain the present duty of 1 cent per pound.

Beans are scheduled at the present rate.

Beets are unaffected.

The present duty of 12 cents a pound on hops remains.

Pineapples, from $7 per 1000 to $8 per 1000.

The duty on cattle remains at the present figure.

Walnuts and almonds retain their duty.

Brazil nuts, now free, and which are associated in table use with California walnuts and almonds, are made dutiable.

Barley, from 30 cents per bushel to 15 cents per bushel.

Barley malt, from 45 cents to 25 cents.

Cabbages, from 3 to 2 cents each.

Bacon and hams, from 5 cents per pound, to 4 cents.

Fresh meats, from 2 cents to 1½ cents per pound.

Lard, from 2 cents to 1½ cents per pound.

Tallow, from ¾ cent per pound to the free list.

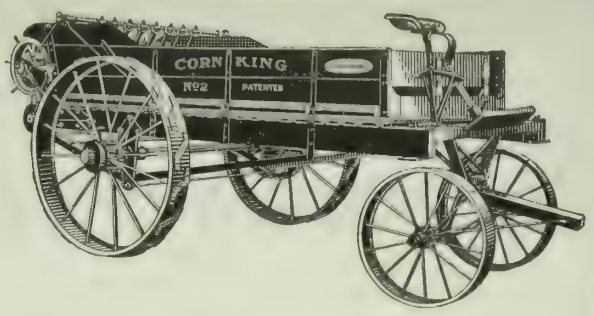
Peas, green, from 40 cents per bushel to 30 cents per bushel.

All starch, except potato starch, from 1½ cents to 1 cent per pound.

Flaxseed, linseed and poppyseed oil reduced to 15 cents per gallon.

Sugar, refined, is reduced from 1 cent

Why buy another farm?



Are you thinking of buying another farm in order to extend your operations and produce larger crops?

You will find it better in almost every way to build a new farm on top of the one you now have.

Do not seek to farm more acres but make your land produce more bushels.

If the farm you now have produces—say 35 bushels of oats per acre, instead of buying more land to get an additional 35-bushel yield, why not make the farm you have produce 70 bushels per acre? You can do it.

Buy an I.H.C. Manure Spreader

It is the machine which enables you to take the manure produced on the farm and in a few years fully double the productive power of your land.

It does this by placing the manure on the soil in the most available condition to support plant life.

It also makes the manure go further than can be done in any other way.

I. H. C. manure spreaders are made in three styles: Corn King, Cloverleaf and Kemp's 20th Century.

The Corn King is of the return apron type. The steel roller equipment of the apron on this machine reduces friction to the minimum, even with the heaviest loads. This machine will be supplied with either a ratchet feed or a double pawl worm feed for the apron. Either of these feeds can be regulated to bring the desired amount of manure to the beater. The beater is equipped with long, square steel teeth with chisel points. It is driven by means of a chain from a large sprocket on the rear axle. A vibrating rake is used on this machine to level the load as it comes to the beater. The Corn King spreader has steel wheels of the most serviceable construction and a frame made of thoroughly air-dried wood stock and put together in a very durable manner. There are three sizes of this machine: No. 2 small, No. 3 medium and No. 4 large.

The Cloverleaf is of the endless apron type. It is also supplied with two feeds for the apron—ratchet or double pawl worm feed. The beater on this machine is constructed the same as the beater on the Corn King. This spreader also has a vibrating rake to level the load as it comes to the beater, has steel wheels and a well made main frame. This spreader is made in three sizes: No. 2 small, No. 3 medium and No. 4 large. It is very attractive, being well painted and symmetrically designed.

The Kemp's 20th Century is of the return apron type. The apron on this machine has a worm feed which is very positive in its action. The beater bars are provided with long, round steel teeth, so placed on the cylinder that perfect distribution of the manure is insured. This machine has a leveling rake to insure a uniform supply of manure to the beater. The Kemp's 20th Century will be supplied with either wood or steel wheels. The frame of this machine is well braced both crosswise and lengthwise, and the wood stock used is of the very best. This spreader is made in a number of styles and sizes.

It is impossible to describe all of the features of the above machines in this small space. However, we have catalogs which illustrate and describe in detail the many excellent features of these machines. These catalogs are well worth procuring, not only because they describe the spreaders but because they contain information on soil fertility.

Points that are well to bear in mind in connection with these spreaders are that you can top-dress your fields and grow large crops of clover to turn under and enrich the soil, so that you may grow still larger crops and add to the soil's fertility. They double the value of the manure, save much time and labor and greatly increase the value of your land by increasing the soil's fertility.

Any one of these machines will pay for itself in from one to two years, depending upon the amount of work you have for it to do.

Call on the International local agent and see about owning one of these manure spreaders. He will supply you with catalog and full information, or, write direct to nearest branch house.

WESTERN BRANCH HOUSES: Denver, Colo.; Helena, Montana; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; San Francisco, Cal.

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12 in. long,	$ 9.00 per 1000
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and ninety-five hundredths of 1 cent, to 1 cent and ninety-one hundredths of 1 cent per pound.

Feathers are increased from 15 per cent to 20 per cent, ad valorem, and dressed or colored feathers receive an increase of 10 per cent.

Dandelion root and articles used as a substitute for coffee, 2½ to 4 cents per pound.

Chicory root, raw, not dried, from 1 cent to 2½ cents per pound. Roasted, from 2½ to 5 cents per pound.

The tariff on wool of the first and second class, used in clothing principally, is not disturbed, but wool of the third class, known as carpet wool, is reduced from a duty of 4 cents per pound on such wools worth 12 cents or less, and a duty of 7 cents per pound upon such wool exceeding 12 cents in value, to a duty of 3 cents per pound; on such wool valued at not more than 10 cents per pound, and if valued at more than 10 cents per pound and not more than 16 cents per pound, 3 cents per pound, and in addition thereto ½ of 1 cent per pound for each cent per pound of additional value exceeding 10 cents; if valued at more than 16 cents per pound, 7 cents per pound.

GENERAL NOTES.

In the reports of the attitude of affected interests toward the proposed tariff these notes are given:

The greatest protest is over free hides and the cuts in timber, wool and sugar. Beet sugar interests are making a fight to restore the 5 cents a hundred pounds duty on refined sugar.

The bill provides for reciprocal free trade with the Philippine Islands on all articles, but limiting the sugar to be imported free of duty to 300,000 tons; wrapper tobacco to 600,000 pounds, and 6,000,000 pounds of filler tobacco, and 150,000,000 cigars in any one fiscal year. The excess of sugar, tobacco and cigars to pay full tariff rates.

The grain interests of the West are alarmed over the grain schedules, as affected by the drawback provision of the bill. A duty of 25 cents per bushel is placed on wheat. Under the bill Canadian wheat may be imported by a miller; that miller can make into flour a similar number of bushels of the cheapest grades of American wheat and export it, and then receive a drawback of 99 per cent of the duties paid on the fine Canadian wheat. This makes Canadian wheat practically free.

The new tariff bill is made on a maximum and minimum basis, with the provision that the maximum rates are not to go into effect until 60 days after the passage of the bill. The reciprocity provisions are contained in the paragraphs assessing duties on bituminous coal and coke and agricultural implements by which these articles are given entry free of duty when imported from countries which permit the free importation of these articles from America.

Concerning the proposed measure as a whole, it is stated that through an average maximum duty 20 per cent in excess of the present tariff, and numerous provisions which yield income, it is estimated that the revenue to the Government will be increased from $40,000,000 to $50,000,000 per annum.

Of course it cannot be determined what the tariff will actually be until final action is reached by Congress.

Cabbage shipments from Imperial valley began last week. The first carload netting the growers better than $40 per ton.

The Orange county peatland ranchers have planted a very large acreage to sugar beets this season, believing that the season will be a good one and that the two sugar factories in that county will use all the beets they can raise at good prices.

Entomological.

THE NEW COUNTY HORTICULTURAL LAW.

A new county horticultural law has received the Governor's signature and will go into effect as soon as the necessary appointments are made by the governor in accordance with its provisions.

This new law proceeded from the initiative of the Fruit Growers' Convention of 1907 which provided for the appointment of a committee to revise the law, and Mr. Jeffrey, as chairman of the convention, made the following appointments: Judge P. J. Shields, Sacramento; Arthur R. Briggs, San Francisco; D. G. Overall, Visalia; A. G. Kendall, Los Angeles, and James Mills, Riverside.

It is not necessary to give the causes of the old law that stand unchanged in the new enactment. Hence it is only necessary to publish Sections 1, 3 and 5 to give the fruit growers a clear idea of the law so vitally affecting their business.

Section 1. Section 2322 of the Political Code of the State of California is hereby amended to read as follows:

Whenever a petition is presented to the Board of Supervisors of any county, and signed by twenty-five or more persons each of whom is a resident freeholder and possessor of an orchard, stating that certain or all orchards, or nurseries, or trees or plants of any variety are infested with any serious infectious diseases, or scale insects of any kind injurious to fruit, fruit trees, vines, or other plants or vegetables, or that there is growing therein the Russian thistle or saltwort (Salsoli kali, variety tragus), Johnson grass (Sorgum helepense) or other noxious weeds, codlin moth or other insects that are destructive to trees; and praying that a commissioner be appointed by them whose duty it shall be to supervise the destruction of said scale insects, diseases or Russian thistle or saltwort (Johnson grass) or other noxious weeds as herein provided, the Board of Supervisors shall, within 20 days thereafter, appoint a county horticultural commissioner whose term of office shall be four years and until his successor shall be appointed and qualified and who shall give a bond in the sum of $1000 conditioned for the faithful performanec of his duties. In any case where such petition has already been presented or submitted, or is on file at the time of the passage of this act, as the basis for the appointment of a board of horticultural commisisoners under this chapter as heretofore existing, such petition shall continue in full force and effect and the board of Supervisors of any county with which any such petition has been filed, or in which any board of horticultural commissioners has heretofore existed, must appoint a county horticultural commissioner. The person appointed to such position must be specially qualified for his duties and must be chosen and appointed by the Board of Supervisors from a list of resident citizens of the county, which has been recommended and nominated to said board as hereinafter provided, such appointment to be made within 20 days after receipt of said list by said Board of Supervisors. A State board of horticultural examiners is hereby created consisting of three persons who shall be owners of orchard or vineyard property, or actively engaged in horticultural or viticultural production, or educated and trained in horticultural or viticultural science, who shall serve without pay, and which board shall provide convenient means for the examination of candidates for appointment as horticultural commissioner. Said board of examiners shall be appointed by the Governor and shall hold office for the term of four years and until their successors are appointed and qualified. Vacancies in said board of examiners shall be filled by appointment by the Governor, the appointee to hold for the remainder of the unexpired term. Said board shall appoint one of their number treasurer, who shall receive all money collected by or for the board, and disburse the same only in payment of the actual necessary expenses of said board for traveling, printing, postage and other incidental matters. Said board shall biennially report to the Governor a detailed statement of their receipts and disbursements. Thirty days before the date of the examination of candidates for the said appointments, the State board of horticultural examiners shall publish, or post notices of the time and place at which such examination shall be held, setting forth the conditions and subjects of said examinations, such publication or posting to be for such time and in such manner in the county for which such examination is to be had, as the State board of horticultural examiners in their judgment may deem advisable. At the time and place stated and agreed upon such examination shall be held. Said examination shall be in writing, and the board of horticultural examiners may appoint one of their own number, or some other reliable and competent persons to supervise the taking of such examination in each county and forward the papers of each applicant to the board for consideration. Each applicant for examination shall before taking the examination be required to pay a fee of $5 therefor, which shall be delivered to the person supervising the examination and by him transmitted to the treasurer of said board. Within 20 days after the examination is held, said examiners shall certify to the Board of Supervisors of the county for which the examination was had the names of such of the persons examined as they deem competent and qualified for such office, and from the list of names so certified the supervisors shall appoint a horticultural commissioner. As far as possible the board of horticultural examiners shall consult the resident fruit growers of the county in determining the responsibility and moral qualifications of candidates for appointment as commissioners and whose names they certify to the Board of Supervisors of the several counties. If no persons present themselves for examination before said State board of horticultural examiners or if after such examination no persons are found qualified, the State board of horticultural examiners shall name five residents of the county who shall be practical fruit growers, and certify them to the Board of Supervisors, and from these names the Board of Supervisors shall appoint a county horticultural commissioner. In case of a vacancy in the office of horticultural commissioner, the vacancy shall be filled from the list of eligibles certified to the Board of Supervisors under the provisions of this act. Whenever from any cause the number of persons eligible and certified to any Board of Supervisors, from which to select and appoint a county horticultural commissioner, is or becomes less than five, the State board of horticultural examiners shall proceed to certify or recommend the names of additional persons as hereinabove provided. Whenever elsewhere in the laws of this State reference is made to a county board of horticulture, such reference must be understood to mean and relate to the county horticultural commissioner herein provided for and said county board of horticulture and the members thereof shall cease to exist as such; provided, that all county boards of horticulture existing at the time of the passage of this act shall continue in office, with full power as heretofore existing until the election or appointment to succeed them, of a county horticultural commissioner under the provisions of this act.

Section 3. Section 2322b of the Political Code of the State of California is hereby amended to read as follows:

Said county horticultural commissioner shall have power to divide the county into districts, and to appoint a local inspector, to hold office at the pleasure of the commissioner, for each of said districts, and may with the consent and approval of the Board of Supervisors, appoint two deputy horticultural commissioners from the list of names certified to the Board of Supervisors by the State board of horticultural examiners.

Section 5. Section 2322d of the Political Code of the State of California is hereby amended to read as follows:

The salary of all inspectors working under the county horticultural commissioner is $3.50 per day. The deputy commissioners shall receive $5 per day each, during the time actually employed as such officers. In the case of the commissioner himself, his compensation shall be $6 per day, when actually engaged in the performance of his duties, and necessary traveling expenses incurred in the discharge of his regular duties as prescribed in this chapter.

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USE SPRA-MULSION [SPRAY-EMULSION]
Contains dissolved petroleum oils. For summer or winter work. Makes permanent milk-white emulsion with water. Cheaper than lime and sulphur and better. Efficient for all scales and all aphis.
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We have positively demonstrated that WE CAN CURE THIS DISEASE.
Write us for particulars.
Pear Blight Remedy Co.
VACAVILLE, CALIFORNIA.

Live Stock and Dairy.

USE STARTERS.

By Prof. H. A. Hopper, University Farm, Davis, Cal.

The success of the butter maker depends upon many things, but in view of the results of the recent "contest" a reference to starters is timely. There were 24 entries, though the butter in only half of them was made from cream ripened with a starter. Of course, "one swallow does not make a summer, neither do the facts obtained from one contest prove or disprove the value of starters. However, it is a significant fact that in the recent contest practically all the butter grading as extras was made with a starter. This whole field has been gone over so carefully in other States that it seems like ancient history to resurrect the subject. It is untimely to argue that starters are valuable aids to butter making; that fact has long been demonstrated. I refer to it now because we were forcibly struck by the failure of so many to take advantage of the starter in controlling flavor in the entries submitted to the recent contest.

Several used such a small quantity that under the best of circumstances it could have little or no beneficial effect. With ordinary sour cream 2 to 4 per cent of starter is not enough. It is one thing to use starter, but quite another to use it properly. When used in sufficient amounts the good effects were unmistakable. The highest scoring entry was made by using 15 per cent starter. Then again, it depends not only upon the quantity but also upon the quality of the starter. A poor starter is worse than none. A good starter is indispensible to the making of good butter from gathered cream. California butter makers are evidently not using starters generally. If not, it is a great mistake and needs immediate attention.

How to Make a Starter.—A starter can is inexpensive and ought to find its way into every creamery. In case it doesn't, a good starter may be made in a milk can or shot-gun cans to be found in all creameries. Clean, fresh whole milk or skimmalk can be used, but as the top has to be thrown away, the latter is preferable. Place in clean vessel and hold at 70 to 80 degrees F. 18 to 24 hours until sour. Remove about an inch of the top and it is ready to add to the cream. The skimmilk used should be selected with care, preferably from a herd that is carefully handled. Often the milk of a single cow is allowed to sour and used to inoculate a larger quantity of pastuerized skimmilk (180 degrees), thus constituting a starter. These are natural or home-made starters and when cultivated from clean milk they give excellent results.

By inoculating a sufficient quantity of pasteurized skimmilk with an artificial culture, the so-called commercial starter is produced. These, too, require care in preparation and protection from contamination. If the coagulated mass has a clean milk acid taste and aroma it indicates a good starter. Nothing short of a clean flavor should be used, as its purpose is to improve the condition of the cream to which it is added. Stir well when added to the cream.

Amount to Use.—One of the butter makers' difficulties is to secure enough skimmilk for starter making purposes. Every effort should be made to secure enough so that 10 to 25 per cent of starter may be used. With rich cream more can be used than with thin cream, as the dilution of the thin cream affects the ease of churning. With 30 to 35 per cent cream, 20 per cent of starter can be used to advantage. Prepare it carefully and add as liberally as the cream will permit, for through pasteurization and starters only can California butter be immediately improved. Begin now to use starters if you never have used them before.

GROWING DAIRY SUPPLY-HOUSE.

Progress of the times is seen by the growth different business firms make, and this is very noticeable in that made by the DeLaval Dairy Supply Co., which is a leader in its line of work.

This firm was first organized in 1902, beginning business in San Francisco in a small, unpretentious building. A little later it opened branches in Portland, Ore., and in Seattle, Wash. The business prospered, and in 1905 it purchased the business that had been established by G. G. Wickson & Co., who also had branch houses in Portland and Los Angeles. Two years later the company took over the creamery and dairy supply department of the Joshua Hendry Iron Works.

In 1903 the DeLaval Supply Company occupied a large building at 9-11 Drumm street, San Francisco, but in 1906 the fire destroyed this building and temporary quarters were opened in Oakland until May, 1907, when the company returned to San Francisco to carry on its extensive business at the corner of Drumm and Sacramento streets.

There is no space lost in the present building, which is packed from cellar to the second-story roof with pumps, engines, many kinds of machinery and all kinds of apparatus wanted by the dairy folks. The DeLaval Supply Company represents two of the largest factories in the world, the DeLaval Separator Co. and the Creamery Package Manufacturing Co. Also it has the Pacific coast agency for the Stickney gasoline engine, the Barber and Wizard refrigerating machines, Victor and Disbram combined churns and washers, Babcock testers, etc.

The DeLaval Dairy Supply Company has its headquarters and shops in San Francisco, branch houses at Los Angeles, Portland and Seattle and has besides about 150 agencies in the different towns throughout California, Oregon, Washington and British Columbia. Recently the company has gotten out a most beautiful catalogue illustrating and describing the 1909 models of the DeLaval cream separators; it also contains much valuable information for owners of cows. We believe that those of our readers who are interested in dairying would profit much by sending for this catalogue. Mention the Pacific Rural Press and you will be sure to receive the catalogue. The DeLaval Supply Co. would be pleased to have the farmers call whenever they are in San Francisco.

ALFALFA GRINDERS.

Grinders of alfalfa hay have reached such prominence that they have a national alfalfa millers' association which recently held a meeting for organization, with representatives from Colorado, Nebraska, Oklahoma and Missouri present. Dr. Axtell of Newton, Kan., was elected president; I. S. Woodward of Wichita, Kan., vice-president; H. Y. Yoder of Kansas City, second vice-president; L. L. Wiles of El Reno, Okla., third vice-president; Harry Cassady of Boulder, Col., fourth vice-president; A. T. Wing of Wichita, secretary, and H. C. Thompson of Wichita, treasurer. The object of the association is to advertise alfalfa mills products in the East.

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From my stock. Prices are right. All stock guaranteed. Correspondence solicited.

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TRADE IN YOUR INFERIOR SEPARATORS

15,000 American users of poor or worn-out separators traded them in last year on account of new

DE LAVAL CREAM SEPARATORS

and there are doubtless many more owners of such machines who will be glad to know that while such old machines have no actual value, the DE LAVAL Company continues to make liberal "trade" allowances for them because of the opportunity such exchanges afford for the most practical illustration possible of the difference between good and poor separators and putting a stop to the sale of others like them in the same neighborhood. Nobody is injured through the re-sale of these old machines, as they are simply broken up and "scrapped" for their old metal value.

Then there are many thousands of DE LAVAL users who should know that they may exchange their out-of-date machines of from 10 to 25 years ago for the much improved, closer skimming, easier running and larger capacity machines of today.

Write in a description of your old machine—name, size and serial number—or see your DE LAVAL agent.

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Gentlemen:

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(Signed) MRS. M. MONROE,
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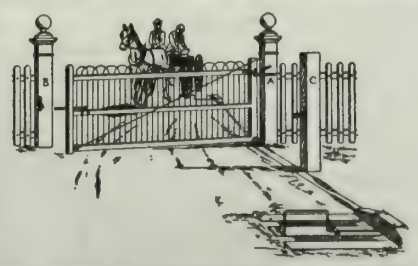
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This famous preparation has now been used over a decade in the United States for dipping sheep, cattle, and hogs. It bears the endorsement of the Bureau of Animal Industry at Washington, D. C. It will not discolor the wool; will not injure the eyes of the sheep; positively prevents scab, and does not in any way set back the stock when dipped.

Ask your nearest dealer or write for particulars to:

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WORK AGAINST RANGE PESTS.

In co-operation with the stockmen, the United States Forest Service has begun an active campaign against prairie dogs on the infested ranges within the national forests of Arizona and New Mexico. Successful attempts at poisoning prairie dogs were made last spring and summer by the Forest Service in other parts of the country, and this year the work will be carried on much more extensively.

The poison used to put an end to these little pests of the Western ranges is prepared by coating wheat with a preparation of strychnine, cyanide of potassium, anise oil and molasses. The stockmen supply horses and men and the poisoned wheat is given out by the government officers for distribution upon ranges within the national forest area. Each rider carries the wheat in a tin pail supported by a gunny sack slung across his shoulder. One hand is free for the reins and with the other the rider uses a teaspoon to measure out the poison in "baits" and drops it near the entrance of the holes. The action of the poison is almost instantaneous. Most of the prairie dogs in a town are dead within an hour or two after the bait is dropped.

Early last month 9300 pounds of wheat were prepared in Albuquerque and shipped to the various National forests in Arizona and New Mexico to be distributed. This quantity of wheat will make approximately 6,020,000 baits, which will clear up an area of from 65,000 to 80,000 acres, at a cost, exclusive of the labor of distributing it on the ranges, of about one to one and a half cents an acre. The poison is used to best advantage in the early spring when the dogs first come out of their winter quarters, and before the green grass is plentiful enough to appease their appetites.

Last month a well-known stockman in northern Arizona, writing to the Forest Service of his stock range on the great Canyon Diablo plateau, says: "Five years age such a thing as a prairie dog was unknown here. Two years ago there were a few widely distributed over the range. Last year they became numerous, in fact, quite common. If something is not promptly done to destroy them they will do great harm to the range."

As all Westerners know, prairie dogs are among the worst enemies with which stockmen have to contend in some of the slope States. Where they establish themselves the destruction of the range is only a question of time. On ranch lands they have proved most destructive to a variety of crops, among which are wheat and alfalfa, grain, potatoes and sugar beets, and on grazing lands they are said to consume and destroy so much grass that the grazing capacity of the range is reduced 50 to 75 per cent.

It is expected that the campaign against the dogs in the Arizona and New Mexico forests will be most successful, as it has met with universal favor among the stockmen, who are giving every assistance to the Forest Service men. Range improvement in national forests is one of the chief objects of regulating the grazing, and for this reason the Forest Service is leaving no stone unturned to prevent range deterioration.

Stockmen and others who wish to try the poisoning on their own account can obtain the formula for its preparation and direction for its use from the District Forester at Albuquerque, New Mexico, or from the Forest Service, Washington.

SCOURS IN CALVES.

By Dr. David Roberts, Wisconsin State Veterinarian, '06-'07-'08.

Scours in calves, or calf cholera, in many instances differ from diarrhoea in grown animals, and has special features of its own, taking the form of infectious intestinal catarrh, which is far more serious than the diarrhoea of the full grown animal.

Scours in calves generally appear suddenly. A perfectly healthy calf may be seized all at once, apparently without any change in food or care. The symptoms of this infantile diarrhoea usually appears during the first two or three weeks of life. In many cases scours appear within a few hours after the animal is born, and the calf may die within from 24 to 48 hours unless it receives prompt and proper treatment.

It is common for the calf to be afflicted with scours immediately at birth, even before it has had time to suck or take any nourishment whatever.

The faeces or manure is very thin and watery. It has a sour disagreeble odor and is usually light colored. The evacuations are frequent and expelled with force.

The first indication of scours is the soiled condition of the tail, loss of appetite, sunken eyes, sometimes the saliva flowing from the mouth, no attempt being made to swallow. They have a staring coat, grow thin and lose strength rapidly. Death usually follows in from 12 to 24 hours unless prompt measures are taken to check the disease. If allowed to continue for any length of time the scouring will be accompanied by congestion and ulceration of the intestinal mucous membrane caused by the irritating secretions. As a result of this disease, partial or double blindness is sometimes brought on.

To prevent scours in calves, proper care should be given to the mother while pregnant, that she may be able to give birth to a healthy calf. As scours is a germ disease, it is important that the calf be free from this disease when born. Cows afflicted with the disease of abortion convey this disease to their offspring. It is for this reason that calves so often die of scours before they have ever taken nourishment. It is therefore very necessary that the cow be kept free from disease in order to obtain healthy calves.

Calves born afflicted witn the germs of this disease in their system are in a position to spread the disease to other calves that may come in contact with the same herd, or if shipped to other herds.

To prevent and overcome scours in calves, they should be given medicines that prevent fermentation of food to allay irritation and cohgestion, sooth and heal inflamed mucous membrane, act as an antiseptic, and this is quite necessary when the desease is due to a germ.

The most important factor in the raising of cattle is their care while young. Do not think that you are doing the correct thing if you are only managing to keep the life in the calf until it is three months old, and then have it get fat on grass before the winter comes. If you do this, you will be apt to have a lot of stunted calves with their digestive organs destroyed which will never make strong, healthy cattle, and will not be good for either dairy, beef or breeding animals.

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And a trial of it means constant use ever after. Mica Axle Grease *won't* make an empty wagon *push* a horse up hill; but it *will* make a big load draw no end of per cent easier.

It's a friction killer and a horse saver; and it wears so well that it's hard to remember the date of last greasing.

Ask your dealer for Mica Axle Grease and try it.

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WEST COAST CONDITIONER

(or Stock Food). We want to convince 500 new customers that beyond question it is the best Condition Powder made, and our only condition is this, that if you find it as we state, you will speak well of it to your neighbors and friends. We do this because we are sure a trial of our goods is the very best use of our advertising money.

WEST COAST CONDITIONER is purely a vegetable compound, very strong and effective, but perfectly harmless. It will make young stock grow and develop in a rapid yet natural way. It purifies the blood, tones up the system, acts on the digestive organs, enabling the animal to assimilate all of its food and convert the same into blood, bone, fat, sinew and muscle. Hence it is a great feed saver. It has been a standard preparation on this West Coast for many years. Send for our free Booklet, with many testimonials.

Our offer is this: Send us $1.00 and we will send you, freight prepaid to any Station in California, the 25 lb. pail of Conditioner (regular price, $3.00 Los Angeles), one 35 cent bottle of Germfoe and one 50 cent bottle of West Coast Poultry Remedy. The $1.00 will not pay the freight and the cost of the other two articles, and you get the Conditioner absolutely free; and the empty pail is worth 35 cents. And in addition, we will put in the pail, as a further gift, a handy and useful household utensil. Please mention this paper and state how many head of stock and poultry you have, and we will do the rest. If you should not be among the first 500 we will promptly return your dollar.

WEST COAST MILL CO.

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Pure Bred Holsteins

At present we are offering a fine lot of **Young Bulls and Heifers** at very attractive prices. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co. now owned by the

OAKWOOD STOCK FARM
LATHROP, CAL.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg

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A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites. Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

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CORNS ON HORSES' FEET.

Concerning these troublesome growths on the foot of the horse, Dr. Crary has this to say: "A corn is an injury to the sensitive tissue of the sole, quarters, or bars of the foot. It consists in a bleeding from capillary blood vessels that are pressed on or ruptured, and the surface of the horny tissue becomes stained a reddish color. If the part is effected by pus germs and matter forms, it is termed a moist corn. If the inflammation is absent and the tissue dry, it is called a dry corn. Weak, badly formed feet are predisposed to corns. The principal external causes are faulty shoeing and allowing the shoes to stay on for too long a time. Corns sometimes cause considerable lameness. Suppurative corns are the most troublesome and require immediate attention. The foot is inflamed and may be swollen at the coronet.

"In badly formed feet it is impossible to stop the development of corns. The shoeing should receive the necessary attention. In bad cases removing the shoes and turning the horse on pasture is the best line of treatment. In dry corns little more is required. If the foot is inflamed a flaxseed poultice should be applied, and when pus is formed an exit should be provided for it, the foot kept clean, and the corn washed daily with an antiseptic wash (creolin, 2 parts, to 98 parts of water.")

Dr. Hooper contributes these suggestions: "The only mode I conceive by which a corn can either be cured or pallisted is to take the pressure off from the diseased part, and this not only for a short time, but till the injured sensible part has lost its tenderness and formed horns of sufficient strength to enable them to bear the pressure. While a horse is worked the shoe should be frequently examined, and whenever the heel appears to be so near the diseased part as to be in danger of bearing on it, it should be immediately removed, and some more horn pared away, so as to have a considerable vacancy between the hoof and the heel of the shoe. For even if a bar shoe is appled, the horn will in time grow down so as to be in contact with the heel and the shoe. When a horse becomes very lame from a corn, it will be advisable to leave the shoe off for a short time and apply a large bran poultice. When tenderness is perceived about the coronet and a little matter is seen oozing out from the horn of the heel, it should be pared away that the matter may escape freely. The exposed part may be dressed at first with a solution of blue or white vitriol, afterwards with tincture of myrrh, or friar's balsam."

Dr. Walsh suggests: "The ordinary mode of treating corns is simply to cut them out, leaving the bar and heel of the crust full, and thus taking all pressure off them. This enables the horse to do his work for about 10 days, but then the shoe must be removed and the paring-out repeated, a process which weakens the already weak crust by making additional nail holes in it. The shoe at the same time is generally 'sprung,' that is, it is so bent or filed that the heel does not fully bear upon it. But this does not last many hours, and is of little real utility. The plan answers well enough for the purpose of fraudulent sellers, as the horse runs sound for about 10 days, and when he fails, and on taking off his shoe he is discovered to have a corn, it is impossible to prove that it existed at the time of the sale by any evidence but that of the smith who shod him previously to it. Excepting, therefore, in very slight and recent cases, in which he will sometimes be followed by success, this plan of treatment is only palliative, and what is worse, it tends to increase the weakness of the foot and consequent tendency to the disease. With this the horse does his work comfortably on the road, and in process of time, that is, in 2 or 3 months, the heel grows up and takes its own share of pressure, or a part of it, becoming gradually accustomed to the amount which it will have to bear when the bar shoe is discontinued. In the meantime a little of the following lotion may be applied daily to the situation of the corn by means of a feather: Chloride of zinc, one dram; water, 6 ounces; glycerine, 2 ounces; mix well. In every case the bar shoe must be continued until the heel of the crust and the bar grow down strongly, and then a common shoe may be applied."

Dr. Kay used this remedy successfully: Two ounces of gum camphor, 2 ounces of oilganum, 6 ounces of strongest alcohol. Mix and apply twice a day.

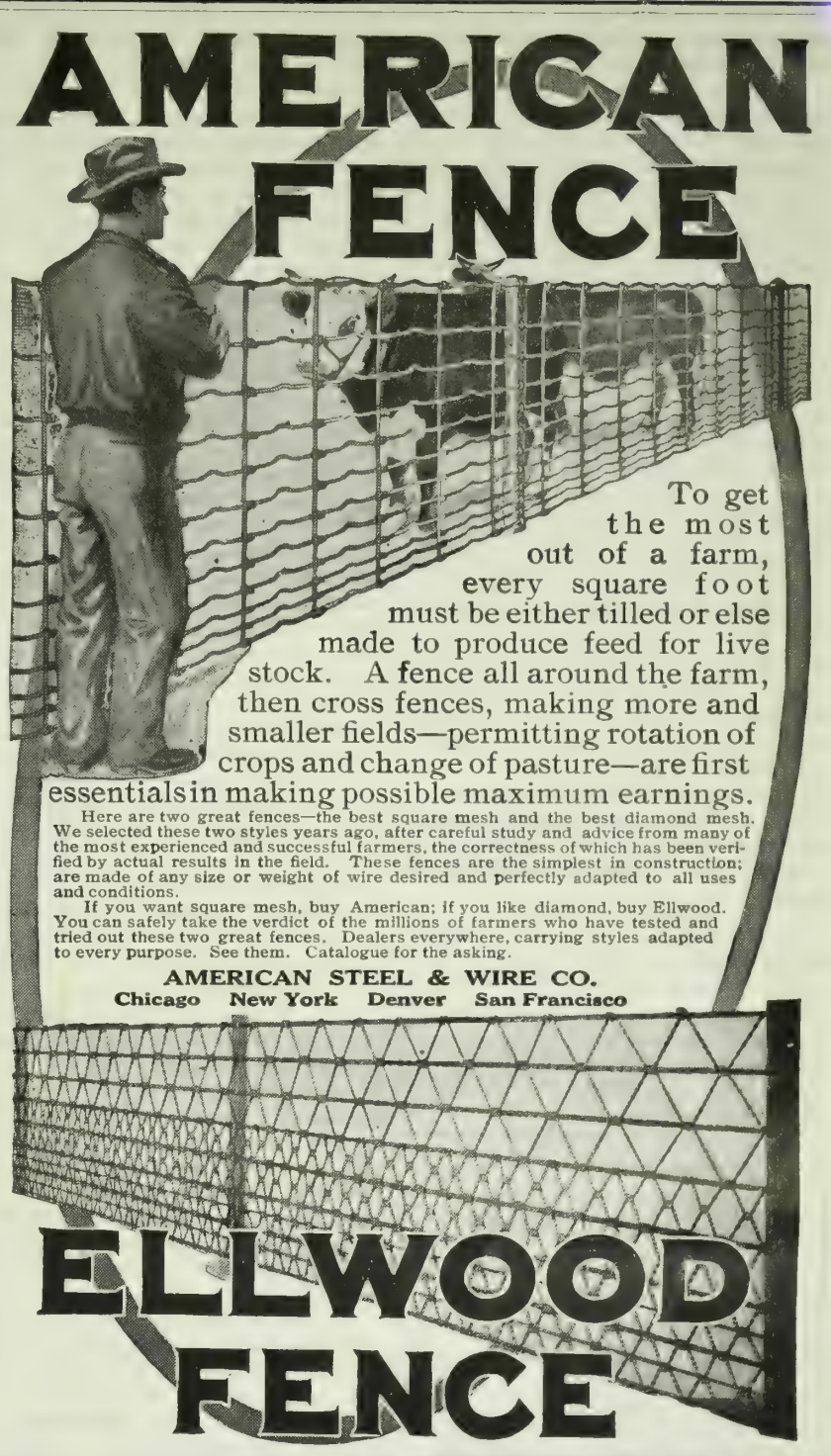
Dr. Bailey treats corns as follows: "Wash the part well with hot water, having the water as hot as the hand can be borne in. Then bind a little blue vitriol over the corn. Follow this treatment for 4 or 5 days and then treat with tincture of myrrh till the corn is removed."

THE POLLED ANGUS.

We have already given our readers the Colorado range point of view about Shorthorns and Herefords. This is the way the Denver Field and Farm looks at the Angus in the words of Mr. Charles E. Sutton:

Our experience with this breed covers a period of 20 years. We started our herds in 1885 and like most eastern people believed good cattle must be red. So we selected Short-horns and good ones. My uncle on an adjoining ranch preferred Herefords and purchased four fine imported bulls at a long price. Our ranches were located only 14 miles from that of George Grant, the first importer of Angus cattle to America. In purchasing our young steers in the fall we chanced to get quite a few blacks sired by his bulls. Spring found these doddies in better condition then than the other cattle. They were the first to reach the feed rack in the morning and the last to leave the feed at night regardless of weather. Fall found them fat and fine and being hornless we decided to try them. So in 1887 we purchased two imported heifers and a bull and from this small beginning have continued to increase our pure-bred herd until now it numbers nearly 200. In the meantime we used the purebred bulls on our Short-horns cows. This proved a great cross, the offspring being black and hornless, with fine size and quality, frequently weighing over 500 pounds on the average at weaning time and selling at $5.50 per cwt. on the farm. We are thoroughly convinced that we made no mistake in this selection and a number of our neighthink the same way, as there are now about 30 of them using purebred Angus bulls. An enumeration of a few of their good qualities may not be out of place. A purebred—not a grade—Angus bull dehorns the calves and makes them of one color and type. The calves when dropped are very small, making the loss light in calving and especially in heifers while with the Short-horns it is always large. They are are prolific. Our imported heifers never missed a calf in 15 years and they are good mothers and sucklers. They weigh equal to the Short-horn and heavier than the Hereford under the same conditions. Flies do not bother them as they do red cattle.

A comparison of the number of each of these breeds show that there are only about 90,000 purebred Angus cattle of breeding age in America, while there are hundreds of thousands of Herefords and Short-horns. These figures alone show that the Angus bull has no equal as an improver for the fact that the great beef markets are topped oftener by Angus bullocks than by both the other breeds com-



COMPARE PRICES AND RESULTS

Analysis (from Bulletin 164, Jan. 1905—University of California.)

DIGESTIBLE PROTEIN IN

Linseed Oil Cake Meal	24.4 per cent	Shorts	12.2 per cent
Cocoa Cake or Meal	16.4 "	Mixed Feed	9.6 "
Wheat Middlings	12.2 "	Corn Meal	6.4 "
Wheat Bran	11.2 "	Wheat Hay	3.6 "

If you feed for Protein you get Results.

Ask your jobber for prices or write

PACIFIC OIL & LEAD WORKS, - - - SAN FRANCISCO, CAL.
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FREE TO LIVE STOCK OWNERS

I Have a Number of Volumes on

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Copies of which I will give FREE upon application. Parties at a distance can have the same mailed to them by sending ten cents in stamps, cost of sending.

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FOR SALE.

BRUTUS NO. 12007

Registered in the National French Draft Horse Association, Fairfield, Ill. Weight 1800, color black, active and good foal getter. Address

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FOUR THOROUGHBRED AYRSHIRE BULLS, Aged 12 to 20 Months.

If you don't want tuberculosis, breed the Ayrshires.

J. W. & J. D. McCORD,
Phone Red 123. **Hanford, Cal.**

bined cannot be disputed and this has been accomplished in the past 20 years.

The fat stock shows of this country as well as England prove these statements, the Angus breed having won 75% of the championships for several years — both alive and on the block. They kill as high a per cent of dressed carcass as any of our beef breeds. The carcasses are well proportioned, carrying a high proportion of weight in the valuable cuts. The fat is more evenly and uniformly distributed especially in two-year-old cattle than is the case with other breeds of the same degree of fatness. The per cent of lean meat or flesh element is higher in proportion to the fat carried than in either the Hereford or Short-horn cattle and yet there is always in properly fattened Angus an abundance of fat interspersed through the lean. The ideal beef carcass is one very rich in lean, with plenty of fat marbled through it, and with but one-half inch of outside fat evenly spread over the carcass. Our breed possesses as great hardiness and ruggedness as is possessed by any breed. It has been bred from the outset for early and good feeding qualities and may fairly be said to possess these desired attributes in as high degree as any breed. To all these, which the Angus has contributed in common with the other breeds, it has also brought in somewhat greater wealth of flesh element than any breed on earth.

J. G. Bartley, from near Corcoran, claims to have sold from his herd during the past three months $8.30 worth of cream per month from each of his 23 milch cows. The herd is composed of grade Jerseys, and besides the cash received from the cream he had the milk to feed to pigs and calves.

PREPARE NOW FOR YOUR EASTERN TRIP

Over the

SUNSET ROUTE

LOW RATES
For Round Trip Tickets.

IN EFFECT
May 15, 16, 20, 21, 22, 31.
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RATES

New York	$108.50
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Ask about our personally conducted excursion parties leaving for New Orleans, Chicago, St. Louis, Cincinnati, and Washington, D. C.

HIGH CLASS EQUIPMENT —OIL BURNING LOCOMOTIVES—DINING, OBSERVATION, AND SLEEPING CAR SERVICE.

Southern Pacific

MR. PINCHOT OUTLINES THE FUTURE.

Colorado, at least as voiced by some local authorities, has had convictions on the conduct of the United States Forestry Service, and some of them must be considered as antagonistic to present policies. In order to secure opportunity for the discussion of such matters, the Colorado legislature invited Mr. Gifford Pinchot, chief of the service, to state before it his beliefs and lines of action. This was done and the following outline is at hand:

In his opening declaration, Mr. Pinchot said the Forest Service is anxious for cooperation with every interest not antagonistic to the public welfare which uses or can use the National Forests. He declared that he was authorized by the new administration to say that the general policy of creating and maintaining National Forests may be regarded as definitely and finally fixed, and that the general lines of policy for which the Forest Service stands are indorsed and will be supported by President Taft.

"What I have come here to do is to establish such relations with the people of Colorado who use the National Forests and are affected by them, as will be for the best interests of the State and the Nation.

"The Forest Service exists to develop the National Forests, and it has no stronger desire than to promote and foster the development of Colorado and every other Western State. No more complete mistake about the National Forests has ever been spread about than that they are shut against development and use.

"During the last fiscal year 2504 mining claims and 3739 agricultural and miscellaneous claims were investigated; 392,789 M.B.F. of timber was cut; 386,384 M.B.F. of timber was sold; 24,127 grazing permits, 3141 special use permits, and 30,377 free use permits were issued. The total number of permits issued to June 30, 1908, was 163,068.

"In the immense amount of business transacted over so large an area, it was inevitable that mistakes should be made. I do not doubt that in isolated cases injustice has been done, and wherever such injustice has been brought to my attention, it has been corrected. The mistakes made are insignificant in amount and importance compared to the good accomplished.

"If—by mistake—injustice has been done to any man, it will be corrected, so far as I have the power. But remember two things: in the first place, the Forest Service is not responsible for the law as it exists or for the rulings of the Department of the Interior, but is governed both by the law and by these rulings. With both, in most particulars, it is in hearty accord, but if either is wrong, it is not within the authority of the Forest Service to correct it. Secondly, during the last firscal year, timber worth more than $6,000,000 standing on invalid mining claims was saved to the people of the United States by the examination of these claims.

"The Forest Service has no apologies to make for having defeated the men who tried to get this timber under color of the mining laws. Where similar illegal attempts are made in the future it proposes to defeat them if can, in every single instance, whether the attempt is to take the claim for timber, for power, or for any other than the legitimate mining purposes. On the other hand, it will do its best to help the legitimate prospectors and miners, and to give them advantages and protection which they do not enjoy on lands outside the National Forests.

"For the opposition it has excited from these interests, the Forest Service has no apologies whatever to make. It proposes to stand resolutely by the policy of preferring to help the small man make a living than to help the large man make a profit, and it will not abandon the policy of Government control to prevent water power monopoly. If the attitude of the service in these matters leads to irritation and denunciation, then let the opponents of the Service make the most of them. Neither in this nor in any other salutary policy adopted and maintained by the Forest Service will there be a single backward step."

"What's the best thing to induce chest expansion?"

"Medals."—Louisville Courier-Journal.

No Discarded or Abandoned Inventions of its Beaten Competitors are used in

THE IMPROVED

United States Separators

THE UNITED STATES SEPARATORS ARE IN A CLASS BY THEMSELVES.

The United States use inventions of their own **exclusively.**

The United States do not utilize any type of separator ever developed by their **"Would-be Competitors."**

These **"Would-be Competitors"** claim the earth, but "word claims" do not give them the title.

These **"Would-be Competitors"** claim that Dr. De Laval was the inventor of "the first practical continuous flow centrifugal Cream Separator," his application being filed "July 31, 1879, Patent issued, No. 247,804, Oct. 4, 1881." This statement is not true, as shown by the records in the Patent Office. Messrs. **Houston & Thomson** (who afterward became famous in the electrical line) **were the first** to be awarded a patent on such an apparatus. Application filed Oct. 29, 1877. Patent issued April 5, 1881, No. 239,659.

This Houston & Thomson Separator was also of the "Bevel Gear" type and was for either hand or power, therefore the claim of our **"Would-be Competitors"** on this point is not correct.

"These are the Rock-of-Gibraltar-like facts against which mere 'word-claims' by **Would-be Competitors** fade away like the mist of night before the rays of the morning sun."

We could enumerate a lot of things these **"Would-be Competitors"** claim, that are not in accordance with the facts or the records, "that fade away like the mists of night before the rays of the morning sun" of truth, but this is sufficient on this point for the present, we think, to convince all thoughtful readers that "word claims" do not have any weight in face of the facts.

These same **"Would-be Competitors"** claim their Separator is the Standard Cream Separator of the World, but they are not entitled to that "word claim," as the records show that the **United States Separator** beat them in the greatest contests ever held by any **National or International Exposition.**

In other advertisements they claim that "99½ per cent, of all expert creamary men, butter manufacturers, and real separator authorities living to day use **De Laval Separators** exclusively for they have learned by experience that the **De Laval** is the only separator that will save all the cream all the time under all conditions."

Now every reader of intelligence knows that is another "word claim" and is not true, because a very large percentage of the leading breeders, separator authorities, creamerymen and dairymen, use and recommend the **United States Separator** because it proved in the great contest with the **De Laval** and others, that it excelled everything in fifty (50) consecutive runs lasting over one month on ten different breeds of cows; also in every day use it has maintained its superiority.

Please read the following letter and see for yourselves if this looks as though the "99½ per cent word claim" is correct.

Poughkeepsie, N. Y., May 27, 1908.

In 1899 we introduced farm separators in our cream gathering system. Although we are within six miles of the De Laval Separator's main works where all of their Separators are made, our patrons, after thorough investigation, preferred and purchased the U. S. Separators. There are about three U. S. Separators to every one of the De Laval Separators used. Since we have started we have steadily increased our output. We get good prices for our butter, and feel proud of the record.

LaGRANGE CREAMERY,
H. R. HOYT, President.

Just think of it. **Three United States Separators to** every **one** of the **De Laval** right under the shadow of their factory. **Why?** Because the United States is superior to all others in every feature of separator practicability. It is **made stronger, runs easier, wears longer, skims closer.**

Send for Catalogue No. 148.

VERMONT FARM MACHINE CO.

BELLOWS FALLS, VT.

Warehouse in every dairy section of the United States and Canada.

The Poultry Yard.

WHERE THE CRITIC WENT WRONG.

"A poet," said the Critic, "must portray the deeper feelings, the profounder emotions, of humanity, or his work will be found lacking in that imperfectly recognized quality which is essential to true poetry."

"But who is to decide whether it succeeds in such portrayal?" the Poet inquired.

"We will," the Critic responded.

"But don't you fancy that you critics often go astray in judging the emotional quality in a poem?"

"No, I think not; at least, very rarely."

"Well, I wish you would give me your idea of the expression of feeling in a recent production of my own."

"Go ahead."

The poet went ahead, as follows:

"Oh, the little white form was strangely fair
As she tenderly laid it low,
And she stood for a moment in silence there,
Alone, ere she turned to go.
Then her voice rang out in a wearisome cry
Re-echoed by voices shrill,
And the world rolled on 'neath the same blue sky,
Though the little white form was still.

"Has that the emotional quality?" the Poet inquired.

"It certainly has, in considerable degree," the Critic replied.

"More than if I had simply said, The hen laid the egg, went away and cackled?"

"The hen?" said the Critic. Then he stopped, thought deeply for a moment, and again spoke.

"It's on me," he said. "What'll you take?"

So they adjourned.—The California Weekly.

SUMMER DISEASES OF FOWLS AND THEIR REMEDIES.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

Summer in our coast climate is the most trying season of the year upon fowls. To us the fresh trade winds, gray fogs and cool nights after warm days are delightfully bracing and invigorating, but to improperly housed fowls they bring a long catalogue of diseases arising from colds. In fact, colds are the starting point of nearly every poultry disease incident to the coast, and improper housing is the cause of the colds. As an ounce of prevention is worth a whole carload of poultry medicine, this point should be first considered.

Here is a careful poultry keeper whose fowls are ailing. His poultry houses are tight, dry and clean, and his fowls well cared for in other ways. But the hot afternoon sun beats against their houses and when the careful owner closes the doors at dark the fowls are sweltering in a veritable hotbox; later the chill of the night winds strike in and sneezing and choking begin. If this careful man would simply take out the entire upper half of the north side or end of his houses and replace the siding by wire netting, there would be no sweating and chilling and no colds.

The careless poultry keeper's houses are sometimes open on one side, often on two sides, and always open to cracks, knotholes and broken boards on all sides, while filth and vermin help along the disastrous work of disease.

Then there are the chicks at weaning time, even if they have reached this stage in good shape. The cool nights make them huddle and pile in corners when removed from brooder and mother heat, and there are sweating and chilling and colds and croup and roup. They must be kept from this steaming process; they must be taught to perch. All this requires suitable chick coops or houses, wide low perches, slatted platforms beneath them, and that "eternal vigilance" which is the price of all things worth while. In addition to proper housing and care the flock should be closely culled, and only vigorous fowls kept; then only vigorous fowls will be bred from and only vigor transmitted. The sturdy vigorous chick or fowl can withstand even contagion. Weed out the weaklings all along the line. And right here is the danger of doctored fowls. When they are bred from weaklings there is a tendency in their progeny to disease. No matter how fine the bird, cut it out of the breeding pen if it has ever been seriously ailing.

A SIMPLE COLD OR CATARRH.—This usually begins with stuffed up nostrils and watery eyes as with a person. The poultry keeper should always notice his birds when tending his flocks. If the nostrils of any chick or fowl looks dirty and clogged, they should be wiped with a soft cloth wet in coal oil, then a drop or two of the oil injected into them and into the roof of the mouth with a small machine oil can. After the fowls have quietly settled for the night, listen for any wheezing, coughing or choking sounds among them. In addition to spraying out the nostrils with coal oil give the fowl a tablespoonful of coal oil and sweet oil, half and half, to chicks a small teaspoonful. If the trouble continues and the eyes become inflamed and head begins to swell, remove the afflicted fowl to hospital; this should be warm and dry, but well ventilated quarters with clean chaff or cut straw on the floor and no perches. Continue the treatment with the coal oil and sweet oil, bathing the inflamed surface with the mixture of the two. Feed the invalids with a nourishing mash made by boiling fresh meat scraps or pluck tender with any vegetable and rolled barley, slightly salted and hot with pepper pods; chop all fine and mix dry with shorts. Change the drinking water often. A lump of lime the size of a walnut, or a tablespoonful of Douglas mixture in each gallon of water is good.

Usually after a few days of this treatment, the fowl may be discharged from hospital; but if on the contrary it should grow worse or even show no improvement, use the hatchet and burn or deeply bury the carcass.

ROUP.—The following description and suggestions in regard to this loathsome poultry disease are so true and forcible that we cannot do better than copy them from Our Poultry Doctor:

"The first symptoms of roup are almost exactly like those of a 'cold in the head' in a human subject—hoarseness, sneezing, watery eyes and a slight watery discharge from the nostrils. Sometimes fowls that have strong vitality and are well housed and cared for will throw off the cold and recover in a few days without any medical treatment; but in the majority of cases the disease if not treated in the first stage, when it is nothing but a cold, progresses rapidly to the second stage when the hoarseness and rattling in the throat becomes more pronounced; the patient shows fever and weakness, the eyes are more inflamed and watery, the discharge from the nostrils grows yellow and thicker and becomes offensive as the disease progresses. In the third and last stage the fowl is very weak, the nostrils are clogged with thick, offensive matter, the head swells, one or both eyes are closed, ulcers form in the throat, and sometimes around the eyes, the comb turns black and the fowl dies. Sometimes the roup appears in the violent form at first—the first noticeable symptoms being great swelling of the head and around the eyes; and sometimes it commences in the throat. When it appears in such violent form at first it usually kills quickly. From my experience with roup I don't believe that it is worth while to doctor a roupy fowl after the disease has fairly settled in the system. Fowls that have a cold in the head, or even slightly swelled eyes and head, and some canker in the throat, may be cured if taken in hand in time; but when the head is very much swelled, the eyes sore and closed and the nostrils clogged with matter that is so offensive that you can smell it a rod away, the sooner you kill that fowl the better all around; for even if a fowl in that stage of roup can be cured enough to 'make a live of it,' it will be so broken down that it will not be worth the medicine it will take to cure it, to say nothing of the time. No fowl on earth was, or ever will be, worth all the time, trouble and drugs it takes to cure it after the disease has reached what one poultry raiser has aptly termed the 'stinking stage.' The time to cure roup is before the fowl really has it; that is, before the cold settles into roup. As I remarked, every case of cold may not settle into roup, but it is safe to assume that every fowl that has a cold is liable to have roup, and proceed to get ahead of the roup by curing the cold."

On the coast this disease has assumed a chronic form among the fowls on many of the ranches. Any one who has ever come in contact with the unmistakable odor of roup mentioned in the above excerpt may detect it in the poultry quarters of the ordinary ranch. The rancher's fowls are skinny, the young stock are runty, and they all "eat their heads off," and though the owner does not recognize this as a disease, it is really the worst form of roup, because it stays and the fowls go on living and breeding after their kind, and there is no profit in them.

(Continued next week.)

Questions and Answers.

QUALITY OF EGGS.—A. S. of San Bruno asks: "Will you please tell me what is lacking in the food I am giving my hens to cause a sort of flaky appearance to the eggs after they are boiled? The eggs do not seem to have the yolk and white distinctly separated, but seem to be mixed together and look like a flaky mixture. I will appreciate your early reply."

A hint as to the color of the yolk of the eggs and also as to your method of feeding would enable us to decide more nearly what is lacking in the food. You are probably feeding too much meat and too little corn and tender greens. While nitrogeneous food forces egg-production, the eggs from hens fed a large proportion of such food are inferior in flavor and keeping qualities to those from hens fed on grains and green feed. This is especially the case when much of the commercial meat foods, such as beef scraps, blood meal and egg foods, are freely used. If you are keeping your hens entirely for table eggs, eliminate the male birds; see that there are plenty of broken charcoal, grit and shells and pure cool water always on hand; feed wheat and cracked corn and an abundance of tender greens, such as lettuce, chard, mustard, young grass or alfalfa. If convenient give a ration of sprouted barley at noon; alternate this with a noon mash in which a little fresh meat scraps or pluck has been boiled with rolled barley and cracked corn and made dry with shorts. The broth of the meat scraps will do for one mash and the chopped meat for another. After a trial along this line of feeding we would be pleased to hear from you again as to results.

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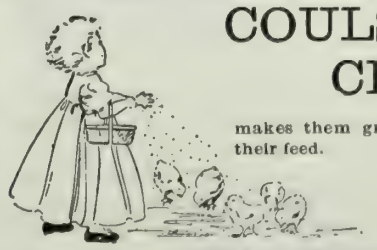
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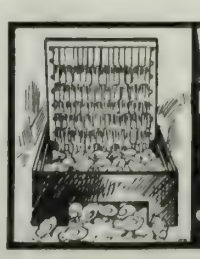
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The Home Circle.

Springtime.

The sweet-scented buds all around me are swelling,
There are songs in the stream, there is health in the gale;
A sense of delight in each bosom is dwelling,
As float the pure day-beams o'er mountain and vale.
The desolate reign of old Winter is broken,
The verdure is fresh upon every tree;
Of nature's revival the charm—and a token
Of love, O thou Spirit of Beauty, to thee!
The sun looketh forth from the halls of the morning
And flushes the clouds that begirt his career;
He welcomes the gladness and glory returning
To rest on the promise and hope of the year.
He fills with rich light all the balm-breathing flowers,
He mounts to the zenith and laughs on the wave;
He wakes into music the green forest bowers,
And gilds the gay plains which the broad rivers lave.

—Willis Gaylord Clark.

The Hat of Daphne.

I pointed to a gray wisp of material, soft and filmy, that lay on her bed.

"What is that?" I questioned.

She was before the looking glass rolling her hair into little shining curls with deft fingers.

"That," she said, "is my new dress."

"Your what?" I said, ungrammatically. But Daphne knows when I want to be sarcastic, and she did not answer, instead she turned and looked lovingly at the gray wisp.

"There is not much of it," I remarked, "so I suppose it was not expensive?"

"Mme. Esme charges more for that very reason," she said; "you see, it has got to look less than it really is."

"Logically, you are talking nonsense, dear," I said gently, "but never mind. You have got a new muff, I see, as well, naughty child, that was very extravagant of you."

Daphne had not been taking much notice. I am merely her elder sister, and only useful in emergencies, but now she turned round quickly and regarded me with scorn.

"Muff," she said. "What do you mean?"

I pointed dramatically to a large ermine blob that lay upon a chair in a nest of tissue paper. It was very large and shaped something like a busby, or a cross between a Turkish fez and a Cossack's what-you-may-call.

Daphne smiled charmingly; her smile is proverbial.

"That's my new hat; isn't it lovely?"

"Hat?" I said.

"Don't be absurb, Elizabeth; of course its a hat—the newest, newestest hat from Mme. Esme's. I'm going to wear it tomorrow at the Bazaar with my gray costume. It suits me *a ravir*, madame says; there was only one other like it in her shop."

"Has mother seen it?" I asked.

A shade passed over Daphne's face, a little shadow of trouble.

"N—no, mother hasn't exactly seen it. I told her I had bought a toque, for she said it was so nice of the Duchess to ask us to help her at the Bazaar; that I ought to have something nice and quiet to go in, because the Duchess is well known for her philanthropy, and is sure to dress plainly."

"But it isn't a toque, dear," I said.

"Madame called it a Russiofezturke, so that is near enough; besides, it's sweet, and I love it," she said, and crooned over the absurd thing.

On the morning of the day we had been calling the "Bazaar Day" for the last week I went into Daphne's bedroom to borrow some hairpins. I found her lying at full length on her bed bathed in the most heartbreaking tears, her pretty hair was all rough and untidy—at least, all I could see of it.

"Whatever is the matter, Daphne?" I inquired in a resigned voice.

"My hat," sobbed Daphne.

I leaned over the bed with a sigh.

"What about it?" I questioned.

"Mother's seen it!"

"I though so," I commented sagely; "tell me about it."

Only sobs came from the mass of fair hair and crumpled white muslin and blue ribbons on the bed.

"Look here," I said, "your eyes will be awful red for the afternoon if you don't stop crying, and you'll look simply hideous." My strategy succeeded. Daphne sat up at once. Her cheeks were very pink, and her eyes full of tears. But the lids were neither red nor swollen.

"I—I took it down and showed it to mother, and she asked—asked what on earth it was. I said it was a hat, and she said, 'Stuff and nonsense! you look like—like a Caribbee Islander.'"

"Daphne!" I cried, and I'm afraid I laughed.

She dabbed her eyes with a crumpled lace handkerchief.

"I said I didn't care—I would go in it. I said it was smart, and pretty, and French—so it is."

"Mme Esme will change it," I suggested.

Daphne's eyes opened wide with horror.

"Change it! Elizabeth—you heartless, cruel thing—how can you?"

"Well, mother will never let you wear it. What else did she say?"

Daphne slipped from the bed and stood facing me defiantly.

"She said if I wore it the Duchess would think I was a third-rate actress, but if I went neatly dressed—oh, how awful that sounds!"—she turned her pretty eyes up to the ceiling—"I should make a good impression, and would probably be asked to stay at The Towers. She said that if I wore the hat I would be ruining my chances of the Duchess taking us up. Do you know, Elizabeth, I think mother is a real worldly woman."

"And what did you say?" I asked.

"I'm afarid I was rather cheeky," she said, penitently. "I said I wished I had bought the 15 guinea hat, because it was much bigger and much more elaborate than the 10 guinea one, and if I had bought it I should have worn it; I said I didn't see why, because a silly old Duchess chooses to dress like a charwoman, that I, who do know how to put my clothes on, should appear in a black cape and elastic-side boots."

"Then there's nothing more to be said," I remarked as I went out.

I knew that Daphne's naughtiness would bring on one of mother's nervous headaches. If ever we do anything she doesn't approve she always indulges in one—I say "indulges" because generally we do what she wants if we see signs of one coming on, and deep in my innermost heart I think they are used as a mild form of birch now we are grown up.

But the afternoon of the Bazaar Daphne was really very heartless. I was sitting beside mother's couch in the darkened drawing room bathing her aching brow with eau de cologne rags—for I could not go to the Bazaar and leave her—when the door opened and Daphne entered. She wore her gray wisp, a slender, delicate gown, which fitted her tightly, and fell in wondrous folds about her hips; her lovely face, with its sea blue eyes and crimson mouth, was just rose flushed with excitement.

"Goodby," she said, "and take great care of mummie, Elizabeth."

Then the door closed softly, and she was gone.

"We are utterly ruined," groaned mother. "Oh, if I only had obedient daughters; Daphne is really too trying! And Mrs. Howard Jones will be there dressed in a nurse's uniform, which is sure to appeal to the Duchess at once. Oh dear, why didn't Daphne wear her black serge and a quiet hat!"

"But Daphne is quite charming," I said, wringing out another rag and placing it on the burning forehead, "and perhaps the Duchess will take a fancy to her."

"My dear," said mother, "do you know that Her Grace has founded twelve cots, and is president of a Girls' Tract Society, and ever so many more things—she has two grown-up sons," she added thoughtfully.

"If they are at the Bazaar it'll be all right," I said at once.

Mother said despairingly, "Oh, men always admire her; it wouldn't matter if she wore a sack, as far as they are concerned, but the Duchess—that is quite another matter."

It must have been several hours later when a taxi buzzed up to the door, and a soft rustle with a fragrance of white violets announced Daphne's home-coming.

She flung the drawing room door open and tossed a great bouquet of pale pink roses onto a chair; then she opened her arms with a dramatic gesture and said:

"It is well."

"Good heavens, child, are you mad?" cried mother. "How did it go off? No—don't tell me; I'm sure it was dreadful," and she stopped up her ears. Daphne ran forward and knelt by the sofa; she took mother's hands determinedly in her own soft ones. "Now listen," she said, "while I preach a little sermon. Ah, how much wiser our dear, kind, silly mothers would be if they would leave everything in the hands of their worldly, designing daughters."

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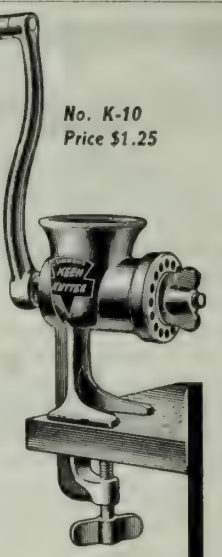
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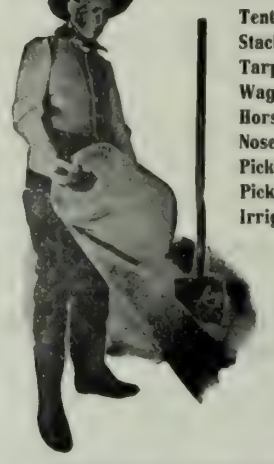


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"Oh, don't keep us in suspense!" almost shrieked mother; "tell us the worst."

"Well," said Daphne, "to begin with, I confessed I could not make a red flannel jacket to save my life. The Duchess said she was so glad, because she couldn't either; she said she couldn't thread needles. We talked about bridge, and the Duchess asked me who made my gown. She said I was a dear, and would you let me go and stay with her for the shooting?" Daphne grew reminiscent. "Her son, Lord McLean, was there; he is rather a nice boy," she said musingly.

"But, Daphne, we thought"—— I broke in; she motioned me to silence.

"The Duchess and he and I had tea together in a jolly little tent, and we laughed at all the funny philanthropic people. I told them about Mrs. Howard Jones, and the Duchess asked her to what hospital she belonged. You should have seen her face!" Daphne went off into ripples of laughter.

"Explain, explain!" I cried.

"You know that other hat at Mme. Esme's, the 15 guinea one that I wanted?"

"Yes—yes."

Daphne's eyes were downcast and her manner demure.

"The Duchess had it on," she said.—The Throne and Country.

In the Garden.

After the continuous rains of January and February, the garden patch as well as the outlying fields, is way behind hand and quick work is required to catch up and get the plowing and planting done within the next four weeks. On the adobe lands the soil must be plowed or spaded at just the right moment between muck and rock, else it is almost worthless for the season. This spring the cultivation of such soil is unusually hard work, for it has been sodden by the long rains and crusted by the north winds with which they ended.

Thorough cultivation is the most important point in gardening. To a certain extent it is both fertilization and irrigation. The painstaking Chinaman will raise fine vegetables on an arid patch without irrigation by keeping the soil deeply cultivated, pulverized and stirred about the plants. Seeds fail to come up in baked and lumpy ground and the seedman gets the blame which rightly belongs to the seed planter. For a good yield and well formed crisp garden truck, the garden patch must be spread with manure or other fertilizer, then deep-plowed or spaded, after which the ground must be pulverized and all remaining clods together with stones and trash raked out. Now it is ready for profitable planting. A chalk line may be so readily made with two sharpened sticks and an old rope, or even a cord, and so easily used that there is no excuse for having zig-zag rows and irregular beds. For our dry summer climate the beds should be on the level and never raised above the walks, as is the practice in the East.

Beans, corn, tomatoes and all kinds of melon vines are very sensitive to frosts. These should not be planted until the middle of April unless in protected localities. Tomato plants should be set out the first of May. For other vegetables the earlier the better.

Depth for Planting.—This depends somewhat on the soil. In light friable soils seeds should be planted deeper than in heavy ones. The proper depth for potatoes is 4 inches in the former and 3 inches in the latter. Small seeds like lettuce should be simply covered with pulverized soil then thoroughly wet down; larger seeds should be planted from one-half an inch to one inch in depth. With the smaller seeds near the surface it is essential to keep them damp or it is a chance if they ever arrive. These points seem simple to one accustomed to garden work, but they are all mysteries to the uninitiated. For instance: A city raised man in this locality was taking his first turn at gardening last week. An acquaintance in passing noticed that he was dropping something into a deep trench and hailed him with:

"What you burying?"

"Burying nothing; planting spuds."

The acquaintance looked down into the trench and remarked: "Them spuds will never get up out of there without help."

"Look here, I'm doing this work by expert plans and specifications!" And he pulled an agricultural paper out of his pocket and put his finger onto a line which read: "Plant 18 inches in rows 3 feet apart."

Lenten Sacrifices.

"Father's gave up billiards
(Since he lamed his wrist),
Sister's gave up dancing,
Mother's gave up whist.
Folks with no bad habits
Still may have some hope—
They can get in line like me,
I have gave up soap!"

—The Small Boy.

Cooking on the Trail.

Our guide allowed me to assit him in preparing the breakfast, though I fancy my assistance might have been easily dispensed with. He sagely remarked that if I was going to rough it I might as well begin learning now as any time. It was astonishing how appetizing a meal he prepared with the very fewest conveniences.

For instance he made bread in the sack of flour without using a bread pan. He hollowed out a cavity in the flour, poured in water, added salt and baking powder in proper quantities, then proceeded to mix the dough. He did another thing in his cooking that amused me very much. To prevent the coffee boiling over he placed a small green willow stick across the open top of the pot. The lesson in physics soon followed.

The coffee bubbled and then rushed up to the top of the pot as though it was going to boil over the sides and extinguish the fire, but as soon as it touched the willow it subsided like some sentient thing.—Forest and Stream.

Customer—I would like some butter, please.

New Assistant (late of cigar store)—Medium, mild or strong?—Tit-Bits.

HOME MADE GAS FOR COUNTRY HOUSES.

Acetylene Gas is ten times *purer* than City gas. That is why only *one-tenth* as much flame is needed as would be required for the same candle-power of light from City Gas, Kerosene, or Gasoline.

This means that only a very small *fraction* of the heat, and *none* of the soot nor smell of Kerosene or Gasoline is present with Acetylene.

It also accounts for the fact that an Acetylene Light of 24 candle-power costs only 3¾ cents for 10 hours' lighting (in most of the States), while that same 24 candle-power in 10 hours' lighting would cost about 6 cents from ordinary Lamps for Kerosene, Wicks and Chimneys.

And 40 Acetylene Lights need only 30 minutes *per month* of albor, while 8 Kerosene Lamps need that same 30 minutes labor *every day* for 365 days in the year.

Compare 6 hours' work per year for 40 Acetylene Lights with 183 hours per year for 8 Kerosene Lamps, and consider the *unpleasant* kind of work "Lamp Slavery" is.

Meantime, Acetylene is the most *beautiful* Light ever used in home, hotel or store, as well as the most convenient and *safest*.

Brilliant, steady, soft, cool, *safe* and colorless as Sunlight itself. Two million Americans use it regularly and over 348 towns are publicly lighted by it.

Lost Seventeen Grandmothers in Four Years.

Harry Ellefson, a student at the Racine high school, has the State record for writing bogus excuses. In four years he has presented to his teachers seventy-four excuses, all written by himself. Every conceivable reason was given for absence. In the four years he lost seventeen grandmothers. About forty times he was supposed to be ill.

When the discovery was made the student was called in by Principal Blackhurst and admitted his guilt. He has been suspended for seventy-four days.—Milwaukee Sentinel.





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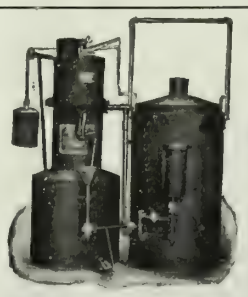
Monday, April 5, will be a good time to start. Even in the dull times we have had we have not been able to supply the demand for young men. Business is increasing and we now have more demand than ever before and at better salaries.

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THE MARKETS.

San Francisco, March 24, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

The local millmen continue to purchase freely in the North, and shipments from that quarter are large. This market, however, continues very quiet. Offerings are not heavy, and sellers are holding out for the high prices which have ruled for some time, which few buyers are willing to pay. The market, however, is decidedly firm, as it is practically impossible to make purchases under quotations.

California White Australian	$2.00	@2.15
California Club	1.90	@1.95
California Milling	1.95	@2.05
California lower grades	1.65	@1.80
Northern Club	1.90	@1.95
Northern Bluestem	2.00	@2.15
Russian Red	1.87½	@1.90
Turkey Red	1.97½	@2.10

BARLEY.

No further advance has occurred in prices, though the spot market remains quite firm at the figures last quoted. The arrivals and offerings are light, but most buyers appear to have enough for present requirements, and there is only a limited movement. With prospects of a large crop, futures are inclined to weakness.

Brewing	$1.50	@1.52½
Shipping	1.50	@1.52½
Chevalier	1.55	@1.70
Good to choice Feed, per ctl.	1.45	@1.48¾
Common Feed	1.40	@1.43¾

OATS.

There is very little feature in the local market, as the demand at the present range of prices is small. The scarcity of this grain, however, has brought a further advance on both white and red oats, with every indication of continued firmness. There is little offering in either local or Northern markets, and the high prices are bringing out only small quantities from the growing districts.

White, per ctl.	$1.95	@2.00
Gray	Nominal	
Red, seed	1.90	@2.00
Feed	1.80	@1.87½
Black	1.65	@2.00

CORN.

More corn is being offered in this market, but local buyers show little interest, and the market continues quiet. California corn is a little firmer than last week, and Western yellow is slightly easier, but there is little change in prices.

California Small Yellow	$1.67½	@1.70
Western State Yellow	1.67½	@ 1.70
Mixed, in bulk		1.60
White, in bulk		1.65
Egyptian White		1.80

RYE.

The high price quoted on the last sale here brought out no additional offerings, and the market is entirely bare. In the absence of business, no quotations are given.

Rye ..... Nominal.

BEANS.

The bean market shows increasing strength, and some advances have taken place in the value of several varieties. Pink beans have advanced slightly, and a still further rise is expected, as the demand is lively. Bayos are also considerably higher, and firm at the advance. With the formation of a lima bean association under way, growers are holding for higher prices, and the local market shows corresponding firmness. With a strong demand and light supplies, blackeyes are also firmer. Stocks of cranberry beans are becoming depleted. Whites continue active, with a further slight advance in quotations.

Bayos, per ctl.	$3.45	@3.60
Blackeyes	3.10	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.75	@1.90
Small Whites	5.20	@5.40
Large Whites	4.30	@4.40
Limas	3.75	@3.90
Pea	5.25	@5.35
Pink	2.55	@2.75
Red	5.00	@5.50
Red Kidneys	3.25	@3.50

SEEDS.

Alfalfa seed is still moving off rapidly under a strong demand, and with limited supplies on hand the local dealers are holding for firm prices. Timothy and yellow mustard are now offered at the prices quoted. Other descriptions are in only moderate demand, with prices remaining steady.

Alfalfa, per lb	18	@19 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb		3¾c
Canary		4½c
Flaxseed	2¾	@ 3 c
Hemp		4¾c
Millet	2¾	@ 3¼c
Timothy	6½	@ 6¾c
Yellow Mustard	6	@ 6¼c

FLOUR.

While buyers are confining their operations to the smallest possible limits, the local trade is about up to the average, and a few small lots are going for export. Prices are very firmly held at former quotations.

Cal. Family Extras	$6.00	@6.60
Bakers' Extras	6.00	@6.25
Superfine	4.80	@5.10
Oregon and Washington	4.85	@5.75

HAY.

Arrivals of hay this week have been rather heavier than was expected, amounting to almost as much as last week. Shipments of low-grade grain hay, alfalfa, and stock hay from the San Joaquin valley have been especially heavy, and such stock finds very little sale. With poor hay offered freely at low prices, the market on the better grades has developed some weakness. The impression still prevails among many of the local buyers that the present condition is only temporary, and will result in greater firmness later on, though there is still no doubt a good deal of hay left in the country. There is a continued demand for the better grades from the smaller towns.

Choice Wheat, per ton	$22.50	@25.50
Other Grades Wheat	21.00	@22.50
Wheat and Oat	21.00	@23.00
Tame Oat	21.00	@24.00
Wild Oat	20.00	@22.00
Alfalfa	14.00	@17.00
Stock	10.50	@13.50
Straw, per bale	50	@ 85c

MILLSTUFFS.

Middlings have declined 50 cents per ton. Otherwise there is no change in values, but the market on the principal lines is rather quiet locally, with a tendency to easiness. The demand is also increasing in the North and with larger supplies available the outlook is for a further weakening of prices. Rolled barley remains firm, and miscellaneous feedstuffs are steady with about the average demand.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.00	@35.00
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	30.00	@31.00
Shorts	31.00	@32.00

VEGETABLES.

Arrivals of asparagus show a still further increase, and the market is weak at low prices. The demand is fairly active, but there is some difficulty in disposing of all that comes in. Rhubarb is also more plentiful and rather weak, though desirable lots still bring the prices last quoted. Onions are plentiful, with large offerings of poor quality from the East, which weakens the market on Oregon stock. Peas are lower, as shipments are now being made from the Bay district. Tomatoes are also easy.

Onions, yellow, per ctl.	$ 1.50	@ 2.00
New Green, per box	60	@ 75c
Garlic, per lb.		10c
Green Peas, per lb.	7	@ 10c
Cabbage, per ctl.		1.50
Marrowfat Squash, per ton	20.00	@25.00
Tomatoes, per crate	75c	@$1.25
Green Peppers, per lb.	20	@ 25c
Cauliflower, doz.	65	@ 75c
Celery, doz.	40	@ 50c
Asparagus, per lb.	3	@ 6c
Rhubarb, per box	1.25	@ 1.75

POULTRY.

The amount of California poultry arriving in this market has been abnormally small for several weeks, and as the supply of Eastern stock is also rather limited, prices have advanced on a number of varieties. Large broilers, fryers, medium hens, and roosters are all higher. With about the usual demand, all offerings find ready sale. Local commission men continue to urge shipments between March 30 and April 3 for the Jewish holidays.

Broilers	$ 6.00	@ 7.00
Small Broilers	5.00	@ 5.50
Fryers	8.00	@ 9.00
Hens, extra	8.00	@10.00
Hens, per doz.	7.00	@ 8.00
Small Hens	5.00	@ 6.00
Old Roosters	5.00	@ 6.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons		1.50
Squabs	2.50	@ 3.00
Ducks	5.00	@ 9.00
Geese	2.50	@ 3.00
Turkeys, live, per lb	Nominal	
Turkeys, dressed, per lb.	Nominal	

BUTTER.

Butter prices have shown some slight fluctuations during the week, but the general condition has been one of easiness. All grades are now slightly lower than a week ago. There has been considerable surplus on hand most of the time, above what the local market could absorb, and shipments to the North have been too light to have much effect on the market.

California (extras), per lb	28 c
Firsts	26½c
Seconds	26 c

EGGS.

The upper grades continue fairly steady, with a decline of only ½ cent on extras, 1 cent on seconds, and 1½ cents on thirds. The market, however, is rather unsettled. While many dealers consider the prices high for storing, there is considerable competitive buying for this purpose, and a large surplus above the present requirements of this market is going into the ice houses. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per doz.	23 c
Firsts	22 c
Seconds	20 c
Thirds	19 c

CHEESE.

New California flats are now fairly steady, with a decline on firsts. Young Americas are at former prices, and other grades are unchanged. The following prices are quoted at the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	14½c
Firsts	13½c
New Young Americas, fancy	14½c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Cal. Flats	13½c
Storage, Oregon Flats	15½c

POTATOES.

New potatoes are now offered at the prices quoted. The demand for old stock has been only moderate for the last few days, and liberal arrivals have caused some easiness in Oregon and Salinas stock, though good river potatoes are still firmly held.

River Whites, ctl.	$ 1.35	@ 1.50
Salinas Burbanks, ctl.	1.90	@ 2.00
Oregon Burbanks, ctl.	1.65	@ 1.90
Sweet Potatoes, ctl.	1.75	@ 2.00
New Potatoes, lb.	4	@ 4½c

FRESH FRUITS.

The rainy weather has caused an interruption of shipments of strawberries from the South, and none are expected for the next week. Local buyers are paying little attention to apples and pears. While there is some movement of choice apples, the market on storage stock is quiet, with prices unchanged.

Apples, fancy	$ 1.00	@ 1.75
Apples, common	60	@ 85c
Pears, box, Winter Nelis	1.25	@ 1.50
Other varieties	75c	@ 1.00

CITRUS FRUITS.

The weather has been unfavorable for trading in citrus fruits most of the week, and the market on all lines has been rather dull. Buyers are taking only small quantities, while the arrivals of oranges have been fairly liberal. A large shipment of limes arriving some days ago has weakened the market, and prices have declined to about the usual figures, but the quotations on oranges, lemons, and grape-fruit are firmly maintained.

Choice Lemons	$2.00	@ 2.50
Fancy Lemons	2.75	@ 3.00
Standard	1.25	@ 1.50
Limes	7.50	@ 8.00
Oranges—		
Fancy Navels	2.25	@ 2.50
Choice	1.75	@ 2.00
Tangerines	75c	@ 1.50
Grape Fruit	2.75	@ 3.00

DRIED FRUITS.

While stocks of some lines are still rather large, the increasing demand throughout the country is cleaning up several varieties fairly well. New apricots are now held by the growers, and the local packers have only moderate supplies. The Eastern market is strong, and the trade has very little stock on hand. Peaches are also rather firm in the East. Prunes are moving more actively, though there is still a considerable quantity in the hands of the growers, and prices are not quotably higher. Apples are becoming scarce, and are firmly held. Local packers report considerable activity in all varieties of fruits, and look for a general stiffening of prices within the next two or three weeks. For first-class fruits they are offering the prices quoted below. The quotations given on raisins are for packed stock, 2 cents being the highest paid for loose muscatels in the sweat-box. The raisin market is still very dull, and while there is a rather firmer tendency as to prices, conditions are unsatisfactory.

Evaporated Apples	5	@ 6¼c
Figs, black	2	@ 3 c
Figs, white	2	@ 3½c
Apricots	7½	@10 c
Peaches	3¼	@ 4½c
Prunes, 4-size basis		2¼c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Prices quoted are almost nominal, as far as the movement from growers is concerned. No almonds are being offered, and only a few small lots of Association walnuts remain in first hands. The local market is quiet, with prices steadily maintained.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Comb honey is hardly quotable, as there is very little of desirable quality offering, and the stock on hand finds practically no demand at present. With a new crop coming on in a couple of months, there is likely to be considerable left on hand, and the outlook for prices is not especially good.

Comb, lb.	10	@13 c
Water White, extracted		7¼c
White	6¼	@ 6¾c
Light Amber	5	@ 5½c
Dark Amber		4¾c

HOPS.

The California hop market is quiet, with little of the old crop remaining on hand, and prices are unchanged. Many new contracts are being made in Oregon, with prices in some cases running up to 11½ cents.

Hops, per lb.	6	@10 c

WOOL.

The wool market all over the country is rather unsettled on account of the tariff revision, though a number of purchases are being made of the spring clip in the San Joaquin valley and the southern coast counties. Prices quoted on San Joaquin are for year's staple. The quotations on fall clip are practically nominal, as most of it has been moved. Contracts are being made in eastern Oregon at 16½ to 17½ cents.

Red Bluff (f. o. b. Red Bluff) free	7	@ 9 c
Defective	less	2 c
San Joaquin (at S. F.) free	5	@ 7½c
Defective	4	@ 6 c
Mendocino, free	7	@10½c
Defective	6	@ 8 c
San Joaquin, spring clip	12	@15 c
South Coast, spring clip	11	@13 c

MEAT.

Beef remains steady as last quoted. Veal, mutton and lamb are slightly lower, with increased arrivals. Grain-fed hogs and cattle are bringing much better prices than ordinary stock.

Beef: Steers, per lb.	8	@ 8½c
Cows	7	@ 8 c
Heifers	7	@ 8 c
Veal: Large	7	@ 8 c
Small	8½	@ 9½c
Mutton: Wethers	9	@10 c
Ewes	8	@ 9 c
Lambs	11	@12 c
Spring Lamb	13	@14 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	5¼	@ 5½c
No. 2	4½	@ 5 c
Cows and Heifers: No. 1	4	@ 4¼c
No. 2		3½c
Bulls and Stags	2¼	@ 2½c
Calves: Light	5	@ 5½c
Medium	4¾	@ 5 c
Heavy	4	@ 4½c
Sheep: Wethers	5½	@ 6 c
Ewes	5	@ 5½c
Lambs: Yearlings		6½c
Spring Lambs	7	@ 7½c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs.		7 c
250 to 325 lbs.		6 c
Common Hogs, lb	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., March 22.—The orange market at the present time cannot be said to be very good, but the prospects for better conditions in the immediate future are very good. The fact that the shipments have been held down to less than 200 cars a day is one encouraging feature of the present situation and that so much fruit is going into consumption each day in the East is another. As high as 50 cars a day have been sold in New York city without any break in the market, and other auction points are also absorbing their quota. All this means that much fruit is going to the consumer at a cheap price, and this will make him come back for more. The fruit is good and testes like more, and when it is cheap this consuming demand is very large.

No very fancy prices have been realized at the auctions and the average for orchard run grades is about $2.25. Some brands, like the Elephant and the Cerrito brands, the first from Redlands and the

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Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

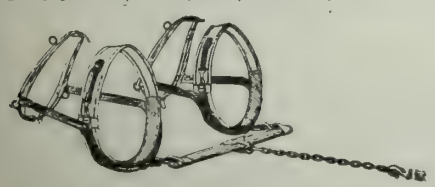
The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

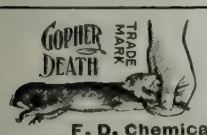
Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

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other from Highgrove, are topping the markets and bringing very fine prices when compared with the general run. Other noted brands are bringing better than the average, but the bulk of the fruit is selling for $2.25 and less. This means about $1.35 cash California when freight and auction charges are deducted. However, it is impossible to buy fruit in California for anywhere near that money, the growers wanting from $1.60 to $1.80 in the better districts, and $1.35 is the very lowest limit that even the poorest stock in California can be bought for at this end. This makes it cheaper for the jobber to buy at the other end, and in consequence the cash orders are mighty scare and the brokers in California are having plenty of time to rest up for the spring campaign.

Rains have been prevalent since Saturday night and at this writing are coming down heavily. This will interfere somewhat with the picking and the shipment will probably be lighter than ever.

There is some call for seedlings and a certain amount of inquiry for Valencias for future delivery. The ruling price on seeds appears to be $1.50 cash California, and some sales of Valencias are being made at from $2.25 to $2.50 cash. It is predicted that the northern Valencia market will open up at $3 f. o. b., and this may be the case, but in the face of the heavy output and the necessity for starting Valencias earlier this year it is likely that the price will not stick.

Total shipments to date are 11,563 cars of oranges and 1848 cars of lemons, as against 11,819 cars of oranges and 1742 cars of lemons to same time last season.

PUBLISHER'S DEPARTMENT.

NEW ADVERTISEMENTS.

The R. R. Rogers Chemical Co., of San Francisco, announce in this issue of the PACIFIC RURAL PRESS that they have a good oil emulsion to kill scale and aphis. The emulsion is very smooth and can be applied with any spray machine, and it is claimed that the oil will not separate from the water. Write the company for fuller particulars.

The Killefer-Griffith Mfg. Co. of Los Angeles are advertising their clean-cut weeder in this issue, and as we have known of this firm for years, we know that our readers who may do business with them will receive good treatment. On our Home Circle pages we have three new announcements, two of whom advertise acetylene gas burners and the other being that of the Heald's Business College. These three firms are worthy of patronage, and when writing to them kindly mention this paper. It pleases the advertiser, will help you and ourselves.

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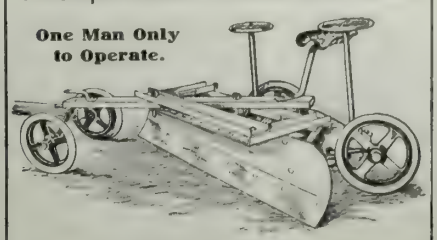
Realizing the fact that so few people owning or interested in marine engines really understand the construction and operation of the motors thoroughly, the Ferro Machine and Foundry Co., of Cleveland, the large marine engine builders, publish each year "A Practical Treatise" on the subject. The 1909 "Treatise" is the most exhaustive work ever published on the subject of marine gasoline engines.

It tells in simple language and with the aid of more than 300 illustrations all about the construction, installation and operation of these motors. The book is compiled by some of the most practical motor and boat experts in the country and is something everyone interested in marine engines should have.

It has been found necessary by the U. S. government inspectors to dip sheep at least once a year. It has also been found by the growers on the Pacific coast where the commercially prepared lime and sulphur solution is used that the inspectors do not necessarily have to be present, whereas when any other home-made preparation is used the inspector must always be there.

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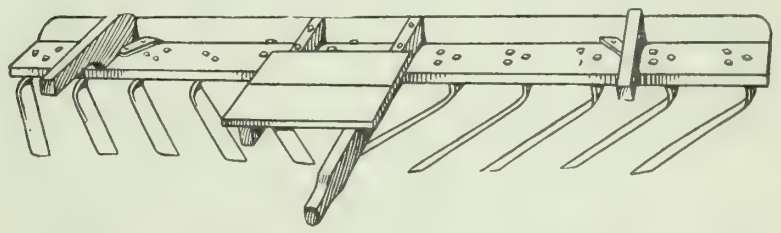
Of the 22 farms, about one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

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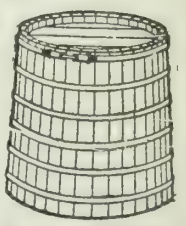
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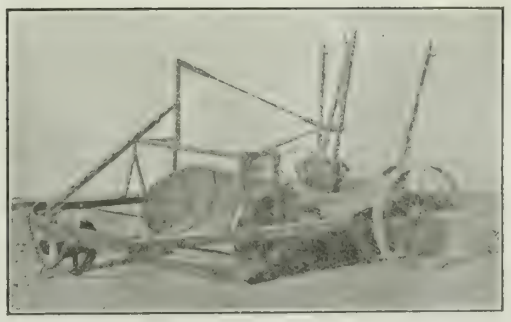


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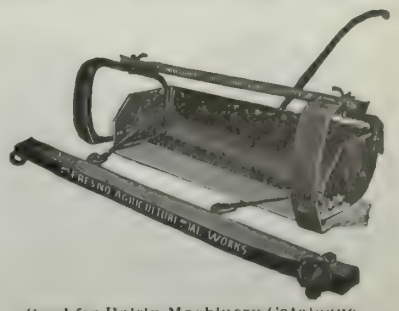


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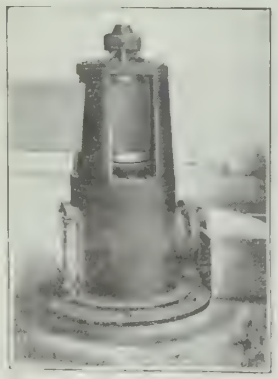
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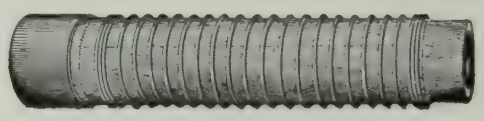
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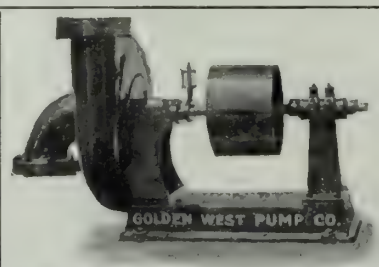


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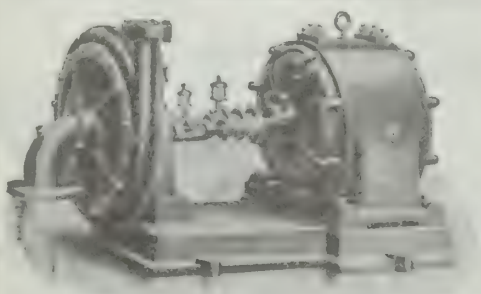
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 14. SAN FRANCISCO, SATURDAY, APRIL 3, 1909. Thirty-ninth Year.

How a Citrus Tree Grows.

By Prof. R. E. SMITH, of the University of California.

The picture on this page does not represent a chunk of pie as grandmother made it, although it has resemblances that way. It is intended to show the relation of bark and wood, and particularly the so-called "new wood" in which trouble occurs not only in citrus trees but in other trees also. The text and engraving are taken from Prof. Smith's discussion of gum disease of citrus trees in a recent bulletin of the University Experiment Station.

Gum disease is believed to be not due to parasitic or infectious organism, but the various forms of the disease are the result of physiological disturbances in the functions of the tree. A clear understanding of the principles of plant physiology and structure is therefore necessary to a proper conception of the nature of the disease.

The citrus tree, like other similar plants, consists of certain parts, of which the most important in the present connection are the root, stem and branches, and the leaves.

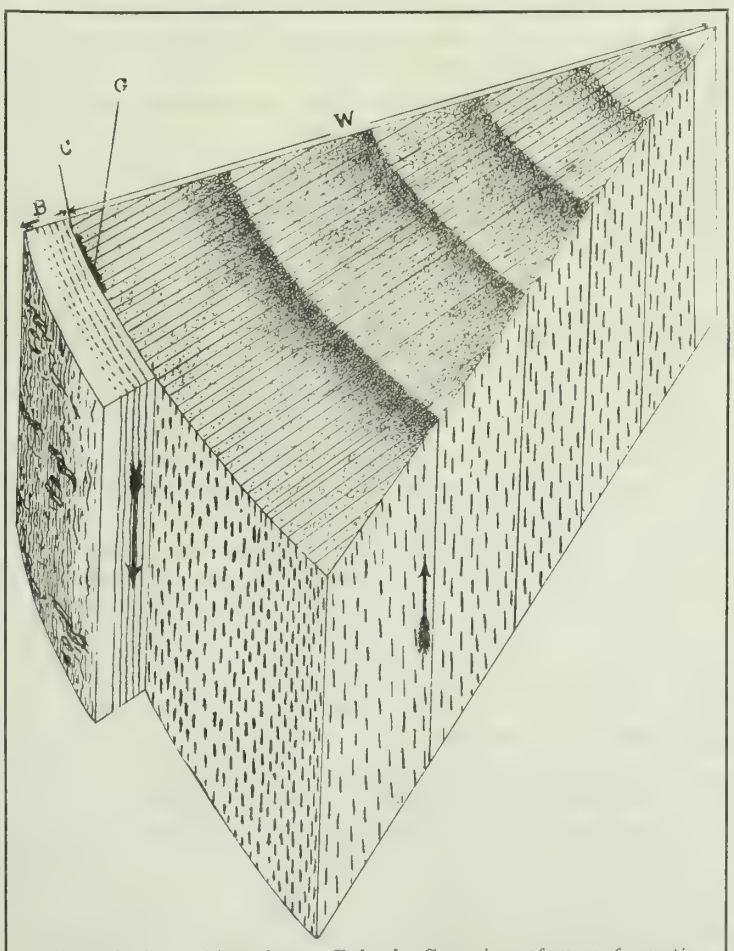
The Root.—The root is the organ of absorption of water and mineral food elements, and likewise acts mechanically in holding the plant in the soil. It subdivides extensively, resolving at its extremities into the finest hairlike branches and outgrowths. Through the root is obtained water from the soil, with nitrates, phosphates, potash, iron, lime, etc., in solution, by a process of absorption. All the water used by the tree is obtained in this way from the soil.

Upward Flow of Sap.—This watery solution or crude sap passes into the woody portion of the root and thence travels up into the trunk, the stream being located mainly in the younger, outer part of the wood or sap-wood.

There is no rapid flowing along of this water up into the tree from the root, like the blood circulation of animals. The current is a considerable one, however, particularly in the citrus tree, and the sap passes through certain comparatively large tubular pores or vessels in the wood, which are formed for this purpose. Citrus trees are particularly quick to respond to the application of water to the roots, sending large amounts up through the trunk very soon after the application is made.

The Leaves.—While the root is engaged in absorbing and pumping up water and mineral salts, the leaves are equally active in doing their part in the nutrition of the tree. During sunlight the leaves constantly absorb carbon dioxide gas from the air, and, by a remarkable activity which they possess, they decompose this gas and unite its carbon with the hydrogen and oxygen derived from the water furnished by the roots, forming starch. In this way the green leaves of plants accumulate large amounts of starch during the daytime, and are charged with this substance when evening comes.

Digestion.—Starch being a solid material, it is necessary that it be made soluble before it can pass out of the leaves or be further utilized by the plant. This process takes place in the same manner as in animals, namely, by the action of the substance called diastase, which converts starch into sugar and thus makes it soluble in water. Further changes of a very complicated nature then go on in the nutritive materials, through which a combination is effected of those materials obtained respectively by the roots and leaves, forming various soluble substances of a nutritive nature.



W wood, C cambium layer, B bark, G region of gum formation. Arrows indicate upward flow of sap in wood and downward path of nutritive material in bark.

Diagrammatic Illustration of Structure of Stem of Citrus Tree.

During these changes most of the water taken up by the roots is carried up to the leaves, and this process constantly goes on, even in the tallest trees. A constant and abundant flow of crude sap takes place, passing through the outer layers of wood, as previously described, dividing and subdividing into the various branches and twigs, and finally reaching the leaves. At the same time all parts of the tree absorb more or less of the soil water, by its movement in all directions, sufficient to present wilting and drying out.

Downward Flow of Sap.—After the nutritive material has been properly prepared as described above, it is distributed again to all parts of the plant, in the form of a solution in water. This distribution takes place mainly by a current passing through the inner bark, and thus we have in the trunk, to a certain extent, two currents of sap moving in opposite directions, one going upward through the wood, carrying crude food materials, and the other coming downward through the inner bark, furnishing digested material for the growth and nutrition of the tree. The latter process, however, does not consist in an abundant flow of sap traveling rapidly in one direction, but is rather a slow process of absorption and diffusion of the nourishing materials.

Cambium Layer.—Just between the bark and wood is situated the most vital part of the tree, the cambium layer, which is the seat of growth in thickness. This area, consisting of a narrow layer of tissue running around the trunk and all the branches just between the wood and bark, gradually grows out with the expansion of the tree, forming the elements of the wood on its inner side and those of the bark on the outer side. To the cambium goes, therefore, much of the digested food material, and it is used in the formation of the tissues mentioned, just as the blood in animal life conveys nutritive matter for utilization in the growth and maintenance of the various tissues of the body.

The account here given is but a brief one, and does not consider all the numerous and obscure processes which go on in the formation, movements, and chemical changes of these food materials. Enough has been said, however, to show the extremely complicated and delicate nature of the process, and the fact that in plants, as well as in animals, complications of the nature of indigestion and other failures or abnormal effects in the vital processes may easily occur.

This is particularly the case in the citrus tree, which is of a very susceptible nature with an abundant flow of sap, and is grown in California under decidedly artificial conditions, with the supply of moisture and nutriment largely controlled by the grower rather than by favorable influences of nature. Processes of oxidation, respiration, excretion, and other complicated chemical and physiological changes also go on in the citrus tree, and these are easily affected, adversely or otherwise, by climatic, soil and cultural conditions.

The Ponoma Times says that the San Antonio Fruit Exchange is shipping oranges to London at the rate of about three carloads a week. The large sizes are exported for the wealthy classes, as the oranges shipped to that center from Mediterranean points are small, and none of them are seedless. Hence the navel of large size is prized, and fancy prices are obtained.

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., March 30, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	1.61	41.77	38.34
Red Bluff	.38	30.42	21.30
Sacramento	.66	21.63	16.87
Mt. Tamalpais	.90	34.52	19.69
San Francisco	1.05	25.58	19.40
San Jose	.90	18.22	10.98
Fresno	.56	9.75	8 21
Independence	.16	8.11	8.09
San Luis Obispo	2.44	31.34	17.98
Los Angeles	.72	19.06	13.89
San Diego	.94	10.17	8.80

The Week.

The continuation of rains makes assurance of large produce this year doubly sure. They have covered the whole State and have caught up spring work everywhere, while at the same time they have brought along grass and grains which have been backward because of the shortness of early winter sunshine. It is proving an ideal spring for the late man and the late plant, and both are rejoicing thereat. Mr. Harriman said in an interview the other day that all that was needed to breed confidence throughout all the industrial activities of the country was to get a lot of money into the farmers' pockets, and surely the favorable weather and market conditions now prevailing indicate that it will be realized.

There seems to be a growing interest in local celebrations to emphasize the interest and importance of great special products. It is a good idea. Surely the blossom festival of the Santa Clara valley last week promoted not only prunes but local pride in them. We are now promised an annual "raisin day" at Fresno for April 30. To men who are in the public eye everywhere in the United States will be sent small cartons of raisins, inclosing recipes showing the best way in which raisins may be prepared, and calling their attention to California Raisin day, upon which with one accord they are expected to eat the raisins in some of the many forms of delicacy of which raisins are capable. It is a good idea; it will bring California raisins out of the kitchen into the drawing room. Another similar undertaking which will begin this year will be the "Cherry Carnival" at San Leandro, in the time-honored cherry region of Alameda county. The day will be the last Saturday in May or the first Saturday in June, as to be later announced. San Leandro's ambition is wide, for we are told that "the fame of San Leandro cherries has spread beyond the confines of not only California, but also the United States. King Edward's private table is supplied with the luscious fruit grown in the orchard of J. McCarthy." Possibly King Edward sent his Chief Ambassador and Minister Plenipotentiary, Dr. James Bryce, to California this spring to see how Mr. McCarthy's cherries were coming on, and we hope the report will be so favorable that the King himself may come over to the San Leandro Cherry Carnival.

Speaking of the royal Edward, we are wondering whether a recent experience of his does not, in a way, indicate the coming "world-supremacy of the English-speaking nations" which we read about in current banquet oratory. It is cabled that Edward's visit to Paris last week had an immediate effect upon the fashions in men's dress. The cut, color and pattern of the clothes his majesty wore were carefully noted by Parisians, and there has already been a great increase of orders among the tailors for clothes of the same kind. Trousers must once again be worn with distinct creases down the front and back. It was noticed that his majesty wore the plain stiff shirt front as is usual in England, and now the word has gone forth that Frenchmen shall wear similar shirts. This constitutes quite a revoltuoin, as the Frenchman's taste runs to plaited, soft shirt fronts for dress occasions. These notes may be of direct practical value in our higher alfalfa circles, but we cite them rather as an indication of world-broadening on an English basis, for all the English tailor products we ever saw were no more close-fitting than Greek drapery, while even our copper-riveted overalls have had a French cling to them. Now that the Frenchman himself consents to be tied up in a bag, it seems clear that Britannia will rule the world.

Another page of this issue shows that Mr. Burbank and his enveloping millionaires have sawn themselves asunder. We marched them all up the hill to wealth and comfort to a height of about four columns a few issues back, and now they have all run down again themselves on opposite sides. This releases us in the future from all announcements of engagements; not a drop of our ink will flow until we are shown a marriage certificate, and, if we are not safe on that basis, we shall next insist that all contracting parties shall have been at least once thrown out of the divorce court for trying to get apart. We have something of a reputation to save, even if these bad partners have not. People say that when they see a statement in the PACIFIC RURAL PRESS they can believe that it is true, and yet here we are made to take the 23rd degree in the Ananias Club right in the face of everybody. We see the reason for it, though. The whole business was too smooth. We shall insist on having a few spikes left even in our cactus after this: it will hang together better.

Local improvements are certainly thriving in California. San Joaquin county has voted to issue bonds in the sum of $1,890,000 for the building of 238 miles of macadam roads, and it is claimed that this is the largest county bond issue ever voted in the United States for good roads, in proportion to wealth and population. Even if that is true, we believe the investment will be a good one, if intelligently and honestly carried through. San Joaquin county is making wonderful advancement in profitable industries, and if she keeps right on and brings irrigation water to all parts of the county which need it, the increase in assessed valuation will make the burden so light and the profit so great that more good roads will be urgently demanded. Good roads are the best ways to prosperity. Every cent used in paying for these bonds will add itself at once to the value of the land, and the item of increased valuation will yield more interest perpetually than any other investment of similar amount that can be made. Good for San Joaquin county: she was not placed at the center of things for nothing.

Indications are multiplying that some Americans who went to Cuba and other tropical islands to grow fruits should have remained at home to grow them, and some other Americans who induced them to emigrate should have remained in the penitentiary. The losses and suffering resulting from investment in these glorified island enterprises are said to be very great, and the hope of pulling out of them with a whole shirt absent. The rush of misguided people is so large that the representatives of the United States Government are trying to check it. As to the chances of success by those who are attracted by land sharks' announcement, one consular agent says that from all the evidence at hand, there is no such proper understanding, and that implicit faith is given to the prospectuses of those who are interested only in selling the land at a great advance over the purchase price and are regardless of their customer's future. It is the same old boomers' game—always the same, whether it be worked on eucalyptus in California or on other things elsewhere. Profits are multiplied, expenses minimized and the multitude is mulcted.

Tariff discussion is still on in Congress, and the issues which daily arise may not be adjusted as soon as at first thought possible. Naturally the representative of the New York lemon importers is attacking the slight increase in the duty on lemons, but he is being taken care of by the California Representative, Mr. Smith, who can show that the California growing of oranges has made oranges cheaper to all the people of the United States than when the importers controlled the supply, and there is every reason to believe that the same wide benefit will result from building up the California lemon product. Importers are much concerned about the dear people when they are trying to get their products in: they forget about it afterward and take all the traffic will bear. The Greek currant importers are at their old game, trying to make Congress believe that a currant is not a raisin, and probably California will have to teach that lesson all over again. The Greeks are reported to make about a third of a billion pounds of Zante currants, and they would like to put enough into this country to swamp our seedless and seeded raisin products. No less a person than the Greek Minister in Washington is reported to have appealed to Congress to reduce the duty on currants, but Senator Flint, who knows that currants are dried grapes, and not jelly timber, will checkmate him, probably. Naturally, a determined onslaught is being made on California products by the importing interests, but we have a good team of Representatives at Washington and they are willing to work.

Speaking of Congress, it is interesting to note that our Senators are filling high committee places in the new Congress which began with President Taft's inauguration. Senator Perkins has places on these committees: Agriculture and Forestry; Appropriaions; Naval Affairs (chairman); Civil Service and Retrenchment; Fisheries, Forest Reservations and Protection of Game. Senator Flint serves on these: Interoceanic Canals (chairman); Finance, to audit and control contingent expenses of Senate; Education and Labor; Irrigation and Reclamation of Arid Lands; Pacific Islands and Porto Rico; Public Lands. This gives California inside seats on conveyances which carry most of significance in our development.

We are not by any means ready to go as far as does former Governor George C. Carter of Hawaii, who is reported to have said at a recent banquet in Honolulu that he no longer believed in the efforts to create here a system of small land holdings

tilled by American farmers, as recommended by President Roosevelt in his message to Congress some years ago. Mr. Carter cited Georgia especially, where he said he had seen many small farms of from forty to ninety acres, unskilfully farmed by their owners, without the use of fertilizers and other accessories of scientific farming, the owners compelled to hasten their product to market for lack of capital to hold it for the best market conditions; and that the contrast between that and the Hawaiian sugar plantations, where big corporations with sufficient capital controlled and operated the land, practicing scientific agriculture, had convinced him that the Hawaiian system was the best.

Now if Mr. Carter really thinks there is a danger of having the islands subdivided into a lot of small farms given to low down farming by ignorant and resourceless small farmers, he is probably right in his conclusions—for such small farming is starvation, degradation and wretchedness. But why does he think it necessary to make his contrast with such a manifestation of small farming? Why does he not make comparison with the small farming of Europe, notably of France; or, if he wishes something nearer, why not cite the small farming of California? Perhaps he has a labor class which is nearer in intelligence that of the South, or he despairs of attracting the class of small farmers which is developing California by a system of high-class small farming, and employing in the effort the intelligence, business capacity and accumulating capital which make for prosperity and good citizenship. It is because of California's constant increase in such population by multiplying small farms that we rejoice whenever large areas of good land are broken up into small holdings, and though we take pride in large productive enterprises well conducted, managed and financiered, we do not look upon such enterprises, with the mass of the population on the wage-roll, as the institutions which will develop California. But there may be reasons why Hawaii cannot follow California's example or cherish her example. We are not informed upon that point.

Queries and Replies.

Summer Verdure on Dry Hills.

To the Editor: What are the varieties of grass and clover most likely to take hold on hill land, after the brush, etc., has been cut and burned? And which are the most valuable for cow and horse pasture? Is the vetch of any value under such conditions? The burr clover does not appear to be relished by stock, and as far as I could learn from the seed stores there was no seed in the market last year. Is it possible to get any clean wild oats? As far as I could learn the little to be had at seed stores was mixed with barley, etc. Is it to be got at flour mills? Would be glad to have your opinion as to the proportions and amount per acre of a suitable mixture; also your opinion as to a mixture for rather heavy hill land that can be plowed and which might make fairly good spring and summer feed.—Subscriber, Sonoma county.

These are the same old questions; chiefly wearisome to us because we cannot answer them to the satisfaction of readers who want verdure on dry lands in the summer without irrigation. California was apparently not made for that, and neither science nor invention have done much yet to remove that impression. If you had read carefully the accounts of the wide trial of grasses and forage plants made by Albert F. Etter of Humboldt county and reported in detail in our issues from December 1906 to February 1907, you would remember that he mentioned Orchard grass, Tall Oat grass, as the best for summer drouth resistance of kinds of which seed can be had in quantity and he cited others which are not available because the seed is not in the trade. He also commended burnet, which is good forage, though not a grass. Probably one could not do better than sow these three as a mixture, adding perhaps rib grass or plantain on lands to be permanently retained for pasturage.

Burr clover is generally regarded as excellent winter pasturage and rich summer dry feed and the seed is usually in ample supply. For clean wild oats we would certainly expect to do better at a seedsman's than at a mill.

Spraying and Fruit Blossoms.

To the Editor: My orchard is three years old and has been sprayed for the last two years and the trees are healthy and very thrifty. I have all peaches—clings and Muirs. My place was flooded this year and the ground will not hold up a horse yet, while the fruit buds are nearly ready to burst. Would it injure the fruit to spray this week or next, even if some of the trees are in full bloom? Would it be better not to spray at all? Which is better in spraying for curl leaf, to use bordeaux mixture or lime and sulphur with bluestone added? I am afraid the Phillips clings will curl badly if not sprayed and if we should have wet, cold weather the last of this month.—Grower, Sutter county.

If you should spray while the tree is in full bloom you will probably reduce the crop considerably; just how much we cannot say. It is possible that you can check the curl leaf by using bordeaux mixture, without notable injury to the crop, if you wait until the bloom has had a few fine days for setting, for it is not essential to wait until the petals fall—the fruit is set a little in advance of that time, if the weather is good. It is possible that we shall have rather a bad year for curl leaf, because there is so much moisture about, unless the rains should stop and it should become very dry. The bordeaux is safer than the lime-sulphur wash; that is, less likely to injure blossoms and foliage.

Handling Stable Manure.

To the Editor: What is it profitable to expend for the conservation of all the valuable constituents of barnyard manure; in other words, on a ranch employing a hundred head of horses and mules, and whose present custom is to remove manure and throw into piles at side of barns, or even in the field in the old-fashioned way, what value is lost by such practice.

On the whole the best way to get the benefit of barnyard manure is to apply it at once to the soil and not allow it to accumulate in piles, nor to have recourse to any of the expensive systems of cellaring and composting which were formerly so strongly urged. In the wet season, if the manure is spread well all leachings enter the soil and no fermentation takes place, because there is no massing. In the dry season there is nothing lost by the drying of scattered manure, which accounts for the fact that corral dust thoroughly dried has practically all its fertilizing constituents remaining until the winter rains begin to act upon them. The conclusion is, therefore, that fertilizers should never be allowed to get into condition for heating and fermentation. Arrangements should be made so that all the leaching should go immediately into the ground to be benefited.

Whitening Tree Trunks.

To the Editor: When we bought our vineyard we found a great many old cherry trees, the southwest side of which are burnt by the sun and of course it is not elegant to look at. I propose to tar that side, then plaster over the tar, having previously well cleaned the scars and washed them with bluestone solution. Do you believe the remedy good?—Owner, San Benito county.

We would not use tar. It would be more likely to absorb heat and increase burning than to serve any useful purpose. We should clean off the dead bark and wood as you propose, use Bordeaux mixture and would rather finish with a good durable whitewash than to use anything of a dark color.

The Burbank Potato.

To the Editor: A friend in the East writes for information concerning the Burbank potato, its origin, characteristics, productiveness, etc. As this is out of my line, I turn it over to you. Will it do well in Minnesota?—"Spuds," Campbell.

The Burbank potato was grown from the seed by Mr. Luther Burbank in Massachusetts before his coming to California in 1875. It is an exceedingly high class potato and under Pacific coast conditions has maintained quality and productiveness for a longer period than most varieties have commanded. It has not done so well at the East, where new varieties have largely displaced it, but it is a good potato in the northwest of the Mississippi valley and is now of considerable importance in Minnesota, Wisconsin, etc. If your correspondent lives in that district he ought to know how it is himself.

Locust or Catalpa.

To the Editor: Which would be the better to plant for fence posts, catalpa or locust trees? Is catalpha soft or hard wood? What country is it a native of and are they trees of small growth or large? I have never seen young locusts advertised for sale, so would like to know how to start the seed.—Farmer, Colusa county.

The catalpa which is worth growing is speciosa, a native of the Central Western States. The wood is light and fine grained, but soft and not strong, though very durable for posts, ties, etc. It grows well in some parts of California but not everywhere. The locust is a hard wood, in fact very hard, and is also very durable in the ground. It grows well everywhere in California. So far as our observation goes, trees can be had from any nurseryman handling shade and ornamental stock. Probably they do not specially name it in their advertisements because it is so common and well known. Seedlings can be readily grown, if the seed is scalded before planting, and most seedsmen carry supplies.

The Berry Scale.

To the Editor: I send today under another wrapper a piece of blackberry cane infested with some kind of scale. Will you kindly let me know through the RURAL PRESS what to do for it.—Grower, Kern county.

The scale is diaspis rosae, commonly called the "berry scale," although its specific name comes from the rose, which it also infests. Although it has a wonderful power of multiplication and does much injury it is easily killed. Cut out and burn all canes which have finished fruiting and spray all the wood which it is desirable to retain with an oil-emulsion spray.

Eucalyptus From Cuttings.

To the Editor: I want to plant a patch of blue gum trees, and may not be able to get rooted plants because of scarcity. Now what chance of success would I have by planting two cuttings in a "hill" and giving plenty of water? The soil is first class deep sandy loam. What is best length and diameter for cuttings? Would there be any best time for planting?—Reader, Lodi.

We have had no experience in this line, but in the PACIFIC RURAL PRESS of November 21, 1908, we printed a detailed account by Mr. George P. Hall, of San Diego, of growing trees from cuttings of new wood of the thickness of one's little finger and smaller, providing the ground is kept continually moist by irrigation all through the first summer. From the many shoots which come, one is to be selected and others removed, to get an upright stem. Your plan is worth trying on a moderate scale, and we would like to know how it works. It is pretty late to begin now, so you should lose no time.

Horticulture.

WIDE TRIAL OF STRAWBERRY VARIETIES.

To the Editor: Some time ago there was printed in the Pacific Rural Press a short article, written by Claud D. Tribble, giving our experiences in growing a number of varieties of strawberries, and as we have had a large number of inquiries regarding same, would like to give to the readers of the Pacific Rural Press our experience with the many different varieties that we have tried.

We have written out a brief description of the different varieties as they have appeared to us, and hope it will be of service to your many readers. We would like to hear how other growers' experience compares with ours.

We have marked with a (P) those varieties which have perfect or staminate flowers, and the others (Imp.) or imperfect in this respect.

Chesapeake (P). This berry originated near Chesapeake Bay, from which it takes its name; an excellent shipper, producing as well or better than Dollar, with a much better flavor; large firm berries and very attractive.

Cardinal (Imp.). This berry has all the good points desired in a berry, being large, firm, a good shipper, a good producer, and very attractive; recommended by the Department of Agriculture.

Good Luck (P.). This is a splendid variety, very productive; berries are large and smooth, conical to wedge shape and glossy in color; two or three days earlier than Gandy.

Virginia (Imp.). This variety originated in Accomac county, Virginia; said to be a cross between the Hoffman and Sharples; has a record of 12,000 quarts per acre; very early and one of the handsomest berries grown; very firm and a good shipper.

Red Bird (P.). An early berry, of medium size; a good producer; berries and juice deep red, quite tart; a good canning or cooking sort.

August Luthur (P.). A good medium sized berry for sandy soils; very early.

Arnout (P.). Originated by J. R. Arnout of Pennsylvania; the berries are a bright red, solid and of flavor; very productive and ships well.

Abington (P.) This is the first berry of the season to ripen with us; very large and productive, beautiful and of fine flavor; one of our favorites.

Armstrong (P.). This berry is said to do well in southern California; plants are large and strong, but has not proved a success with us.

Brandywine (P.). One of the best in southern California, but does not do well with us; berries large, broad, heart shaped, of spicy flavor.

Arizona Everbearing (P.). Grows and produces well in all parts of Oregon and California; berries large and smooth, of good flavor; berries on plants from March to December; truly everbearing.

Advance (P.). Introduced by Arthur B. Puntz of Indiana; this is a medium early berry, heavy producer, berries large and long, sweet and of good flavor; a splendid berry for home use.

Aroma (P.). Said to do well in sandy soil, but has not proved a success with us; berries of a spicy flavor.

Bederwood (P.). Said to do well in foothills and in climate cooler than our own. A favorite with some Oregon growers.

Bismark (P.). This berry has been a favorite with all who have tried it; it is a grand berry and worthy of trial; berries are extra large and of good quality.

Boston Prize (Imp.). Medium to large sized berries, pink in color and well formed. We would like to hear from others who have tried this berry.

Brunette (P.). This variety is noted for its exceptionally fine quality; it is doubtful if there is a better eating berry grown than the Brunette; rich dark red in color and of fine flavor.

Bubach (Imp.). A good cold climate berry; has produced only a moderate crop for us.

Elma (Imp.). Introduced by Joseph H. Block and son; berries large and of bright red color, but has not done well with us.

Enhance. Berries firm, very large, irregular in shape; very productive; one of the best we have grown; a great favorite with our local trade.

Chellie. Proved a failure with us.

Commander (P.). A splendid variety; berries beautiful, extra large, firm, solid, and a good shipper; very productive. One of the better class of berries.

Crozier (P.). Originated in West Virginia by Randolph Crozier; said to be an improved Sharples; one of the largest of large berries, very fine flavor, and a heavy producer.

Dixie Belle (Imp.). Ripens early, bright red in color, large, firm, smooth, and uniform in size; an excellent producer.

Nettie (Imp.). Originated by Joseph H. Black, and is a seedling of the Bubach and Yale crossed by the Sharples and again crossed with Gandy; a very late berry; berries very large.

Climax (P.). This berry is supposed to be a cross between the Bubach and Hoffman; is one of the greatest plant producers, as well as large crops of very fine berries; ripens early.

Cobden Queen (Imp.). This is a very attractive market berry; stands shipping well; very firm, medium large berries; crimson colored inside and out.

Echo (P.). Introduced by Allen Wood, New York, and one of the finest flavored berries with us; very productive; a good mid-season berry.

Florella (P.). A seedling of the Bubach crossed with Lady Thompson. An early, very large berry; a great favorite with us; berries very large, firm, and are very attractive in crate; a good market berry.

Commonwealth. This is an excellent shipping berry; a heavy producer of extra large, fine flavored berries; is as large as the largest, firm and smooth. A splendid late season variety.

Fairfield (P.). One of the earliest to ripen; of banana flavor, very sweet and productive; ripens its berries throughout the season; a splendid variety and worthy of trial.

Excelsior (P.). This is one of the very earliest berries in our collection to ripen; a heavy producer of medium sized berries; ships well and a good early market berry.

Early Hathaway (P.). Very early and productive; berries large, firm and very attractive; the producer of the most uniform berries in our collection.

Johnston's Early. A fine flavored, medium size berry; fairly productive; an excellent berry for heavy soils or low wet land.

Kansas (Imp.). A fine, very large, home berry, of excellent flavor and color; a brilliant crimson clear through; a heavy producer.

Clyde (P.). Berries large and of beautiful shape; large, fine flavored and very productive; scant foliage makes the large ripe berries very attractive in the field.

Gandy (P.). This is a splendid variety for heavy soils; berries smooth and fine flavored; this is the standard by which all late berries are judged.

Glen Mary (Imp.). This is one of the greatest producers we have seen; berries all very large, season early, very fine flavor, firm and has all the good qualities to be desired of a strawberry.

Gen. De Wet (Imp.). Originated by T. C. Kevitt, New Jersey. Grows large berries of rich color, but only a medium cropper with us.

Gen. Jo Wheeler. Will probably do well in cool climate or near coast, but has not proved a success with us.

Haverland (Imp.). This is a general favorite everywhere. We sold out of this variety in less than one month last year. The berries are long, very large, and of excellent flavor; very productive.

Heflin's Early (Imp.). This is an early variety with attractive berries, but has not done well with us; probably adapted to sandy soil.

Hoffman (P.). This is a fine large berry; a good shipper; well adapted to heavy soils.

Howard (P.). This is a seedling of Barton's Eclipse crossed with Gandy; very productive; berries very large, firm and well colored; a good market sort.

Hummer (P.). This is well named—it is a hummer for producing large berries of excellent quality; a splendid shipper; it is one of those varieties that are worthy of trial.

Klondyke (P.). Another of the early very large berries; conical, very smooth, firm and of good quality; an excellent producer and a good shipper; is a favorite throughout the State.

Greenville (Imp.). This variety originated in Ohio; considered an improved Bubach, but is one of those varieties that has not proved to be anything extra with us.

May King (Imp.). This berry has done quite well in Oregon, but does not seem to be adapted to our soil or climate.

Jessie (P.). This berry has proved a great favorite with local growers, taking its place along with the Dollar; berries large and of good quality; very productive.

Lady Thompson. This is considered one of the best by southern California growers, and has done quite well with us.

Marshall (P.). This is an excellent local market berry; large, excellent flavor and very productive; stands shipping.

New Globe (P.). This is the largest of large berries and immensely productive; a late variety and stands shipping long distances in good condition; is of excellent flavor, sweet and very attractive; has caused more comment than any berry we have shipped; one of the grandest berries grown.

Meade (P.). A beautiful, dark red berry, of fine quality and quite productive; a splendid home berry; originated by H. O. Meade of Massachusetts.

Mitchell's Early (P.). Very early, a good producer, and a fine berry for table use, but not a shipper with us.

Mrs. Miller (P.). This is a very attractive berry of immense size, often two inches long by one and one-half inches in diameter; one of the darkest colored berries in our collection; very productive and of delicious flavor.

Morning Star (P.). Very early; berries extra large, conical, bright scarlet, and very productive.

Nick Ohmer (P.). A heavy producer of large, glossy, dark red berries; color runs all through the berry; good flavor and has done well wherever grown.

President (Imp.). This is a fine local market berry, extra large and very productive, and a splendid mid-season variety; there has been a great (local) demand for this variety, and we do not hesitate to recommend it for local market.

Longsworth Prolific (P.). This is a famous local market berry and will stand light shipping; we have picked eleven berries that would fill a pound basket; we believe it to be the longest season berry in our collection, coming on very early and bearing ofttimes until Christmas; it is a special favorite with us.

New Home (P.). An excellent variety; berries very beautiful, firm, and very productive; similar to Chesapeake and Dollar.

Oom Paul. This is an early variety that bears continually through the season; berries large, fine flavor and a good keeper; grows well in any soil; it is another one of those good varieties that we feel safe to recommend.

Parsons' Beauty (P.). Immensely productive and stands long shipment well; berries medium large and of good quality; not a good shipper.

Pennel (P.). Berries large, round, deep red in color, moderately firm, of good flavor and bears well.

Oak's Early (P.). This is a seedling from a wild strawberry, discovered by Mr. Wm. Tull of Maryland; a large early berry, very firm, and stands shipping well; a splendid variety for early market.

Pride of Cumberland (P.). Brilliant red in color and holds its lustre and freshness a long time after packing; the berries are very large and attractive; a good shipper and heavy producer.

Prof. Fisher. This is another one of Joseph H. Black's seedlings; about the latest of any in our collection to ripen; berries very firm, large and of fine flavor; immensely productive; a very commendable variety.

Pride of Michigan (P.). This is another one of the very choice varieties; very handsome in form and color and one of the largest in the market; a great farovite with Western growers, being very productive and of excellent flavor.

Reliance (P.). This is a seedling of the Mary crossed with Marshall, introduced by P. Henderson & Co.; very large and of fine quality; very productive; another good sort.

Ridgeway. While we have good reports from plants we have sent out, it has not proved extra for us.

Texas (P.). This variety was introduced by Jacob C. Bauer, Arkansas. A very productive variety, stands shipping, berries of medium size and fine quality; a variety worthy of trial.

Thompson's No. 2 (P.). Originated by Mark T.

Thompson of Virginia; very large and of beautiful appearance, being very glossy, very productive, and bears through a long season; a splendid shipper, having a tough skin; a splendid variety.

Uncle Jim. Introduced by James Doran of Michigan. This is an excellent berry for growers who want a fancy large berry for local trade or near-by market; quite productive.

Buster (Imp.). This is a cross between the Bubach and Sharples; it is of large size, bright red in color, moderately firm and quite productive.

Vick's Uncle Joe. An introduction of J. Vick, and a splendid variety; it has a very peculiar flavor which is most pleasing; the fruit is perfect in form, of a rich glossy color; has a very firm flesh and is a good shipper. One of the best varieties for all purposes in our collection.

Victor (P.) The fruit is very large, round, conical, somewhat corrugated, dark glossy red, and of fine flavor; quite productive; a good canning sort and a good berry for both market and home use.

Velvet (P.). This is another one of our extra good varieties; wonderfully productive, fruit extra large, bright red, and of fine quality.

Warfield. A well known standard variety; very productive and of good quality; a mid-season variety.

Wild Wonder. This is a lazy man's berry, as it will grow a good crop of berries with little or no care; berries medium to large and of excellent quality; very productive.

Wolverton (P.). This is one of our favorites; it bears an abundance of extra large berries all through the season and the flavor is excellent. An origination of John Little of Canada.

Sample (P.). The berries are very large and have a smooth, glossy appearance; one of the largest and most prolific of all strawberries; an excellent shipper and a good canning sort; a delicious berry for all purposes; very prolific; a variety that we do not hesitate to recommend.

Saunders (P.) A splendid variety to plant with imperfect sorts; fruit is large, deep glossy red; yields a good crop.

Southern Beauty (Imp.). Has never fruited for us, probably caused by imperfect planting, as we did not plant near a perfect variety. Highly recommended in Hood River valley, Oregon.

Splendid (P.). A very productive variety; berries of uniform size from medium to large; a splendid variety.

Senator Dunlap. This is an introduction of J. R. Reasoner, and an old stand-by; berries large and of good quality; a heavy producer.

Wm. Belt. This is the standard for quality in all parts of the United States; it certainly is one of the best of all strawberries. The quality of all berries are judged by the Wm. Belt.

Sharpless (P.). A great favorite with many people for family, garden and local market; berries are very large and excellent in quality; bears quite prolificly.

Tenn. Prolific. This is a standard reliable variety, similar to the Haverland, and a heavy cropper.

Stevens' Late Champion (P.). This is another one of the extra fine varieties; berries large, firm and fine flavored; a great producer.

New York. This is a product of Miss Yates of New York; while not fruited by us, it is said to be the largest and one of the best for local market; very productive; a seedling of the Bubach and the Jessie.

Ninety Six (P.). Another of the extra large early varieties; quite prolific, an ever-bearing sort, berries large and firm and of good quality.

Gandy (P.). A reliable variety, proved good almost everywhere; berries of good quality, very firm.

Nimrod (P.). This is a good variety to plant with imperfect sorts.

Dollar, Malinda, Magoon, Hood River, Midnight, Parker Earle and Mexican are too well known to need any introduction to California growers. They are all reliable varieties and well worth trying.

We have a number of our own introductions that have proved extra good and worthy of trial, tremendous producers of extra large berries of excellent quality, with good shipping and keeping qualities.

TRIBBLE BROTHERS.

Elk Grove.

THOSE NON-RUNNING STRAWBERRIES.

To the Editor: I noted Mr. J. E. Reiter's report of strawberries failing to produce runners, and Mr. Albert F. Etter's reply to your reference of the matter to him.

There is one point which is not brought out, and which is of importance to notice. The growth of all life on the physical plane is turned in two directions: first, building up its own body, and second, reproducing its kind. The strawberry plant has two methods of reproduction, one by means of the seed borne on the berries, and second, by throwing out runners. Now it follows that if that part of the energy stored for reproduction is used exclusively to reproduce in the line of seeds, the plant growth must be turned to building up the parent body before further propagation is undertaken.

Mr. Etter's suggestion, of pinching off all blossom buds to force the reproducting energies toward runner production, is undoubtedly correct, and I, as a grower, would be glad to hear a report from Mr. Reiter after trying that plan.

Auburn. EDW. T. BRUNSON.

GROWING DWARF APPLES.

We do not do much with dwarf apples in this State, but some interest is arising. At a recent Eastern fruit growers' meeting, Mr. George T. Powell read a paper on "Dwarf Apple Trees in Commercial Orchards and the Value and Possibilitief in Dwarfing Standard Trees Through Special Means of Pruning." He had charts illustrating methods of pruning and plans of setting. In regard to dwarf trees, he said that trees on Paradise stock reached a height of eight to nine feet, and trees on Doucin stock made semi-dwarfs, reaching a height of sixteen to eighteen feet. Land for dwarfs should be loamy, with some clay, but they will grow on sandy soil, though they will not grow so large or vigorously. They need more cultivation and pruning than standards and the union should be from four to five inches below the surface. Otherwise the heavy tops and loads of fruit, being out of proportion to the dwarf root and its hold upon the ground, will break the whole tree over or break it off at the union.

The varieties he recommended on Paradise were the finest dessert varieties: Spitzenberg, Jonathan, Newtown Pippin, Cox's Orange Pippin, McIntosh, Grimes' Golden, Chenango and Fall Strawberry. The Fall Strawberry, he said, was especially adapted to dwarf culture, is an exceptionally fine dessert apple and ripens over a period of four to five weeks.

For Doucin, the best standard commercial varieties: Northern Spy, Baldwin, R. I. Greening, Roxbury Russett, Fall Pippin, Duchess, Wealthy, Twenty Ounce and Red Astrachan.

Start the head with four branches, the lower two twelve to fourteen inches from the ground. Prune systematically, cutting back to keep head down and compact. Cultivate thoroughly.

It is necessary to get a strong annual growth to keep orchard in a good paying condition. Insects and diseases are much more easily controlled on these dwarf trees.

Citrus Fruits.

THE QUESTIONS GROWERS ARE ASKING.

Written for the PACIFIC RURAL PRESS
By Mr. THOMAS C. WALLACE.

In connection with the orange industry the subjects which interest the grower are mostly cultural. The matters of packing, shipping, and marketing are handled more directly by the officers of the associations and packing companies, there being very few individual packers among the growers, and even the improvement in picking methods is due mostly to the packer's effort. The grower wants all the information he can obtain on the various cultural proceedings, and while he seems frequently to be swayed by prejudice, he is really open to conviction if reasoned with on an understandable basis. Divesting these cultural subjects of their puzzling technicalities, explaining and harmonizing their seeming contradictions, in fact, bringing order out of the chaos into which experiment seems at first to plunge natural law, should be the aim of the practical writer and speaker along these lines. I have noticed that the average grower is earnest and anxious for information, though perhaps apt to place stress on the so-called practical opinions of some successful grower. That he is thus often misled stands to reason, for the successful grower not infrequently has favorable surroundings, or soil conditions, or some accompanying method, all perhaps unexplained or not even understood, that have made up the sum total of his success, and which, not entering into his neighbor's work or conditions, turn the scale. No better indication of what the growers desire to be informed about could be afforded than the subjects they choose for discussion at the meetings gotten up by them. These subjects are mostly soil, cultural and fertilization methods.

Pruning the Orange.—At one of these meetings recently the subject presented was pruning the orange tree. A variety of views were advanced, but were finally reduced to two, one of which the principal speaker of the evening introduced. His idea seemed to be that, owing to the profuse vegetative habit of the tree, the growths should be shortened back to throw accumulated force into the blooming for blossom and fruiting. This was combatted on the ground that it tended to merely force out side fruiting and would be productive of inside dead wood. This is worth more serious discussion. The orange being evergreen and of a highly vegetative nature when in health and properly supplied with food and water, is practically a dense grower. The shutting out of sunlight, which results from dense outside growth, causes the shaded twigs to die, and the result is accumulation of dead wood inside the tree and a cessation of fruiting. Then, practically only the outside is producing for market. The object therefore of pruning the orange tree is to bring the other half of the tree into bearing fruit. Can this be done? It certainly cannot be helped by shortening back the vegetative growth, as the tendency of this is to increase the density of the outside. The object of orange growing being to produce the most fruit in keeping with quality, the method of pruning must keep this aim in view. The rational plan of pruning must then be to create the largest possible fruiting surface for quantity, to promote steady annual growth to procure continuous fruiting, to obtain the best quality within the nature of the tree, and to prevent dead wood accumulations. If pruning does not affect these conditions favorably it is irrational, it is unbusinesslike, and a waste of energy. The best plan practiced for increasing fruiting area is the opening out of the top and center of the tree to allow free access of light to the inside surface of the tree, thus practically doubling the fruiting area of the tree.

In doing this we as well dispose of unproductive wood which grows straight up through the tree without branching until it gets to the light. If this top and centre opening out is properly done, light is brought to the under surfaces of the limbs and dead wood accumulation prevented, though it is sometimes necessary to cut out the under branches of the outward limbs if they are getting too thick, as the nature of the growth is to grow up and over, and smother the growth thus overgrown. It is not practical to light a tree through the sides, first, because it entails too much wood destruction, and next, because the sun's rays do not penetrate so readily that way. The opening of the top lets the light fall naturally all through the inside of the tree, the same as it does on the outside, and the result is equal fruiting to surface area. This enhances the quality of the fruit, because the inside fruit is better protected from wind and weather. The opening out of the tree from the top gives fruit-wood producing power to the inside and thus ensures continuous production. Dead wood, as understood in the orange tree, is the sequential result of smothering or light exclusion, and the plan of center tree opening prevents it.

While at the meeting mentioned there seemed much uncertainty and little decision in the minds of the growers present on the subject of pruning, yet there was earnestness, and the tendency of the thought was in the line we have indicated. The reasons were not all clearly discussed, and that is what seems to make it opportune to thus "butt in" and try to direct the trend of thought on the subject treated.

AGRICULTURAL REVIEW.

With the Fruit Growers.

The thrips is causing considerable damage to the pear orchards around Suisun this season.

The Fisher Packing Co. of Napa shipped 50 tons of prunes via steamer to New York last week.

The melon crop in the Imperial valley will be later than last season. Planting is nearly all completed.

N. F. Pickle, Sr., is planting 30 acres to cherries on his ranch near Farmington, in Stanislaus county.

The fruit crop prospect in Placer county, especially peaches and apricots, is reported to be unusually good.

An organizer for the Farmers' Co-operative and Educational Union is working in the Santa Clara valley and it is learned that several local unions will be organized.

Recently 25,000 orange trees from Florida were received in Arizona to be set out near Mesa, Tempe and Glendale. The citrus section near Phoenix is rapidly growing.

A dispatch from Biggs states that a party from Visalia has been looking over the fruit prospects in Butte county with the idea of operating the Biggs cannery the coming season.

The output of berries from the Newcastle and Loomis section will be much larger than ever before. The railway agent there estimates shipments will amount to 150,000 crates.

G. M. Gifford is planting 2000 olive trees of the Ascolana variety on his ranch near Brawley, in the Imperial valley. Besides these trees he will have 11,000 cuttings in nursery rows for future planting.

According to the Hanford Journal a farmer named Dallas Gray has returned home from a four months' trip through the East, who succeeded in selling his ten-car raisin crop at good prices in the larger cities.

Orchardists around Gridley, in Butte county, report that peach trees have set a heavy crop and that almonds are very heavily loaded. So far no damage has been reported from frosts and bumper crops are expected.

At the recent meeting of the Pomona Grange of Sonoma county, reports were received showing that fruit prospects over the county were that a large crop would be raised. The hay crop would be short owing to long continued rains.

News comes from Ceres, Stanislaus county, that a proposition has been made to the Farmers' Union of that place by a Santa Clara man to put in a large cannery there. The matter will come to a head within the next few weeks.

Fruit growers of Gold Hill, Placer county, have organized an association for marketing their products. One of the first acts of the new organization was to appoint a committee to confer with dealers and to fix a grade or standard pack.

Two farmers living near Suisun have contracted to furnish a San Francisco crockery firm with 1000 tons of tule grass during the year. The tule grass, when cured, makes a splendid packing material and the price it commands is from $6 to $8 per ton.

A new dried fruit company is being organized at Winters to be composed of growers. The preliminary meeting was held last Saturday and another meeting will be held today. It is proposed to build a big storage warehouse in which each member will have bins where he can store his fruit and have access to it any time, that he may dispose of it at his option.

The Azusa-Covina-Glendora Fruit Exchange record beats that of 1908 by nearly 300 cars. Up to March 24, 1908, 645 carloads were shipped, as against 924 to the same date this season. Present indications are that the shipments of this season will exceed the record of 1908 by fully 1000 carloads.

Orange tree nursery stock has been exhausted in the southern part of the State this season. The story is printed that parties from Ventura county recently visited the Armstrong nursery at Ontario and ordered trees for 10,000 acres, none of which could be supplied. As a matter of fact all the citrus nursery stock raised in the State the past year would not have supplied more than one-half the amount for such an order.

Good Record in Tree and Vine Planting.

The planting season this year in the new orchards and vineyards, while late on account of the wet weather, will excel all previous seasons in this locality, says the Sutter County Farmer. It is estimated that over 1200 acres of trees and vines will be put in. This includes 400 acres to cling peaches, 100 acres to freestones, 150 acres to figs, 200 acres to apple, cherries, prunes, etc., and 500 acres to grapes. Most of the planting is in small tracts.

Agricultural News of the West.

A local chapter of the Grange was organized at Fort Bragg, Mendocino county, last week.

Several cars of onions were shipped from Imperial valley last week which sold for 3 cents a pound.

It is claimed that fully 3000 acres will be planted to eucalyptus trees in Tulare county this spring.

Los Angeles county nurseries will supply planters with nearly 5,000,000 seedling eucalyptus trees this season.

Millions of ladybugs have recently been turned loose in the Imperial valley by the State Horticultural Commission, to prey upon the melon aphis.

Lima bean prices in Ventura county are tending upward. The quotations last week were $3.50 per hundred, a raise of 25 cents over the previous week.

Asparagus growers around Yuba City have been marketing their crop for the past three weeks, and report about $200 per acre realized from the product.

A drainage district has been formed by ranchers southwest of Santa Ana, which embraces 6000 acres of tide lands. When reclaimed the land will be used to raise sugar beets.

Eight hundred acres of land known as the Dallas place, near Hickman, Stanislaus county, is being leveled and plowed for alfalfa. Part of the tract will be seeded this season.

The Riverside Trust Company is to plant 20,000 eucalyptus trees on the Santa Ana river bottoms near there, as an experiment. If successful, several hundred acres will be planted next year.

The ranchers around El Centro, Imperial valley, are now in the rush of cabbage shipments. Thirty-five cars, of twelve tons to the car, will be shipped this season. Last week cabbage netted $45 per ton.

W. F. Hall, the president of the new company which is to develop 50,000 acres of land across the Mexican boundary line, south of Imperial, is having the land surveyed preparatory to running irrigation ditches.

A subsidiary company of the Globe Grain and Mill Company, one of the large milling concerns of the coast, is erecting a large flour mill at San Diego. The building will cover a space 300 by 66 feet

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The Crocker-Huffman Company have received at Merced a big 40-horse power gasoline traction engine which has been placed at work plowing land. It has a capacity of turning 20 furrows at one time.

The Los Angeles county highway commission let contracts last Monday for the construction of two one-half miles of road near El Monte. This is the beginning of the work for which $3,500,000 has been raised for good roads in that county.

The Dunning place, east of Marysville, is to be planted to eucalyptus this season. Since the planting on the Marshall Diggs place, near there, a few months ago, a considerable interest has been manifested in tree planting, as it as thought that many of the over-cropped grain acres may be planted to eucalyptus with profit.

Another boat, the "Napa City," has been chartered to ply between Petaluma and San Francisco, commencing May 1. The boat will make the run to the city at night, bringing to market vegetables and berries.

It is estimated that there are 3000 acres in alfalfa around Chico and that 500 acres more will be seeded in that locality this season.

Bean Growers to Organize.

The committee appointed by Ventura county bean growers to plan an organization, has called a meeting to be held at Oxnard, April 3, to pass upon the plan for an association that has been agreed to. The low prices and light demand for last year's product have caused the growers to look upon co-operative marketing with favor.

Dairy and Live Stock News.

Nine head of horses belonging to Michael Hughes of Sacramento were killed last week owing to being affected with glanders.

Modesto is gaining in egg shipments very fast. One day last week 2400 dozen eggs were shipped and similar quantities are going out nearly every day.

A. M. Stone, who has a dairy ranch near Hanford, reports that during the past 30 days he has milked 18 thoroughbred Holsteins and averaged 450 pounds of milk per day.

News from Red Bluff is to the effect that A. J. McClure and George Rogers are to sell to Earl McKenzie their two herds of about 500 head of fat steers after the spring round-up. The price is said to be $20 per head for everything except calves three months old.

The Modesto creamery is now handling over two tons of cream daily. About 1200 pounds is going there from Turlock now, while the creamery at the latter place is being overhauled.

The contract for 170,000 pounds of butter for the annual supply of the naval vessels on the Pacific coast has been awarded to the Central Creamery Company of Eureka, at an average price of 30 cents. It will be placed in cold storage for issue as required. The bids for 500,000 pounds for the Atlantic coast were unsatisfactory and new bids on the modified proposals will be opened April 11.

A $50,000 Cattle Deal.

The Gill Brothers of Frazier valley, near Porterville, last week sold 1000 head of fat steers to Johnson & Co. of San Francisco, for butcher stock for $50,000. The stock is to be delivered in bunches as wanted before June 1.

POWELL TALKS ON ITALIAN LEMON GROWING.

G. Harold Powell of the Department of Agriculture at Washington, who has had charge of the investigations of fruit transportation and storage in California for several years, delivered a lecture before the Lemon Growers' Club at Los Angeles last Saturday. His subject was "Lemon Culture in Italy," and he illustrated his talk with lantern slides from photographs which he himself took while in the foreign country as a representative pomologist from the United States.

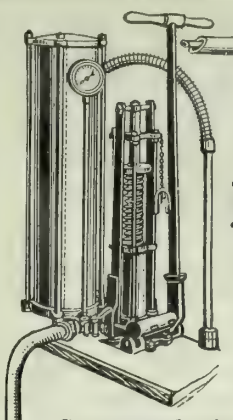
The Verdel system of lemon culture was explained in detail. "The Verdel lemons," said Mr. Powell, "are among the best-known and finest lemons in the world. The Italians have developed this system to a remarkable degree. Verdel stands not for a variety of lemon tree, but for lemons grown on any trees after they have been treated according to the method of the system.

"If the blossoms at the first part of the year are not prolific or other climatic conditions are unfavorable and the crop seems destined to be small, the Verdel system is brought into use. The ground around the trees is removed, and the roots are allowed to remain exposed for a period of forty to sixty days, when a strong fertilizer, usually sulphate of ammonia, is placed on the roots and the soil laid over this. Irrigation must then follow constantly, the ground being kept moist all the time until the blossoms are brought forth.

"This insures a good second crop of lemons, the Verdels. The period of picking in Italy is about six months, during which time the fruit is plucked about every six weeks. The Italians have no systematized packing houses, and each grower usually packs his own stock. The first-class fruit is all packed or export trade. The work is done chiefly by women.

"The second, or by-product lemons, are utilized in the manufacture of citrate of lime, from which citric acid is later manufactured. The presses and other machinery used in the manufacture of the citrate are nearly all hand or mule power. The finest oil of lemon or orange is made in Sicily. The best is all produced in a primitive way, by hand, and the oil is collected in sponges, dropped, when these are fully saturated, on water and then blown off the water into any ordinary receptacle."

After his lecture and during its course Mr. Powell was frequently called on by the lemon growers to further explain his points. There were 200 lemon growers in attendance.



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Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Cirtus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.

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with roots balled while growing in flats. Saves all roots; make sure success when removed to the field and good growth the first season.
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And General Stock.

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We make a Specialty of Muir Peaches, Bartlett Pears, French Prunes, and the Commercial Smyrna Figs
Send in list of your wants and get our prices before writing elsewhere.
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Seasonable Plants and Trees

We have a good stock left of the following, all of which can be planted out with safety until the latter part of April:

MONTEREY CYPRESS,	LAURUSTINUS,
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CASUARINAS,	PIMELLIA DECUSATTA,
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SPECIALTIES: **Franquette Walnut,** grafted on Black Walnut root. Absolutely genuine.
Wonder Walnut.—New: The largest, most prolific, and youngest bearer known. Twelve nuts grown on a **one year tree** in nursery row, placed side by side, measure 22 inches; each measuring 5½ to 6½ inches in circumference. Thin shell, blight resistant. Fully tested for years. Limited stock of grafting wood and trees.
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GRAPE VINES, BERRIES AND ROSES
Ornamental, Shade and Deciduous Fruit Trees.
A Good Class of General Nursery Stock.
SEND FOR CATALOGUE
CHICO NURSERY COMPANY, Chico, California.

Apiculture.

GOVERNMENTAL HELP IN APICULTURE.

Written for the Pacific Rural Press
By Mr. Ralph Benton.

In the Pacific Rural Press of November 28, 1908, I discussed the development of U. S. Government work on apiculture up to the point at which Mr. Frank Benton came into official connection with it, and closed with the statement that Mr. Benton took up his duties at Washington on July 1, 1891, in the hope of soon being recommended to proceed to the Orient and complete the investigation begun by himself there previously wholly as a private enterprise. That authorization did not come as soon as was anticipated, and many things intervened between that time and when it did come, 14 years later, in May of 1905. On arriving in Washington Mr. Benton found no funds available for experimental work. What little there was being expended for apicultural investigations had already been assigned for the co-operative work in progress in Michigan, which work was shortly to be discontinued. Mr. Benton accordingly reestablished several of his European apiaries, namely, the Carniolan apiaries and the Cyprus apiary, in the vicinity of Washington, and placed them very largely at the disposal of the Government for experimental purposes. Under the direction of Dr. Riley, a general bulletin on apiculture was prepared. The manuscript for this was submitted September 20, 1895, and the publication appeared during the course of the winter as Bulletin No. 1 (new series) of the Division of Entomology, and the entomologist (now Dr. L. O. Howard, Dr. C. V. Riley, under whom all of the preceding work had been done, having resigned in April, 1895) recommended the discontinuance of work in apiculture. The publication was well received and, the first edition exhausted, Congress ordered a second edition of 20,000 copies in April, 1896, but a few months after the first edition. Mr. Benton, with his characteristic persistence, remained undaunted in the face of the recommendation to discontinue beekeeping work, and on July 1, 1896, remained in the Division of Entomology, in the general entomological work, devoting what time he could to apicultural work.

As assistant entomologist, in July of 1897 he issued Farmers' Bulletin No. 59, "Bee Keeping," which was reprinted in May, 1899. At the same time of this reprint appeared the third edition of Bulletin No. 1, "The Honey Bee: A Manual of Instruction in Apiculture." During these years many experiments were carried on in his personal apiaries by Mr. Benton, in the absence of Government equipment, and a large amount of correspondence was carried on. On July 1, 1901, an appropriation of $2000 became available for apicultural investigations, the first specific appropriation ever made by the United States Government for apiculture, all the expenditures made during Dr. Riley's tenure of office having been made from money directed by him from the general entomological appropriations. Mr. Benton's title was changed to that of Apicultural Investigator, and his salary shifted to this specific appropriation, which, after stenographic expenses, really left but very little with which to carry on investigations. In view of this status, for the several years following the appropriation for apiculture was merged back into the general funds of the Division of Entomology, making it difficult to secure any assignment of funds for apicultural equipment. Mr. Benton, however, continued to experiment on private resources with honey producing plants, with the several varieties of bees, with methods of queen rearing, and with the wintering of bees.

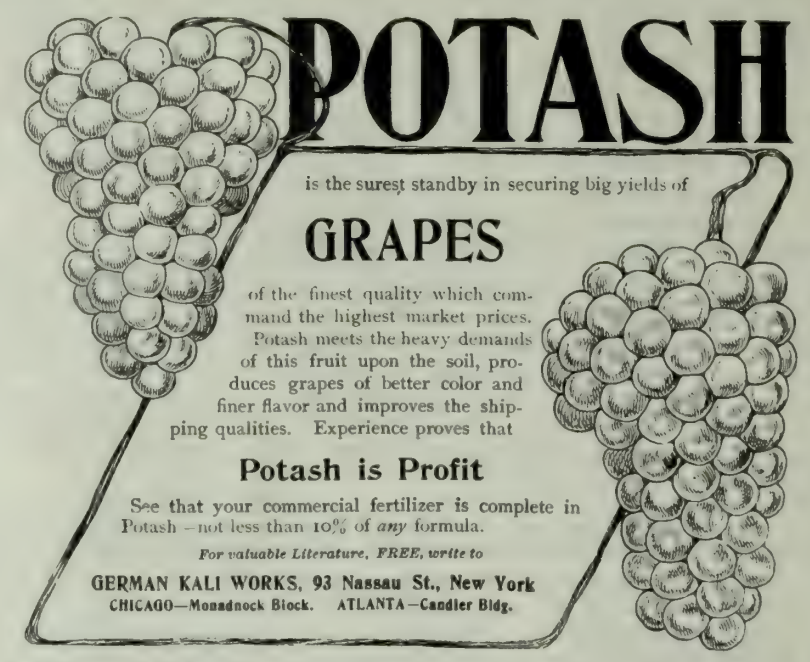
On July 1, 1904, after repeated representations before congressional committees and other authorities, of the needs of the various lines of economic and applied entomology, as well as those of pure entomology, up to that time all grouped under one head in the Division of Entomology, each with no separate assurance of specific appropriations, the division was raised to a Bureau of Entomology with the separate lines of entomological investigations in divisional form. This gives now what is practically a Division of Apiculture, with, in round numbers, an annual fund for salaries and investigations of $10,000. With this appropriation Mr. Benton organized a corps of workers, consisting of two assistants and a clerk. A model experimental apiary was established and a queen-rearing station located on the Washington Experimental Farm of the Department of Agriculture.

Mr. Benton projected work in the investigation of honey yielding plants, the diseases of bees, wintering under artificial heat, migratory beekeeping and insect enemies of bees. As an aid to this work statistics were to be collected and an index of apiarian literature to be prepared. The results were to find their way to the beekeeping public in the shape of bulletins and circulars and progress reports under other auspices.

In March of 1905 appeared the revised edition of Farmers' Bulletin No. 59, parts of which were entirely re-written and brought up to date. On June 3 of the same year Mr. Benton, having thoroughly organized his work at Washington, set sail from Philadelphia to complete the long deferred investigation of the bees of the Orient, the work that he had been so long hoping to accomplish, and the work that he had been called into the service of the Government so many years previous to undertake, but which intervening events had made impossible. The work at Washington was left in the hands of Dr. E. F. Phillips, a new appointee, of whose work we will speak presently, and a sub-station for apicultural investigations was opened in California, at Chico, with Mr. J. M. Rankin in charge.

I may say here that Mr. Benton realized the great needs of the California beekeepers and that their problems would have to be dealt with by one on the ground, and the opening of the work at Chico was a step in the direction of the accomplishment of some of these needed investigations on this coast.

With him Mr. Benton carried an authorization to employ a field agent in southern Europe to accompany him overland to India and return from India with the bees collected to date, while he, Mr. Benton, was to go on to the Philippines, Japan and Hawaii to conduct further investigations. It was the privilege of the writer when in Europe at the time to receive this appointment, on August 1, and so accompanied his father Mr. Frank Benton, on the latter's journey eastward from Rome. The journey through Europe was mainly one of getting personally in touch with editors of bee journals, leading beekeepers, beekeepers' associations, visiting apicultural schools, natural history museums, and making investigations in methods of practice and of honey plants of possible value to American beekeepers. Everywhere Mr. Benton was most cordially received, and one of so wide an international reputation coming as the representative of the United States Government gave at once dignity and results to the investigations being undertaken. Every facility and courtesy was accorded him as he moved from point to point. On arriving in Constantinople the authoriza-



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GRAPES

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12 in. long,	$ 9.00	per 1000
14 in long,	10.00	per 1000
16 in. long,	11.25	per 1000
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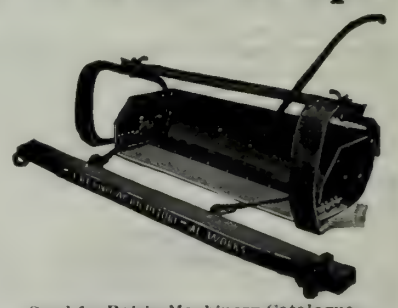
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We have positively demonstrated that WE CAN CURE THIS DISEASE.

Write us for particulars.

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The Fresno Scraper



Send for Raisin Machinery Catalogue.
FRESNO AGRICULTURAL WORKS
FRESNO CALIFORNIA.

Blake, Moffitt & Towne
Dealers in PAPER
1400 FOURTH ST., SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Oregon

tion for the employment of his assistant was summarily remanded, and the writer returned to Italy and the United States, and subsequently came later in the year to California to take up work at the State University, of which work he hopes to speak in a later issue of the PACIFIC RURAL PRESS.

Mr. Benton, thus crippled in his work, went on single-handed to the Caucasus, where many delays were experienced during the troublous times of the Russian revolution. The Caucasian bees were imported to America in large numbers, as had previously been the Banater bees in passing through Hungary, and investigations made in their habitats. The long journey inland to Bokara and overland by caravan through Persia brought negative results. India was reached in March of the following year, and investigations of interest and significance carried on, as were also subsequent investigations conducted under great obstacles in the Philippines. The giant bees were found in great numbers and again housed in hives as Mr. Benton had done on his previous visit, and many lines of his proposed investigations carried on, in spite of the limitations imposed upon him by his Government at the eleventh hour, in the point of time and proper assistance. The work in the Philippines was left far from complete, Japan but hurriedly scanned, and Hawaii left by the wayside, in a wild scramble to satisfy Washington authorities and arrive in that city on a scheduled date, January 1, 1907.

On arriving in Washington Mr. Benton was given no opportunity or time to report upon the results of his trip, but his resignation summarily demanded, which finally was made, and took effect in May of that year. Mr. Benton, with the characteristic ability marking the truly educated and resourceful man, has since served acceptably in the office of the Attorney General as examiner of naturalization papers, work requiring great care and a knowledge of many foreign people and languages, and has also devoted his time to the developing of private beekeeping interests.

Dr. E. F. Phillips, Mr. Benton's successor in charge of the apicultural work, now firmly intrenched as a feature of government activity, through Mr. Benton's long work of building, was born at Hannibal, Ohio, November 14, 1878, or within a year almost to a day of the date on which Mr. Benton received his diploma from the Michigan Agricultural College, and then, already a well known apiculturist, started for his first European investigation of honey bees. Young Phillips was graduated from Alleghany College in 1899, and after a short experience teaching zoology in a Pennsylvania high school took up graduate study at the University of Pennsylvania, where he remained for four years, the last two years of which he held a research fellowship in zoology, taking his doctor's degree in 1904. In 1905 he was appointed, through Mr. Benton, to act in the latter's absence at Washington, and two years later succeeded in charge of apicultural investigations. He is a shrewd young man of undoubted promise, biologically, from his training, competent, yet in many instances in his work betrays a lack of first-hand acquaintance with practical beekeeping matters. This is explainable, since his experience has been very limited in beekeeping, but as he advances in experience he may in a measure overcome these mistakes. His lines of investigation, as might be expected, have so far been chiefly centered upon a scientific problem, that of bee diseases, in which work he has had associated with him Dr. G. F. White, a recent graduate of Cornell University and a trained bacteriologist. This is an important investigation for American beekeeping, and one which Mr. Benton had had long in mind and had projected in his advance plans, to be carried out when the appropriations became available, and so an investigation made possible, as indeed all of the government work at Washington has been made possible through Mr. Benton's personal efforts and long years of self-sacrificing and disinterested service. Perhaps his efforts would have the sooner borne fruit had the beekeepers of America presented a united front and effort in the securing of Government help for apiculture—a lesson that the California beekeepers may well consider and take to heart.

THE LAW ABOUT NAMING FARMS.

To the Editor: I enclose copy of my bill which has passed both houses and been signed by the Governor. It will become law in 60 days from March 9. I hope it may have publicity through your valued columns. LAWRENCE WILSON.

Winters, Cal.

We are glad Assemblyman Wilson of the Sixteenth district thought to send us this new law which is of wide interest and importance. The following is the text:

Section 1. Two new sections are hereby added to the Political Code, to be numbered 3196a and 3196b and to read as follows:

3196a. Any person may adopt a name for any farm or estate owned or leased by him, and register it in the manner provided for the registration of trade marks. Such registration shall have the same effect as the registration of a trade mark.

3196b. Any person selling or marketing the products grown on any particular farm or estate may use the name of such farm or estate as a trade mark on such products in the same manner as provided for other trade marks in Section 3196 of this code, and subject to the same rights and duties as provided in this article.

GROWING FEED FOR LINNETS.

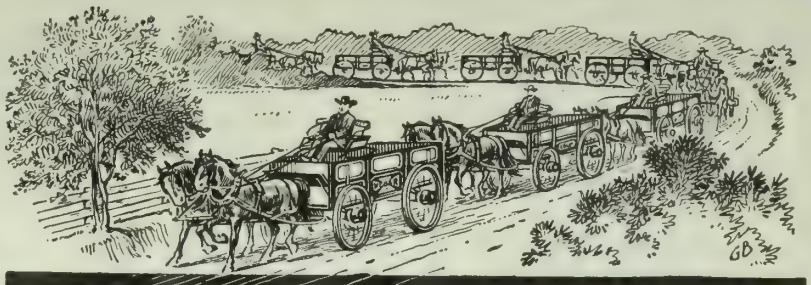
To the Editor: I would like to know whether anyone has had an experience similar to mine, and whether it is likely to be of practical use. Hereabouts the house-finch, or red-headed linnet, is an intolerable pest. Last spring five or six cherry trees were loaded with fruit, but for the cherries on one small tree tightly swathed in cheesecloth not a single cherry even approached ripeness. That was in May before all the linnets were hatched.

I had planted, by way of experiment, what I had bought for rape. It was not like what I expected it to be, but looked like what I had heard called "black mustard." It looked and tasted like common mustard except that the leaf was broad and rough instead of being smooth and slender. [It was rape all right.—EDITOR.] It seeded abundantly in June and I saw the linnets constantly busy with the small black seeds. The early peaches came in June, and although we have usually been obliged to cover them—we pick them very green, to get them at all—the injury by birds was trifling. As long as the rape seed lasted the fruit was damaged very little.

I mean to try the experiment again this year, and will try to plant sunflowers to protect the trellised Sultana grapes, which have always been destroyed by birds before they got sweet. I think our suffering from linnets have been greater since we complied with the county ordinance and exterminated the thistles.

San Rafael. SUBURBAN.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.



WAGONS

The farmer is particular about the kind of wagon he buys—and rightly so—because a wagon is used nearly every day in the year. Note the following special features of the Weber and New Bettendorf wagons each one of which is built to give satisfactory service.

WEBER

For sixty-three years the name "Weber" has been the best guarantee as to the quality of a farm wagon. No other wagon is made better than the Weber—no other wagon is made with so much care. The Weber, king of all farm wagons, is the I. H. C. standard of excellence in wagon construction. Everything used in building Weber wagons is the best that the market affords—ironed on the made-to-order principle—painted as good as the average buggy.

NEW BETTENDORF

The New Bettendorf farm wagon is exceptionally strong, durable and light running. The gears are made entirely of steel, have greater carrying capacity than wood and weigh no more. There is never any trouble with loose skeins, season checks, improper seasoning or inferior quality of materials, such as is common on the ordinary wagon. The tubular axle is made in one piece. There are no joints at the collar and the removable malleable iron sleeve which protects the axle from wear is not found on any axle except the New Bettendorf.

The New Bettendorf farm truck is used extensively on fruit farms in the western states. With wheels 30 inches, front and rear, and platform, it makes an excellent truck for spraying outfits, as the platform is wide and roomy and the front wheels cut under.

Call on the nearest International agent who will be pleased to show you the meritorious features in the construction of the wagon he handles. Ask him for illustrated booklet and lithographed hanger, or if you prefer, write nearest branch house.

WESTERN BRANCH HOUSES: Denver, Colo.; Helena, Montana; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; San Francisco, Cal.

International Harvester Company of America, Chicago, U. S. A.
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CALIFORNIA IMPROVED FARMS

ICKES-LANE-NEFF CO.

COLUMBUS, OHIO. WOODLAND, CAL.

Are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. They offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley, on which they agree to build and complete, according to plans submitted, a house of 6 rooms and a barn and shed of proper size, to irrigate and fence the farm, and plow, harrow and sow 40 acres to alfalfa. They also plant a mixed orchard of 500 trees and vines best suited to the soil, 500 eucalyptus trees, and furnish the purchaser 2 horses, 2 cows, 10 hogs, 25 chickens, a suitable farm wagon, plow, harrow, mower, hay-rake and double set of harness. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land itself.

Of the 22 farms, about one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.

WOOD PIPE

Made from California Redwood or Selected Washington Douglas Yellow Fir.

National Wood Pipe Co.

Machine Banded Stave Pipe. Continuous Stave Pipe.

SAN FRANCISCO OFFICE—318 Market St.
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LOS ANGELES OFFICE 404 Equitable Bank Bldg.
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Prices, specifications, hydraulic data and general information furnished upon request.

On Rainy Days
A Fish Brand Slicker
will keep you dry
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GUARANTEED WATERPROOF
Sold by first-class Retailers the country over. Send for our Free Catalogue
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509

THE BURBANK ARRANGEMENT ABANDONED.

WHAT THE PRINCIPALS SAY OF THE REASONS.

In our issue of March 6 we gave at length the facts about the organization of a corporation for handling Burbank products. Since that sime the project has been abandoned, and probably we should give our readers the reasons therefor quite as fully:

A STATEMENT BY MR. BURBANK.

This combination was altogether unique—with the exception of Mark Twain, John Burroughs and possibly some other cases—in fact only an experiment, as nothing of just its nature had ever existed. Hence no one could foretell the outcome.

The early developments did not indicate satisfactory future results either to the world or to the parties involved in the transaction.

As no corporation had yet been formed and only a preliminary contract executed, when the proposition was found to be impracticable, it was mutually agreed that it be abandoned.

While it is true that my business has become too extensive and too complicated to be handled by one man, yet I believe that by having complete control of the entire system I can direct competent men in a way to secure the best results.

LUTHER BURBANK.

A STATEMENT BY THE PARTY OF THE SECOND PART.

In the form of an interview in the Press-Democrat of Santa Rosa of March 25, Mr. Oscar E. Binner, who was associated with the Law Brothers in the transactions mentioned, had this to say among other things:

For myself and my associates, the Law Brothers, let me say that Mr. Burbank's absolute happiness and contentment were our first consideration.

We still believe that to have equipped for Mr. Burbank a world-wide sales organization, such as we had planned, would not only have enabled him to devote more of his precious time to his noble and unique research, but also have been the means of giving to the entire civilized world an opportunity of getting a practical and most valuable benefit of his wonderful achievements. There is no doubt in our minds that with such an organization as we had planned for, consisting the some of the best world's workers, Mr. Burbank would have greatly extended his marvelous achievements.

Every plant, fruit and product of this great genius would through this sales organization have been scattered throughout the civilized world and so become the property of all mankind.

That our project (and when I say "our" I mean Mr. Burbank first of all and the Laws and myself) was one which would have made the world better, is evidenced by the fact that hundreds of leading publications throughout the land recognized it as such, and heartily endorsed it, some even giving editorial recognition. Only one single article decried our project, and the man that wrote it admitted the next day that he had a "grouch" on and was sorry he had written what he had.

A further evidence and a most gratifying one are the numerous letters that have been received by us from some of the most prominent and influential men throughout the land—many from our friends, but many more from total strangers to us, congratulating us on our project and offering us unlimited support and assistance if we would only give them the privilege.

One of the best and most responsible endorsements we received was from a man who, perhaps, is better able to judge and recognize what this great project would have meant to Mr. Burbank and the civilized world. I refer to an old and much admired friend of Mr. Burbank—Prof. E. J. Wickson, whose editorial in the PACIFIC RURAL PRESS came nearer to our personal views and sentiments than all others.

However, as already stated, Mr. Burbank's happiness and contentment was our first consideration, and if this would in any way be involved by the project we were willing to step aside and annul the contract we entered into together on the 23rd of February.

Mr. Burbank has many true and loyal friends throughout the world, yet none, I feel, can be more willing to help and assist him at any time than the Law Brothers. As for myself, I have always given him the best there is in me, and I shall always continue to deem it a pleasure to serve him.

GOOD WORDS FOR DANTHONIA.

To the Editor: In the search for pasture grass that will endure drought, why do they not cultivate the Danthonia Californica? I have never seen anything written about it, and few people seem to know of its existence. It is the most valuable pasture grass that we have in this county, but unhappily it can hardly ever produce seed because the animals eat it so greedily. Last fall when there was not rain enough until after Thanksgiving to start seeds, the Danthonia grew and flourished, and helped by the fogs and mists on the high hills, it was the mainstay of the animals.

It keeps green longer than anything else in the spring, freshening with every shower, and I have no doubt it could be converted into a lawn grass. I have seen beautiful smooth stretches of it where conditions were favorable, and where conditions are unfavorable it makes the bravest struggle of any plant I know.

SUBURBAN.

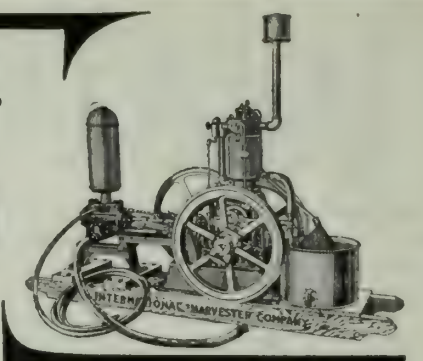
San Rafael.

[Danthonia has several times been favorably reported from your part of the State. You are right that it does not hold its own well against coarser plants for the reason you state. And yet it seeds freely and if given a chance to seed without interference would gain area. It is hardly likely to be available for new seeding until demand enough arises to attract the attention of seedsmen and cause them to arrange for gathering supplies. There are other promising grasses which are in the same condition.—EDITOR.]

Merced is talking good roads and is now agitating the question of a bond election to secure funds for building them.

Sebastopol is talking of starting a vinegar factory.

PREPARE
FOR
SPRAYING



ARE you prepared to do a good job of spraying?

You must spray if you would grow fruit successfully. You must spray not just once, but a number of times—spray not only this year, but next year and the following years. The warfare is a constant one.

So it pays to *get ready* for spraying. When you *do* spray you ought to be prepared to do the job right.

The I. H. Co. Gasoline Engines and Famous Spraying Outfits

afford the best of facilities for all sorts of spraying operations.

The power behind the pump is the basis of all right spraying. You can throw the spray mixture to the tops of tall trees and reach the ends of the long limbs with an I. H. Co. engine.

You not only have all the power you need but you have it dependably at all times. You do not need to keep your wagon or spray cart constantly in motion as in the case of wheel driven spray pumps, but you can let your wagon stand under the tree until you have sprayed every part of it thoroughly.

You have the choice of either purchasing one of the powerful, reliable I. H. Co. engines and connecting it up with whatever make of spray pump you prefer; or you can purchase one of the Famous spraying outfits, consisting of engine and pump, all connected up and mounted on skids, platform or 4-wheeled truck, ready for operation.

In either case, with an I. H. Co. engine furnishing the power you will be equipped for doing the work rapidly and in the best possible manner.

In the I. H. C. line you will find many other very desirable engines and outfits, besides the Famous spraying outfits. There are general purpose engines for farm, shop and mill use. No matter what your requirements may be, you will find an engine in the I. H. C. line to meet them. The line includes.

I. H. C. Vertical—2, 3 and 25-horse-power
Horizontal (stationary and portable) 4, 6 8, 10, 12, 15 and 20-horse-power
Traction—12, 15 and 20-horse-power
Famous Skidded Engines—2, 3, 4, 6 and 8-horse-power
Air Cooled—1 and 2-horse-power
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All kinds of small fruit and berry plants.
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Live Stock and Dairy.

OVERSTOCKING OUR RANGES.

Written for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

We have spoken of this subject before in these columns, but in recent trips through cattle ranges in the State the need of improvement and the preservation of the stock ranges has been impressed upon me. If range renewal or improvement is to be accomplished, the practice of carrying the maximum number of stock on the range, or in other words, of overstocking must be abandoned. It is possible to permanently raise the optimum carrying capacity of the range, but not so long as the present heavy stocking is practiced. By optimum carrying capacity of the range I mean the highest number that can possibly be carried without injury to that range, providing for the production of future crops, and therefore eventually bringing the best results to both range owner and occupier.

In the first place on ranges which are not stocked beyond the optimum, the animals are not likely to depasture any particular spot, and a sufficient number of plants of alfilerilla, native clovers and bunch grasses will thus be left to ripen seed for another season's growth. Having more space over which to graze, the stock will spend less time in one place, thereby doing less injury to the bunch grasses by their trampling.

The number of stock which make the difference between the maximum and optimum carrying capacity of the range costs more to the owner of the range in permanent and irreparable damage to his property than they can return in cash value. Every head of stock put upon the range until the optimum is reached is equivalent to so much additional profit. Every head carried beyond the optimum not only ceases to be a source of profit, as it limits the supply of nutritious plants both for itself and the rest of the herd, but is the direct cause of the deterioration of the range. The deterioration of the range cannot be measured by the actual amount of feed eaten, but increases to an astonishing degree, deterimned by the number of useful plants left to ripen seed for the next year's crop. Viewed from this standpoint, it is evident that when an annual range begins to deteriorate, the deterioration will continue at a rapid rate until checked by a change of method in management.

Most stockmen admit that overstocking is bad practice, and condemn it; but each man has his own idea of what overstocking is, the number of acres required per head ranging all the way from 5 to 20 acres, varying somewhat according to the condition and situation of the range.

Most stockmen determine the point where overstocking commences by the condition of the stock, without regard to that of the range. By running all the stock the range will carry is actually overstocking, inasmuch as it is seriously depleting the range and reducing the number of head which can be carried in future years.

On cultivated pastures the land is cultivated and resown year after year and the crops can therefore be cropped close without injury, whereas a stock range has to seed itself naturally, and on account of the high mortality percentage among seeds under ordinary conditions, it must be allowed to seed itself heavily or else it will deteriorate.

The stockman should know whether his range is an annual or perennial range, as the former is much more subject to change than the latter. Therefore the difference between the maximum and optimum capacity is very much greater in the case of the annual than of the perennial. The value of a range depends primarily on the quality of the forage rather than on the number of head it will carry. When the prevailing forage plants are annuals, or even perennial bunch grasses, the maximum carrying capacity, for a few years at least, may be as high as a range producing creeping rooted grasses, but its optimum will be much lower.

There are several things that work toward range deterioration, such as the destruction of the choicest forage plants by selection. Another is the introduction of uneatable weeds which, multiplying rapidly, crowd out the often less vigorous useful species and fill the spaces left vacant. As long as there is a choice left to them, stock will naturally wander over a range picking out from among other plants the specially palatable ones. Thus, by close cropping, the favorite forage plants may be almost entirely prevented from seeding. On an annual range most of the plants being shallow rooted annuals are easily pulled out and destroyed. As they depend entirely on the production of seed for the propagation of their kind, it is very evident that in this way their number is rapidly diminished. A few always escape on account of their situation in secluded places, or from other causes, but these are too few in number or too poor in seed production to maintain the productiveness of the range. As an annual range depends therefore upon the production of seed for its preservation, close feeding means the destruction of the next as well as the present generation. A perennial range, on the other hand, does not depend upon seed for its preservation and often not for its reproduction, as the individual plants live on from year to year and propagate themselves from their running underground stems. Such plants can be pastured comparatively close without injury, and, in fect, beneficially, as close grazing induces them to send out more roots and form a denser turf.

The point at which overstocking commences varies with the individual range, and it is up to the stockman to determine, from the range conditions and not from the condition of the stock that come off of it, just what is the optimum carrying capacity. A closer study of our ranges would be beneficial in several ways and amply repay us for a little time spent in studying it.

FEEDING YOUNG HOGS.

To the Editor: Which is the better, more economical, feed for young hogs, crushed barley or a mixture of fine bran and whole wheat flour about two-thirds bran and one-third flour? If crushed barley is fed, should it be fed dry or mixed with the milk?—DAIRYMAN, Stanislaus.

ANSWER BY MR. SYMMES.

There is little difference in the cost of ground barley and bran. The market quotes bran at $29 to $30 per ton and ground barley at $30 to $31 per ton. Wheat bran cannot successfully be used in large amount in pig feeding, especially with young pigs, mainly because of the large amount of inert matter it carries and its coarse fibrous character. With the same amount of feed middlings are twice as valuable as bran. At the Maine Experiment Station pigs weighing 200 pounds each were fed for 72 days on bran and skimmilk, in one case, and middlings and skimmilk in another, with the following result:

Lot I—Fed 413 pounds middlings, 1126 pounds skimmilk, gained 110 pounds.

(Continued on Page 274.)

DE LAVAL SEPARATORS MAKE THE BEST BUTTER

The one purpose of every thinking buyer of a cream separator is the making of the most and the best cream possible, whether for home buttermaking, creamery patronage, or any other use to which cream is put.

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1895	Rockford, Ill., F. C. Oltrogge, Tripoli, Iowa.....	Score 98.
1896	Cedar Rapids, Iowa, Thos. Milton, St. Paul, Minn.	Score 97.82
1897	Owatonna, Minn., H. N. Miller, Randall, Iowa....	Score 98.5
1898	Topeka, Kan., S. Haugdahl, New Sweden, Minn..	Score 98.
1899	Sioux Falls, S. D., A. W. McCall, Creston, Iowa..	Score 97.
1900	Lincoln, Neb., H. T. Sondergaard, Litchfield, Minn.	Score 98.
1901	St. Paul, Minn., E. O. Quenvold, Owatonna, Minn..	Score 97.
1902	E. L. Duxbury, Green Bay, Wis.....	Score 98.5
1904	St. Louis, Mo., L. S. Taylor, Glenville, Minn.....	Score 98.5
1906	Chicago, Ill., A. Carlson, Rush City, Minn.....	Score 97.
1907	Chicago, Ill., A. Lindblad, North Branch, Minn...	Score 97.5
1908	J. C. Post, Hector, Minn.....	Score 98.

(There were no conventions in 1894, 1903 and 1905.)

In the great 1908 contest 504 of the best buttermakers in the United States competed, with first, second and third, and all important awards, being made to users of DE LAVAL machines.

At each of the big Chicago National Dairy Shows DE LAVAL butter has made a CLEAN SWEEP of all highest prizes, and at the December 1908 Show, when instead of butter there was a cream contest, under the supervision of the Dairy Division of the United States Department of Agriculture at Washington, first and second prizes in both classes were won by DE LAVAL cream.

Going back further, DE LAVAL made butter received the GRAND PRIZE at the ST. LOUIS WORLD'S FAIR and as well at the last PARIS WORLD'S EXPOSITION.

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VARIOUS SPECIES OF WHITE CLOVER IN HUMBOLDT COUNTY.

Written for the Pacific Rural Press by Mr. Albert F. Etter, Ettersburg, Briceland P. O., California.

Having for two years past been growing various species of foreign clovers for Mr. Chas. J. Brand, the clover and alfalfa expert of the U. S. Department of Agriculture, I am now in possession of some facts that should create a lively interest throughout California. As I was provided with but a few seeds of each variety (not more than half a dozen seeds of some), it is not necessary for me to say that the area devoted to each separate variety was rather limited. It was, however, large enough to get a good idea of the characteristic habits of the plants.

Among the various species of clover which I have now grown, which is upward of sixty, there are nine species of the so-called white clovers. They are the Ladino clover, from the Po valley, Italy; Trifolium repens, T. libanoticum, T. pallescens, T. hybridum (a sample of doubtful identity), T. elegans, T. atropurpureum, T. montanum, and T. strictus levigatum (supposed to be the Dutch white clover).

In previous articles on my observations on forage plants, published in the Pacific Rural Press, I have often called attention to winter growing plants as being best adapted to California conditions. In writing the names of those clovers enumerated above, I have placed them in the order of their ability to produce winter growth. Winter in California is always moist, and a plant that can make use of this moisture is at a great advantage over the one that makes but a scant winter growth. I need scarcely point out that the striking thing in the situation is this: How did the Dutch white clover gain the place it has in California, when it ranks No. 9—the poorest winter grower and the most diminutive of the collection?

Think of the situation here in mild wintered California, where, under equal conditions, the Dutch clover is less than an inch high, while several of the others are eight to ten inches high in midwinter. And again, when the plants have attained their maximum development in May, the Dutch clover is but eleven inches high, while eight other species are from fifteen to twenty inches high.

There is an explanation for this state of affairs, of course. I think I am not far off when I say: A plant that is comparatively dormant will stand a lower temperature without injury than will one that is making vigorous growth. Therefore, while the majority of these white clovers will grow under a lower temperature than will the Dutch clover, if we get real winter temperature, say in the neighborhood of zero weather, these winter-growing species will be seriously injured, while the more dormant Dutch clover would come through unharmed. Indeed, my observation on this point here last December, when on two nights the temperature fell to 17°, the damage done to the various species was in almost direct ratio to the growth they were making. The Dutch clover suffered the least in injury. So here is the point well made: A locality having low winter temperatures must have a hardy and rather dormant plant, while we can use a winter growing plant to good advantage where we have no severe winter weather.

It is therefore probable that species like Ladino, repens, palusillus, libanoticum and hybridum (this latter is not alsike clover, but a clover almost identical with Trifolium pallasellus, possibly a misnamed sample of seed), would be too tender to endure the winter temperature of the Eastern States. Such species, however, as elegans, atropurpureum and montanum, would likely be hardy, especially the latter two.

From observing the growth of these nine species of clover, growing under conditions exactly the same, I feel safe in saying that the Dutch clover, in point of continuous growth and quantity of forage produced, is the most inferior of the nine species; the eight species producing from two to four times as much forage as the Dutch clover for the whole season's growth. Consider, too, the growth in the middle of February—the Dutch clover scarcely an inch high, while atropurpureum and montanum are about three, and all the rest about six to eight inches high, and they would have been nearly a foot high in February had they not been cut down somewhat by the heavy frost in December. Last year they were eight to eleven inches high on January 1, but they had the benefit of summer irrigation, which they did not have this last season. They were not only quite dry under foot, but entirely defoliated by grasshoppers, for over two months, and this necessarily retarded growth somewhat after the fall rains arrived.

The possibilities of these winter growing clovers in California would seem to need little comment. If we can get such growths on it as we have got here, why shouldn't it be obtainable in other parts of the State, especially on irrigated lands? I make the point here, that white clover is not only one of our most nutritious forage plants, but also among the most permanent. On land adapted to it, it is almost everlasting. It is essentially a grazing plant and endures heavy, clayey soils that are marshy or subject to much wet or overflow conditions. Here in Humboldt county it is one of the first plants that can be successfully seeded upon reclaimed salt marsh land. This is accomplished by first seeding the clover on the most favored spots. The stock will do the rest. White clover will always seed under ordinary pasturing conditions—the stock eat the seed and some of it is voided. Planted in this manner with the "whole milk" to give it a vigorous start when it most needs it, it is capable of establishing itself under very trying conditions.

White clover is a plant that ought to succeed where alfalfa does not find the soil conditions congenial on account of heavy, wet or too shallow soils. With plenty of water, I do not think it would suffer from dry air or heat, to any serious degree.

The seed of these clovers at present is very limited. By intensive culture it could be rapidly increased. They are not only promising plants, but they are great seeders if grown under proper conditions. Just how soon we shall be able to try out these clovers in field culture depends to a great extent on how soon money is made available to pay for the work. It does not cost much to carry on small experiments such as I have here now, but I do not see my way clear to broaden the work on my own time and resources.

[So far as our observations go, there is little chance for success with the Dutch clover class in the drier, hotter parts of

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the State, except on naturally moist or irrigated lands, because under arid conditions the plant does not live through the dry season. Mr. Etter's observations are, however, of great value for his district, and funds should be provided for carrying on his work on a larger scale in the public interest.—EDITOR.]

GOAT GROWING IN CALIFORNIA

Although California has not made as much noise in Angora goat husbandry during recent years as formerly, there is still much doing, and an outlook for much greater activity and the details of the business are very interesting. Mr. H. W. Lewis gives the Oregon Agriculturist an outline of his practices and expectations, which will be interesting to those who control suitable lands in this State:

There are hundreds of thousands of acres of mountain and brushy land in California absolutely worthless for any purpose except as goat pasture, and which can be made to yield some return through this animal. The sharp rise in price of lands suitable for pasturing cattle and sheep, the expense and annoyance attending occupation of the forest reserves, the natural growth of demand for the flesh and fleece of well bred goats, due to increase in population and commerce, all point to closer methods of farming and the adaptation of the live stock business to the conditions presented. In California these conditions consist very largely of vast areas exactly suited to the needs of Angora goats, and of climatic conditions in which they thrive and come to a high degree of perfection. There is free range and opportunity in California for the pasturing of millions of goats, and as soon as market conditions are so managed that growers will secure an equitable price for mohair, the number of goats in this State will rapidly increase.

I began my experience with them full of the idea that the way of wisdom and prosperity would be found through the production of long, fine fleeces. I bought 140 head of exceptionally fine does and a number of Bailey bucks as a start. They were on alfalfa pasture in a low, flat country and full of burrs. I moved them to the mountains in January, sheared them in March, and raised over a hundred fine kids, born in April and May. I sold the burry mohair in San Francisco for 26 cents per pound. It was a year's growth, and the clip averaged over four pounds per head for the whole flock.

Then I bought another 150, not so good as the first lot, but big strong animals that looked very prosperous. The next time I sheared at the end of September, and was surprised to find the average weight of six months' fleece nearly as heavy as I had found the year's growth. At this time I had my flock leased out, but I was pleased with the outlook, and, desiring to get out of the city and onto a ranch of my own, I bought a mountain place, expecting to fix it up at leisure and take the goats myself. I shipped that half-year clip to the Massachusetts Mohair Plush Co., and received my first dash of cold water.

The gist of their report was an offer of 24 cents per pound. They denounced the whole lot as "coarse and low" and advised me to ship no more of it to them. I have shipped to them since, and have received a good price and fair treatment.

The following January I received word that my goats were starving to death. I went at once to the place where they were, and beheld the awfullest looking lot of skeletons it has been my misfortune to look upon. I at once prepared to move them to my own ranch, 70 miles away. The roads were fair, the weather was fine, we found some fresh grass by the way, and we got onto the new ranch with 230, when we should have had 250-odd.

I sheared again the first of April and sacked 171 pounds of hair, which sold for 15 cents per pound. I had 54 kids born alive, and about half of them were bow-legged.

They picked up nicely when the rains were over and the brush began to grow. The new range was all right, and by fall I had a very promising crop of mohair. I decided, however, to let them carry it over winter. I bought bucks from Conklyn Bros., of Newville, Cal., and Philo Ogden, of Kelseyville, Cal. These were very fine goats and also they had size and constitutional vigor.

The following spring I sheared in March, using a clipping machine. The clip was all I could expect, being long, dense and heavy. I sold it in Boston at 35 cents per pound.

This time I raised a fine lot of large, healthy kids, and felt I had reason for encouragement. My goats ran in an oak forest all fall and ate all the acorns they wanted right through the breeding season, but I had not a crippled kid the spring following, and have never had one since.

My location is at an elevation of about 3000 feet and about 40 miles from the ocean. There is practically no limit to the range, as I have no near neighbors, and the whole township contains not more than 600 acres of open land, more than half of which is embraced within my ranch.

There are no predatory animals except wild hogs, and if they occasionally kill a kid, my men generally even things up by making bacon of some of them. Occasionally an old doe gets the dumps and then disappears. We usually find her dead or too weak to travel. There is nothing wrong that I can discover, except old age, though I have never yet seen one old enough to lose many of her teeth.

I should like to put off the shearing until after the equinoxial on the 23rd of March, but have never been able to do so. As soon as the grass begins to grow and the sap starts into the brush, the goats begin to shed. Some of them never shed at all, and I have known a yearling to shed in the fall. In my location we are liable to have long cold rains after there has been warm and growing weather early in March. This makes March shearing a critical time. I find that good shelter and a little good hay is the proper thing at such times. It pays to dip, and the arsenic dip is the best and cheapest.

In and in breeding is diastrous except when done with scientific skill.

Shearing once or twice a year is about an even thing. If the goats carry over the fall fleece they will pull out too much of the long hair tearing through brush. If you shear in the fall you will get only about enough in the spring to pay for shearing.

SHROPSHIRES IN CALIFORNIA.

A California correspondent of Mr. Joseph E. Wing, a leading writer for the Breeders' Gazette, who recently visited this State, sends him some questions about Shropshires, as follows: I wish to know something about Shropshires. How do you keep and feed them? When do you breed them? How old must they be to breed to get good, healthy, strong lambs? What foods are the best? How much do they have to have daily? When must they be shut up in a yard? I want to keep a few sheep, not so much for the profit, but to clean the vineyard from grass and weeds in the fall and to clear the stubble fields from morning glory. I hear their droppings are about the best fertilizer; also that they eat almost any kind of weed, and digest the seeds better than a cow, horse or any other animal. Last year I had on this place somebody with 1400 head of sheep to clear the place of weeds. There were 20 acres of vineyard and 25 acres of stubble field. The sheep got all they wanted to eat and stayed here for eight days, when everything was about clean. I want to keep a few. I am only on a rented place, but am going to keep a few sheep anyway, whether I stay here or move. I never have handled any sheep. I would not start in with many.

To the foregoing Mr. Wing gives answer, from his California observations, thus:

Shropshires do exceedingly well in California. There are few, if any, parasites there. I never saw Shropshires so fat elsewhere as I saw them in the valley of the San Joaquin. I have an idea that

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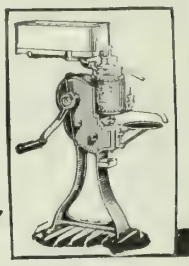
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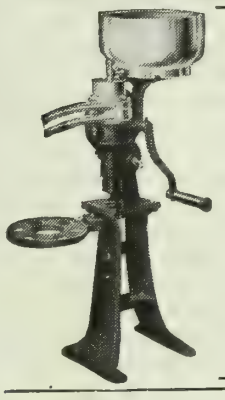
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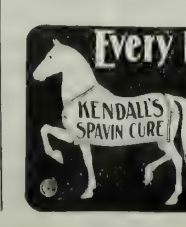
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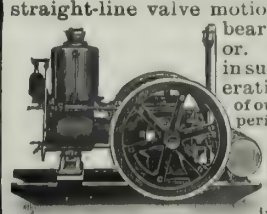
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they get too fat under their conditions there, with ample food and no intestinal parasites, the fat to breed regularly.

As to the management, I should say that it might be beautifully simple. The ewes would need no grain when they were getting good alfalfa hay. A very trifle of grain when they were gleaning hard (only in case they were not keeping enough flesh) could be provided, say one-half pound a day for each ewe, or even less than that. They need to be fed regularly, of course. Just watch their flesh; if they maintain that without any excessive fatness, do not worry about feeding them: let them glean. It is probable that while gleaning they will gain in flesh rather than lose.

How old should ewes be to be bred? When they are a year old, breed them as soon as you please. When ought their lambs to come? At the time they will ripen into the best fat lambs to bring the largest prices on San Francisco's markets, and that I do not know. In general, lambs born in cool weather thrive best. Give the flock enough good alfalfa hay, clean water, shade and what salt it wants, and it will thrive all right.

BUILDING UP CALIFORNIA.

To the Editor: I have read with interest the PACIFIC RURAL PRESS of March 20. The editorials on building up California and San Francisco are good and right to the point. To my mind, the influence of your excellent journal and others of its class, constitutes one of the most potent factors in the proper and lasting upbuilding of the State.

From present indications, the colonization movement this spring will be the heaviest in the history of these special rates, possibly excepting the spring of 1907. It is to be hoped that a very large percentage of these visitors are looking for homes here, and that they may be guided by the advice and suggestions offered by your editor, instead of falling into the hands of the promoter (a necessary evil, perhaps, but, as a rule, for himself first, last, and all the time).

In the territory to be traversed by the Western Pacific Railway, especially in the counties of Yuba, Sutter, Butte and Plumas, the prospective settler may find land with just as many advantages of soil and climate as in the more thickly settled counties of the San Joaquin valley, and there must be taken into consideration the excellent prospects that at the next session of the Legislature some solution of the flood problem, as affecting part of the territory first named, will be undertaken, now that the whole situation has been brought so vividly to the assemblymen on their recent trip.

I cannot see that a homeseeker, having say only $1000 to invest, exercises good judgment in paying his entire capital for a farm. He probably gets value received, but he cannot eat what he has purchased, and often the first thing he raises is a mortgage, and as a result gets what cold comfort he can from Shakespear's philosphy: "'Twas mine; 'tis his." If he can get his farm for $500, he has $500 working capital, and, with all the information which is available pertaining to irrigation and farming generally, should get a start under proper conditions.

There is another condition here in California—the relation of ratio of the rural to the total population of the State, which by latest estimate approximates 2,000,000, of which over 50% reside in the twenty-four incorporated cities of the State (not taking into consideration the very considerable population of the small towns). There is a significance here which, to my mind, offers a good field of missionary work for the agricultural press.

Just another query—referring to the tendency to build up certain sections of the State at the expense of others quite as well adapted to profitable agricultural pursuits—does the farmer always take into consideration that he cannot continue to take from the soil and return nothing to it?

W. G. BRUEN,
Secretary Western Pacific Ry.
San Francisco.

FEEDING YOUNG HOGS.

(Continued From Page 271.)

Lot II—Fed 413 pounds bran, 1126 pounds skimmilk, gained 54 pounds.

This will show you the relative feeding value of bran for swine. As we have said, bran is too coarse and straw-like for young pigs and the substitution of middlings is advisable. Brood sows and older pigs may be fed some bran profitably and may prove very useful if the remainder of the ration is in concentrated form, for volume is necessary with the feed of such animals.

The other ingredient mentioned—whole wheat flour—has a very high feeding value for young growing pigs, because it is rich in protein and fat. But I should hardly call it an economical feed. Crushed or ground barley has almost the same value on the market as bran and a very much higher feeding value, being considered by the Danes the best single grain for the production of bacon of the highest quality. Exclusive barley feeding gives a pork of the highest quality, in fact, superior to exclusive corn-fed pork.

It is advisable to feed the barley wet, with either water or milk, though the latter is better.

CALIFORNIA RURAL LIFE AS SEEN BY JAMES BRYCE.

The forty-ninth anniversary of the founding of the University of California was celebrated on the twenty-third of March by an immense gathering of people in the Greek Theatre at Berkeley. The speaker of the day was Right Honorable James Bryce, His Britannic Majesty's Ambassador. Before the address President Wheeler conferred the degree of Doctor of Laws upon the distinguished visitor. This is the third time in the history of the University that this degree has been conferred, the other two times in the case of William McKinley and Theodore Roosevelt. President Wheeler, addressing Dr. Bryce, said: "By authority of the Regents of the University of California I do now confer the degree of Doctor of Laws upon James Bryce, diplomat, statesman, scholar;—counsellor and servant of his own government and people, interpreter of ours both to the world and to ourselves;—an historian of candid judgment and sympathetic vision, envoy of good will and of the common understanding between two kindred peoples;—under all the variant usage of the English tongue a gentleman, and in spiritual allegiance and by moral right a citizen of the Greatest Britain."

Dr. Bryce's Charter Day address depicted the future greatness of California and the problems which confront her people in its development. He laid particular stress upon the opportunities of rural life, saying in part:

What you must wish and do wish, what you and all of us in every country set before ourselves, is to secure for the people as a whole, the poorer as well as the richer, the conditions and surroundings that make for happiness. Let us think for a moment of these as they affect the rural life and the city life in your State.

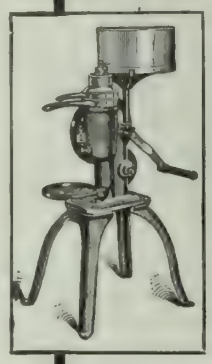
One is told that in California as well as everywhere else the tendency is for the dwellers in the country to flock into the cities. Yet in California the conditions for an enjoyable rural life are especially favorable. The scenery is beautiful and the climate genial. Over nearly all of the country you have not the grim winter of the Eastern States to fear. In many of your agricultural districts and especially in the irrigated lands the farms are so small, and yet the yield of the soil so large that the cultivators dwell near together, living under good conditions and in populous communities. Here, therefore, if anywhere, country life ought to be attractive. Yet even here, one is told, the dislike to the comparative solitude and isolation of rural life, and the passion for amusement produces a steady drain away from the land into the city.

This is a misfortune. It is far better for the health and physical stamina of a people that a bulk of them should live in the country and work with plenty of fresh air around them. It is better for the national mind and character that men should be in contact with nature instead of living cooped up in streets. There is truth in the old line "God made the country and Man made the Town." It is better for the political stability of a Goverment that the town dwellers should not outnumber the country dwellers and that there should not be too many vast aggregations of men living packed tightly together and more liable to be moved by sudden excitements than country folk are.

A large number of small farmers each cultivating his own land constitutes an element which gives great solidity and strength to a State. They are not too eager or volatile; they have a permanent interest in the safety of property and do not favor sudden or violent change.

When I think of the future my mind turns back to California and to all that your magnificent State may become. As Nature has only made it not onlo a State, but a Country, a country with an infinite variety of beautiful mountain, valley, and seacoast scenery, one cannot but feel that it is destined, more perhaps than any part of the United States, to develop a new and distinctive type, perhaps of landscape painting, perhaps of literature. Your people have already an individuality. They are Californians; they have something all their own. May we not hope to see this individuality blossom forth into products that are distinctive in thought and in poetry? Your scenery, your social conditions in their earlier stage, inspired two of the most striking pieces of literature that America has given to the world in the last half century. More will doubtless come when a larger part of your people find leisure from those restless efforts to develop the material resources of the land which have hitherto occupied you. And as the sun rises through centuries to come from behind the mighty Sierras to the East and sinks into the waves of the vast Pacific of the West, may this great University, fostered by the judicious care of your magnificent State, ever play a worthy part in the growth and expansion of a Californian people which shall make the Golden State the home not only of a prosperous but of a happy and enlightened people.

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The Poultry Yard.

DISEASES OF POULTRY AND THEIR REMEDY.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

ROUP.—As indicated in the RURAL PRESS of last week, the only safe cure for pronounced rop is the hatchet. To doctor, follow the same general treatment as given for colds, viz.: quarantine in warm quarters; keep the nostrils open by the injection of coal oil, with a mixture of sweet oil and coal oil given internally and to bathe the swollen parts; a diet of nourishing and stimulating mash and pure water containing a little lime or Douglas mixture. At the experiment stations, coal oil has been found to relieve a larger proportion of roupy fowls than any of the more expensive medicines and "sure cures." Battening all cracks in the poultry houses, opening the north end and either in whole or part cleaning up and whitewashing with a wash containing a teacup of crude carbolic acid to each bucket of wash will check an outbreak of roup.

DIPHTHERIA.—"The marked symptoms is a diseased growth in the throat and inside of the mouth of the fowl, resembling raised patches of whitish or yellowish skin, which may invade the entire throat and mouth, often also appearing like ulcers or sores on the face, comb and about the eyes." This disease is very contagious and great care is necessary in quarantining, disinfecting and even in handling the afflicted fowls. The fowl may be doctored by making a swab with cotton batten and swabing out the throat with hydrogen peroxide, gently removing as much of the growth as possible. Feed and care for the fowls in this and all diseases as directed in colds and roup. Diphtheria may be caused by the same conditions as roup, but in an epidemic of this disease there is apt to be some point of contagion. I have before me an account of an outbreak of this disease in a flock of several hundred Plymouth Rocks in Kern county. The writer says: "The flock has not been in these quarters much over three months; but poultry has been raised on the same ground for years; and when the first of this flock were taken there the accumulated droppings were scattered everywhere and before they could be cleared away the heavy rains came, making filthy pools about the yards from which the fowls drank." Clearly this is a case of contagion and a fine large flock of well cared for fowl is being devastated by this disease. Such experiences are heart-breaking to poultry raisers. The lesson they teach is never to locate a large flock of fowl upon the tainted ground of old poultry premises.

In connection with contagious diseases we will take up those other two highly contagious ones of cholera and chicken pox or sorehead. These two diseases belong more to the warmer central and southern localities, where food and water become quickly contaminated and poisonous. There is little excuse for their prevalance in the cool coast climate.

CHOLERA.—It is said that true Asiatic fowl cholera is seldom seen in this country, but all kinds of cholera, or even virulent diarrhea, are near enough in symptoms and treatment to make identification of the exact kind unimportant. Filth and decaying carcasses in hot weather are the cultures for these diseases and they are spread by contagion. The symptoms are great thirst, yellow or greenish-colored, mealy droppings and quick mortality in cholera proper with the comb turning black, which is not the case in simple inflammation of the intestines or diarrhea. In true cholera the hatchet is the proper remedy, followed by burning the bodies; and all energies should be directed toward preventing the spread of the disease. The houses and premises should be sprayed with some powerful disinfectant. A spray of one-half gallon each of carbolic acid and phenol to 20 gallons of water is highly recommended. Also some strong germ destroyer used in the drinking water. It is best to get some drug for this purpose from the druggist with exact directions for use, that the fowls may not be injured thereby. A food should be fed in protected troughs so that the fowls' feet cannot come in contact with it.

Enteritis and acute diarrhea may be caused by lack of sharp grit and fresh greens together with some other irritant to the digestive organs other than decayed and filthy substances. Last summer we were consulted by a poultry raiser in the southern part of the State in regard to a disease from which her fowls were dying. There were all the symptoms of true cholera—diarrhea, thirst, hens and turkeys going to roost apparently well and found dead under the roosts in the morning; the only difference being that some of the fowls lingered and others even made a live of it without help, while in no case did the combs turn dark. It was in the artesian belt where the water is alkaline and there is an entire absence of grit. The fowl's food consisted of Egyptian corn, oat hulls and a little sage brush along the irrigating ditches with alkali water to drink. A mash of boiled sugar beets with some fresh greens, together with a supply of sharp grit made by pounding broken china and glass, checked the disease and brought the ailing birds through.

The poultry raiser, especially with large flocks, should notice the droppings. There is no surer index to the condition of the digestive organs. In a healthy state the droppings are dark tipped with white and are firm, retaining their shape. When with many of the flock they are liquid or soft and yellow or light colored, something is wrong with the fowls' food or other conditions and the cause should be looked for and remedied. It may be caused by cold, by filth, by tainted meats, soured or sloppy mashes, musty grain, or by too much meat and stimulating "egg foods." Look up the cause and remedy it; nip the disease and a possible epidemic in the bud.

(Continued Next Week.)

POULTRY NOTES.

THE STALE EGG TRAFFIC.—One of the biggest fights along the pure food lines, reports the Sun, has been the concerted action of the Department of Agriculture in suppressing the traffic in stale eggs. The laws have been forced and the penalties have been inflicted liberally. Most of the prosecutions have been in the Middle West, and much of the confiscated goods was intended for the New York market.

THE COCK AS A SINGER.—The poultry raisers of the vicinity of Liege, Belgium, says Farm Poultry, are such admirers of the music of their roosters that they decided to hold a competition to prove whose rooster was the champion crower. All the birds entered in the competition—and there were a great number—were placed in cages, one in each cage, with a trustworthy man in front of each to record the crowings. The contest lasted one hour, and the cock that crowed the greatest number of times in that period received a valuable prize. The winner of the prize crowed 134 times, or more than twice a minute.

The above reminds us that the cock's musical qualities have not had due recognition—probably because he opens his concerts at the wrong end of the day. More than half a century ago, that earnest student of nature, Thoreau, did him justice in the following beautiful passage:

"I am not sure that I have ever heard the sound of cock-crowing from my clearing, and I thought it might be worth the while to keep a cockerel for his music merely, as a singing bird. The note of this once wild Indian pheasant is certainly the most remarkable of any bird, and if the fowls could become naturalized without being domesticated, it would soon become the most famous sound in our woods, surpassing the clangor of the goose and the hooting of the owl. And then imagine the cackling of the hens to fill the pauses when their lords' clarion rested! No wonder that man added this bird to his tame stock—to say nothing of the eggs and drumsticks. To walk in a winter morning in their native woods and hear the wild cockerels crow on the trees, clear and shrill, for miles over the resounding earth, drowning the feebler notes of other birds—think of it! It would put nations on the alert. Who would not be early to rise, and rise earlier and earlier every successive day of his life till he became unspeakably healthy, wealthy and wise? This foreign bird's note is celebrated by the poets of all countries along with the notes of their native songsters. All climates agree with brave Chanticleer. He is more indigeneous even than the natives. His health is ever good, his lungs are sound, his spirits never lag. Even the sailor on the Atlantic and Pacific is awakened by his voice."

BALDWIN'S WHITE LEGHORNS



1st Prize Hen, San Jose and Petaluma.

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F. O. B. SAN FRANCISCO.

Size.	Weight per ft.	Price per 100 ft.
½ inch	.84 lbs.	$ 2.50
¾ inch	1.12 lbs.	3.85
1 inch	1.67 lbs.	4.50
1¼ inch	2.24 lbs.	6.25
1½ inch	2.68 lbs.	7.25
2 inch	3.61 lbs.	10.00
2½ inch	5.74 lbs.	16.00
3 inch	7.54 lbs.	19.75
4 inch	10.66 lbs.	30.00
5 inch	14.50 lbs.	42.50
6 inch	18.76 lbs.	50.00

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ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

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BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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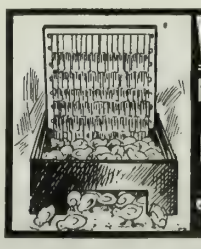


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ROCKLIN, PLACER CO., CALIFORNIA.

The Home Circle.

Yellow Crucuses.

O you plucky fellows,
All in sunshine yellows!
  Braving bitter winds and cold,
  Waving fearless flags of gold,
Welcome, crocus fellows!

Hardship and privation,
Sleet and snow for ration,
  Leave you laughing, gay and bold,
  Grieve you little—faith untold
Mocks at mere privation.

Welcome, comrade fellows,
All in sunshine yellows!
  Still your cups of light unfold,
  Out of clay your glory mold.
Welcome, plucky fellows!

—*Westminster Gazette.*

Try, Try Again.

"Whew, that was a hot one!" said Napoleon Applegate to his partner, Ironface Craig, at the close of the market.

Applegate tilted his chair, and flung his feet upon the window-sill. From the sky-scraper window he looked out at the diminutive shipping that floated on the bay. The light shot brightly back from the afternoon sun, and Napoleon Applegate squinted. He heaved a sigh for the oxygen, and said:

"Bill, I don't think I can stand much more of this. Twenty years ago, when 3 o'clock came, instead of flopping down here and gasping, I used to wish the market would run along till midnight, so that I might have it out again. Say, young fellow, are you aware we are getting old?"

Ironface had as many years as Applegate, but he was not so old. What except fate could fell that bronze bull of a man? He had been a college gladiator. After these twenty years, when his tense friend was all but begging for quarter, Craig still looked the leader of Roman legions. He had cavernous eyes, a promontory nose, and a lower face like a plain, with a scarcely discernible line for a mouth. The jaws fitted into a neck that bulged all around.

"John," he replied, "if I had thrown into it not only my days, but my nights, and all my nerves, as you have, I don't think I should be here at all. Old man, I think you'd better call it evens. You've got forty times as much as any Christian is entitled to. Why don't you quit?"

"Yes, that's it. Why don't I quit? Why don't I quit?"

Applegate thought of the exciting campaign that he was waging, and how all the opposing forces purposed sweeping down upon him on the morrow. What joy would be his in those five delirious hours, in crumpling back their wings and shoving them into the hidden road!

"I can't, Bill, I can't! You know I can't. They're after me hard, Bill, and I've got 'em, I've got 'em! Say, do you know where that coup of Ellison's is going to land? Poor Ellison, and he has such a nice family! Let me tell you how I have things lined up. Ellison, you know——"

"Stop!" roared Craig. "That's just it. Can't you forget Ellison and his outfit for half an hour after the market's cloesd? That's what is killing you. You carry this market around like a body of death. You've done your share and you've got your share, and by Jove, I'd quit, if I were you!"

For twenty years they had worked together. Applegate, as it were, was the Eagle, and Craig the rock. How much prey they had heaped up! How many a foe, in those twenty years, had shrunk back in defeat from those talons and that aerie! To this day, when white fringed the shining head of Applegate and snow fell upon the black crag of Craig's peak, how the rabbits and sparrows of the Street showed heel and wing to them!

Applegate's vision wandered far behind the gleaming sails, and he thought of the day when the human rock and he had landed in the shadow of the church spire at the head of the Street. He had flown high and wide, but always had had Craig to light on. Firmer and firmer had grown the foundations of that successful institution, the Eagle and the Rock—or, if you please, the firm of Applegate & Craig, brokers and bankers.

"Well?" said Applegate to the old door-man, with some petulance.

"That newspaper man is here, sir."

"That newspaper man! What newspaper man, idiot?" Applegate replied to the shambling figure that had once been an office-boy—and that was practically an office-boy still.

"You know, sir—the one that's asked you for that article eighteen times."

"Tell him to wait. I'm busy."

"Yes, sir."

"You know I've no more use for 'em than you, as a rule; but hanged if I don't think there's something to that chap. How many times has he come for the Consolidated story? Eighteen? Well, I call that pretty good."

"Yes. He has brains, but I'm trying him out—that's all."

"Oh, one of your famous tests again, eh? Well, I think I'd have pulled some more of that hair out, if you'd talked to me as you have to him!"

"I want to see just what there is in him. I've hammered him with all my might, and once or twice I thought I'd reached the limit. He had rather a bad glint in those eyes, but he held himself down like a thoroughbred. I could almost hear him say to himself, 'I'll land you yet, you withered old scorpion!' "

"Why don't you give him the story?"

"Well, they say, Bill, there's a charm in numbers. I'll tell you the secret. I'm reserving his reward for his twentieth request. Mind you, his twentieth. Then I shall not only give him the story, but shall ask him to come in here with us and make some money. He's been around the Street quite a while, and knows something. He's keen and straight, I think; but if he can't stand twenty poundings he's no good. He ought to be able to stand forty. I've stood a hundred before I landed mine."

"But he's young and tender," chuckled the Rock.

Applegate punched a button. The ancient office-boy brought in the reporter. He looked a young Yankee of parts. Applegate did not turn to greet him. The Eagle still gazed upon the far sparkling water. That was insult number one.

"What d'ye want?" Applegate said.

"May I have that Consolidated information today?"

"Naw."

"When may I have it, sir?"

"You can't have it at all."

"My newspaper needs it, and I have no other way of getting it."

"I don't quite see why that interests me."

"Bur, sir——"

"Say, young man, I understand from the door-man that you've already been here eighteen times. You are unduly persistent, and you annoy me. I've other things on my mind than that yellow sheet of yours. I want you to leave me alone, do you hear? You ought to be in some respectable business, anyhow. I'm getting too old to fool with you people."

The man behind the pen reddened. He said:

"I think I have treated you courteously, sir—more courteously than you have me, and——"

Applegate punched the button again, and said to the decrepit office boy:

"Show that out!"

The young man paled and choked. When his Adam's apple had descended again he approached nearer to Applegate, who still gazed upon the glinting bay. The reporter said measuredly:

"Before I go, I am going to say something to you, you old pirate! You are right. This is the nineteenth time I've been in and out of this fence, and I've been bullyragged and insulted nineteen times. Do you suppose I'd look into your dirty shop if the office hadn't told me to stick to you? Do you suppose I like making a living off such carrion as you?"

The door-man was nearing feebly, to lay an impotent hand upon the enraged man; but the journalist rushed out, and did not return.

Ironface was shaking with laughter. Applegate merely said:

"He won't do."—*Munsey's Magazine.*

Helps and Hints for the Home.

(This department is open to questions and suggestions.)

The Kitchen Yard.—Making the waste places to bloom sounds alluring, and is easy—on paper. Anyone dependent upon the pump who has ever tried it will feel aggrieved at the mere suggestion. In California there are from five to seven rainless months each year, and though the refreshing fogs and cool west winds help out, the waste places require an abundance of water to make them bloom. In such gardening, and in any gardening, for that matter, the application of a little water is worse than none; it simply bakes and hardens the soil. It is the duty, no less than the privilege, of the agricultural press to hold up ideals for the country home—to make it the Home Beautiful, that it may become so in fact as well as in fancy. But the ideal must have some point of contact with the real—the practical. To attempt the impracticable often discourages effort in the right direction. So we again caution the home gardener against attempting too much. Still there is a plenty that may be done toward making the country home attractive without overtaxing the strength or ability of the home-maker.

This is especially so in regard to the kitchen yard. The farmer men are apt to be a bit careless here, no matter how respectful they may be to the front yard. Young stock and poultry are often allowed about the back door; old boxes, barrels and boards, cans, bones, rags and papers are scattered about, with droppings and other unsightly trash. To protect the kitchen yard from stock and poultry by wire fencing, and to clear away all trash, and to refrain from accumulating more is obviously the part of the men folk; but if they neglect it, then the housewife must get out with broom and rake, and make them lend a helping hand, at least. If she fail here, she may usually interest the children with a little "hire," and when interested and working with an older person, the restless little hands can accomplish wonders at such work, besides learning valuable lessons in caring for and taking pride in the home.

After a general cleaning up and renovating, such a different atmosphere will pervade the kitchen yard that one is encouraged to begin the work of beautifying the unsightly out-buildings, fences and rock piles. For all such there is nothing so suitable as climbing plants, something that blooms freely and grows easily. Festooned in clustering vines, the merest shack becomes a fairy's palace. Over the porch or against the house it is best to plant the rose, honeysuckle, clematis or the Australian pea; all of which are hardy and easily kept in good condition, and become more beautiful each year. The nasturtium or ivy geranium will make the rock pile a thing of bloom and beauty; and a hedge of scarlet geraniums against the back fence will throw a wave of color half across the yard. But on no account mix the geraniums. A mass of one color is beautiful, but a mixture of "fighting colors," or any colors, for that matter, destroys the beauty of each. It is this almost general tendency to plant all colors of geraniums together which has lowered the value of this plant—one of the most beautiful and satisfactory of all



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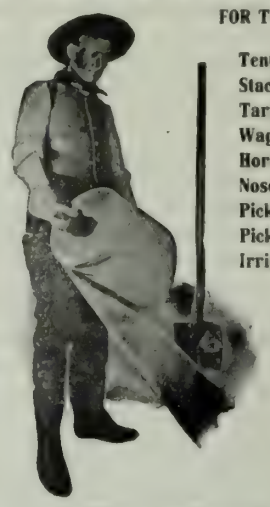
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garden flowers. No other flower returns so much for so little. Do not neglect this flower because it is common. We have found the best arrangement for the sweet pea is to make a trellis of wire fencing. Any length desired of four-foot woven wire may be used by tacking it on strips of two-inch scantling or some such pieces set firmly in the ground. In this way one may have a beauty hedge wherever wanted—on either side of the walk, in front of the window, or in separating the front yard from the kitchen yard.

For all the plants, have the ground rich and well cultivated; keep the soil mellow about the roots and reasonably moist; do not plant more than can be properly cared for—do not let your flower garden suffer. Someone has advanced the theory that flowers distinguish between mere attention and loving care; and results would seem to prove it.

We must note an ingenious arrangement of one busy country housewife. She had the waste pipe of the sink in the back porch connected with a long trough that was set low down between her flower beds. Small holes were bored in the sides of the trough, the latter being made by nailing two boards together V-shaped, and all waste water from the house and kitchen was carried along and distributed at the roots of the plants.

Seasonable Dishes.

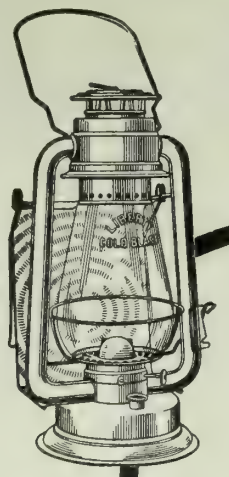
Asparagus should be largely used in the spring; it is both appetizing and medicinal. If tied together in bunches and set up in a kettle with the green ends out of the water, the tougher lower ends may be thoroughly cooked without boiling the tender tops to pieces. The kettle must be tightly covered, that the upper ends may be cooked by the steam. Asparagus should always be put into salted boiling water and cooked quickly 15 or 20 minutes, or till the large ends are tender. It may be served with melted butter on individual plates, or laid upon a white napkin in a warm platter and the corners of the napkin folded over it, with a white sauce in a gravy dish; or it may be drained and laid on thin slices of nicely browned toast, the water it was cooked in boiled down till just enough for gravy, a level tablespoon of flour to two large spoons of butter, worked smooth and stirred into the water, boil and stir five minutes, add salt and pepper and pour over the asparagus and toast. If preferred the toast may be left out.

Cauliflower requires about the same time and manner of cooking as asparagus. Great care is necessary that no worms are hid in the heads. Standing a couple of hours in salted water will usually draw such insects out, but the safe way is to divide the head sufficiently to examine every portion.

Cauliflower and Spring Chicken.—Split one or more spring chickens open down the back, wash in cold water and wipe dry; season with salt and pepper and lay them in dripping pan inside down, put some strips of ham or bacon fat over them and bake in even heat until tender; take out on a large platter and set in warm oven. Have cauliflower divided and cooked tender in salted boiling water; lay it as a garnish about the chicken. Now set the pan in which the chicken was baked on top of the stove; mix a heaped tablespoon of flour with a lump of butter and beat it into a pint of rich milk till smooth, stir this in the drippings of the chicken; let boil a few minutes, stirring constantly; season to taste and pour over the cauliflower and chicken.

Delicious Rhubarb Pie.—Put a pint of cut rhubarb into a granite stewpan with a half teacup of water; stew till tender, mash and add one teacup of white sugar, the juice and the grated peel of one lemon and the well beaten yolks of two eggs; beat all well together and put into a deep pie pan with lower crust; bake till done, then spread the top with the whites of the two eggs beaten stiff with two tablespoons of powdered sugar; set back in the oven till the meringue is lighly browned; serve cold.

Rhubarb and Orange Preserves.—With a thin-bladed knife pare the yellow part of the rind from six navel oranges, cut this in fine strips; remove all the white rind from the oranges and slice them, add the yellow rind and put into a granite kettle with one quart of rhubarb cut in half-inch pieces, simmed all together for a half hour then add two scant pints of white granulated sugar; boil till clear and put up in jars.

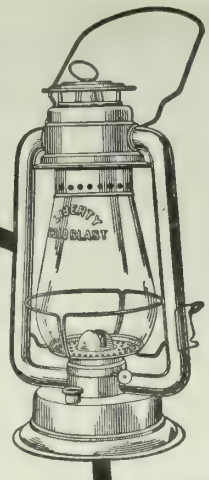


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Every man who has use for a lantern should go to the nearest dealer and examine the Liberty Lantern. If only for their convenience it would pay you to replace your old ones with

Liberty Lanterns

Cold Blast Dash Heavy Tin Blue Japanned



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The bail, for instance, will stay in any position. The globe-lifting device is the simplest and easiest. They may be filled, lighted and regulated without removing the globe. The oil founts are guaranteed air-tight and oil-tight and hold sufficient oil to burn 20 to 23 hours. Heavy coil springs hold the globe steady and prevent rattling. Prices from 60c. to $3.00

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First Aid for Alligators.

The fiance of a Louisville girl has been spending the winter in Florida in connection with his father's business interests in that quarter.

"Marie," said the girl to a friend the other day, "Walter has just sent me the dearest little alligator from Florida!"

"Dear me!" rejoined Marie, with affected enthusiasm. "And how shall you keep him?"

"I'm not quite certain," was the reply, "but I've put him in Florida water till I can hear further from Walter."—Harper's Weekly.

"'Widow' and 'window' are very much alike."

"Well, and what's the answer?"

"When I get near either I always look out."—Boston Transcript.

Jack—There's one good thing about widow's weeds.

Tom—What's that?

Jack—They rarely interfere with the growth of orange blossoms.—Chicago News.

Write for our 1909 catalogue descriptive of the convenience and economy of the Improved



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ACETYLENE GAS

IN YOUR HOME

Estimate furnished free on a complete equipment. Attractive chandeliers, glassware, etc., gas stoves for cooking. Address

FOWLER SHANKLAND, 204 Severance Bldg., Los Angeles, Cal.

Not a Plumber Born.

Pipes & Fassitt ran a busy shop. They had men out, working the eight-hour day, in the Washington Heights district. They had helpers out, too, at the regular rates.

Monday morning had opened up with a rush. Joints were bursting and bathtubs were flowing over.

Fassitt generally followed up the jobs, seeing that they were covered. Pipes held the desk down and made out the bills.

Presently the door pushed open and a hardy looking young fellow came in. He handed a note to Mr. Pipes. Pipes read it.

"Please, sir," said the young fellow.

"Don't 'please' anybody here," said Pipes. "Riley says you're a good man and willing to work. Siddown!"

The hardy looking young man sat for five minutes. Then the telephone rang.

"Get that off the wire," said Pipes. The young man got it.

"It's Mr. Silverberg that owns the big apartment house on St. Nicholas avenue. His star tenant complains of a leak in the ceiling from the floor overhead."

"You take that wrench and go over," said Pipes. "Locate the floor. Get around to Congdon's where we've got a contract and a lift helper. Go back and find the leak. Then report to me. Don't hurry too much."

The young man departed, returning in a couple of hours.

"Nothing doing, Mr. Pipes," he said. "The tenant overhead spilled some water in a corner of the kitchen. It ran under the sink and followed the pipe line to the floor below. That was all."

Pipes kept on making out bills. A 90-cent clock got along to 12 just as the noon whistle blew outside.

Then Pipes rose up sadly.

"Here's sitting time," he said. "Take the money; you'll need it. A tenant imagines a leak. The owner wants to pay for repairing the leak. You were sent to find it. You failed. Some day you may be an angel, but you will never be a plumber. Good-by!"—N. Y. Sun.

Teacher (of night school)—What is meant by the phrase, "twin relics of barbarism"?

Shaggy-haired Pupil—A pair of earrings, ma'am.—Chicago Tribune.

"I suppose your constituents ask you a great many questions?"

"No," answered Senator Sorghum. "I make the first question serve as the text for a four hour speech and then they are afraid to ask any more."—Washington Star.

"Do you think you could learn to love me?" asked old Gotrox.

"Oh, I don't know," replied Miss Youngbudd. "How much are you willing to spend on my education?"—Chicago News.

THE MARKETS.

San Francisco, March 31, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

There is very little wheat offering here, most of the buyers purchasing their supplies in the Northern markets. Prices have taken another jump in all Coast markets, every grade being about 5 to 10 cents higher than last week. There was moderate activity here a few days ago, but with the present range of values few buyers show any active interest. Most of the local millmen have supplies to last for some time, and it is understood that the greater part of the sotck on the Coast is held by the milling interests. The price is driving some of the mills out of the market, and several of the smaller ones in the North are shut down.

California White Australian		$2.20
California Club	$1.97½	@2.05
California Milling	2.10	@2.15
California lower grades	1.75	@1.85
Northern Club	1.95	@2.00
Northern Bluestem	2.10	@2.20
Russian Red	1.90	@1.92½
Turkey Red	1.95	@2.20

BARLEY.

While the speculative market shows comparatively little strength, there is a firm tone to the spot grain. Stocks here are only moderate, and arrivals from the North are falling off. It is reported that the supply there is becoming exhausted. While the demand here is not unusually large, choice feed is selling up to $1.50, and $1.45 is asked for ordinary grades. No brewing stock is to be had except at top quotations.

Brewing		$1.52½
Shipping		1.52½
Chevalier	$1.55	@1.70
Good to choice Feed, per ctl.	1.47½	@1.50
Common Feed	1.42½	@1.45

OATS.

Very little interest attaches to oats in the local market, the movement being largely confined to Northern points. The grain is very scarce everywhere, and holders are asking an advance of 12½ cents on the choicest grade of white oats. Other varieties are nominally as last quoted.

White, per ctl.	$1.95	@2.12½
Gray	Nominal	
Red, seed	1.90	@2.00
Feed	1.80	@1.87½
Black	1.65	@2.00

CORN.

A little more Western grain arrived during the week, but offerings are small and sales limited. Yellow is about 5 cents higher, and white also shows some firmness, but buyers take little interest in the market. California small round yellow is attracting more attention. Supplies are small, and sales have been made at a sharp advance.

California Small Yellow	$2.00	@2.10
Western State Yellow	1.70	@1.75
Mixed, in bulk		1.60
White, in bulk		1.66
Egyptian White		1.80

RYE.

No sales have been made for the last two weeks or more, as this market is entirely cleaned up.

Rye	Nominal.

BEANS.

The bean market shows a little more firmness all round than last week, and prices are slightly higher on several varieties, though conditions remain about the same. Pinks are higher, and prices are firmly held on both pink and cranberry beans. There has been more or less inquiry for old bayos for shipment in some quarters, and sales have been made at high prices. Limas are strong and firmly held by the growers, and the market is also very strong on blackeyes. White beans continue very firm at a slight advance, most sales being at top quotations.

Bayos, per ctl.	$3.40	@3.60
Blackeyes	3.10	@3.25
Cranberry Beans	3.25	@3.50
Garvanzos	2.00	@4.00
Horse Beans	1.75	@1.90
Small Whites	5.25	@5.40
Large Whites	4.35	@4.45
Limas	3.80	@3.90
Pea	5.25	@5.35
Pink	2.70	@2.85
Red	5.50	@6.00
Red Kidneys	3.50	@3.75

SEEDS.

Prices are well sustained on all descriptions, all quotations being unchanged. Alfalfa still remains the principal feature, and is quite firm. Little or no advance over present prices is to be expected, however, as the demand is expected to fall off in about a month more.

Alfalfa, per lb	18	@19 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb		3¾c
Canary		4½c
Flaxseed	2¾	@3 c
Hemp		4¾c
Millet	2¾	@3¼c
Timothy	6½	@6¾c
Yellow Mustard	6	@6¼c

FLOUR.

Notwithstanding the reluctance of the trade buyers to meet the advancing prices, California brands of flour were raised 20 cents early in the week, and are [illegible] of the new quotations. Flour from the Middle West has also advanced. While most of the California mills expect to continue in operation most of the season, many of those in the North are shutting down. There is little speculative buying, trade being mostly of a local jobbing character, and there is little likelihood of a more general movement until [illegible].

Cal. Family Extras	$6.20	@6.80
Bakers' Extras	6.20	@6.45
Superfine	5.00	@5.30
Oregon and Washington	4.85	@5.75

HAY.

Arrivals of hay for the week have fallen off over 1000 tons. The market has remained rather easy most of the week, but now shows a firmer feeling, with slight advances on some varieties. The prices obtainable last week were not considered any inducement by outside shippers, and the movement of alfalfa and stock hay from the San Joaquin has stopped almost entirely. Alfalfa is consequently stronger, though stock hay is in little demand and remains rather weak. There is a continued movement to interior points, where hay brings good prices. While the prospect for an early crop is good, the movement will probably continue for some time. Growers who are in a position to do so are making an effort to put new hay on the market before the supply becomes plentiful, as the first lots in the market will probably realize high prices.

Choice Wheat, per ton	$22.50@25.50
Other Grades Wheat	21.00@23.00
Wheat and Oat	21.00@23.00
Tame Oat	21.00@24.00
Wild Oat	20.00@22.00
Alfalfa	15.00@18.00
Stock	10.50@13.50
Straw, per bale	50@ 90c

MILLSTUFFS.

The output of bran, shorts, and middlings in California is nearly up to the average. Comparatively little is arriving from other points, as the Northern market is very firm, with reduced output and an active local demand. The demand here is light, however, and while prices are so far well maintained there is a tendency to easiness. Other descriptions remain steady to firm as last quoted, rolled barley being quite strong on account of the advance in the raw grain.

Alfalfa Meal, or mealfalfa, per ton	$25.00@26.00
Bran, ton—	
White	29.50@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Middlings	33.00@35.00
Mixed Feeds	28.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	30.00@31.00
Shorts	31.00@32.00

VEGETABLES.

Several shipments of Australian onions have arrived, and are being held at appearing quotations. While there has so far been comparatively little movement at these prices, the arrivals tend to weaken the market for Oregon stock, which is offered at lower prices. Asparagus is now very plentiful, with large arrivals from several directions, and prices show a further reduction. Supplies of rhubarb are small this week, and the price is considerably higher. Green peas are lower, with liberal arrivals from the Bay districts. Green peppers are plentiful and weak. Cabbage has taken a sharp advance, and cauliflower is also higher.

Onions, Yellow, per ctl.	$ 1.50	@ 1.75
Australian Onions	4.00	@ 4.25
New Green, per box	60	@ 75c
Garlic, per lb.	9	@ 10c
Green Peas, per lb.	4	@ 9c
Cabbage, per ctl.	2.00	@ 2.25
Tomatoes, per crate	75c	@$1.25
Green Peppers, lb.		40c
Cauliflower, doz.	75	@ 90c
Celery, doz.	40	@ 50c
Asparagus, per lb.	2	@ 4c
Rhubarb, per box	1.50	@ 2.00
Turnips, sack		1.25

POULTRY.

Arrivals of Eastern poultry have been slightly larger this week than for some time past, but so far very little California stock has come in. Larger arrivals, however, are expected within the next few days. The demand is very good, and the market is kept well cleaned up without difficulty. Prices show comparatively little change. Choice young roosters have been shaded a little, and fryers are easier, but small and extra hens are higher. Squabs have also advanced. Turkeys continue nominal.

Broilers	$ 6.00	@ 7.00
Small Broilers	5.00	@ 5.50
Fryers	8.00	@ 8.50
Hens, extra	9.00	@10.00
Hens, per doz.	7.00	@ 8.00
Small Hens	5.50	@ 6.00
Old Roosters	5.00	@ 6.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@11.00
Pigeons		1.50
Squabs	3.00	@ 3.50
Ducks	7.50	@ 8.00
Geese, per pair	2.50	@ 3.00
Turkeys, live, per lb	Nominal	
Turkeys, dressed, per lb.	Nominal	

BUTTER.

The butter market shows some depression this week. The last shipment for the North was lighter than was expected, leaving liberal supplies to be disposed of on this market, and arrivals have been quite large all week, causing a general tendency to sell. Extras and seconds are 2 cents lower, and firsts have declined 1½ cents. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	26 c
Firsts	25 c
Seconds	24 c

EGGS.

Extras are now fairly strong, and while there is still some fluctuation of prices within narrow limits, the present values seem to be fairly well established. The arrivals are quite large, but there is a good steady retail demand, and surplus lots are being stored, notwithstanding the reluctance of many handlers to store at the prices now ruling. Seconds and thirds are 1 cent lower. The San Francisco Dairy Exchange quotes the following prices:

California (extras), per doz.	23½c
Firsts	22 c
Seconds	19 c
Thirds	18 c

CHEESE.

Cheese remains comparatively quiet, though there is a fair movement of new California flats, fancy stock being again quoted at 15 cents, at which it is firmly held. Other grades are also firm at previous quotations. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	15 c
Firsts	13½c
New Young Americas, fancy	14½c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Cal. Flats	13½c
Storage, Oregon Flats	15½c

POTATOES.

New potatoes are more plentiful and lower. Supplies of old potatoes appear to be quite ample for all immediate requirements of this market, and all varieties are somewhat lower, with a tendency to further weakness. First class river stock, however, is steadily held. Sweet potatoes are higher.

River Whites, per ctl.	$ 1.20	@ 1.50
Salinas Burbanks, per ctl.	1.60	@ 1.85
Oregon Burbanks, per ctl.	1.50	@ 1.75
Sweet Potatoes, per ctl.	1.85	@ 2.00
New Potatoes, lb.	3½	@ 4c

FRESH FRUITS.

Occasional lots of Spanish grapes are coming into this market, and are offered at about $14 per barrel. Strawberries are again coming in freely from the South, and while much of the stock is unattractive, it is moved without difficulty at appearing quotations. Fancy apples are becoming rather scarce, and the price is higher. Winter Nelis pears are practically cleaned up.

Strawberries, per crate	$ 1.50	@ 1.75
Apples, fancy, per box	1.25	@ 1.75
Apples, common	60	@ 85c

CITRUS FRUITS.

Arrivals of oranges have been only moderate this week, but the market is amply supplied and prices are unchanged. Grapefruit is lower, on account of an oversupply. While another lot of Mexican limes has come in, there is still some scarcity, and the price has been advanced $1 per box. Lemons are unchanged.

Choice Lemons	$2.00	@ 2.50
Fancy Lemons	2.75	@ 3.00
Standard	1.25	@ 1.50
Limes	8.50	@ 9.00
Oranges—		
Fancy Navels	2.25	@ 2.50
Choice	1.75	@ 2.00
Tangerines	75c	@ 1.50
Grape Fruit	2.50	@ 2.75

DRIED FRUITS.

The local packers report a stronger and more active market for practically all varieties of fruits. While no advance has yet been made, the present quotations are very firmly held. A liberal shipping movement is now going on, and small lots held in the interior are rapidly being cleaned up. The Eastern prune market is in good shape, with increasing interest in California offerings, and the English market is far less heavily supplied than last year at this time. While there are still some good-sized lots of peaches on hand, the market is more active, and no trouble is anticipated in disposing of stocks. Some descriptions, notably apples and apricots, are quite scarce. Raisins are still quiet, and conditions generally show little change. Reports from the East indicate that sales made there by growers have weakened the market, while the consuming demand shows little life. Packers are offering about 2 cents for raisins in the sweatbox, and packed stock brings the prices quoted below.

Evaporated Apples	5	@ 6¼c
Figs, black	2	@ 3 c
Figs, white	2	@ 3½c
Apricots	7½	@10 c
Peaches	3¼	@ 4½c
Prunes, 4-size basis		2¼c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Almonds are decidedly scarce all over the country, as very little stock has been imported recently. This market is already well cleaned up, and with practically nothing remaining in the hands of growers, the prices are largely nominal, though shelled stock has been advanced sharply. Walnuts are quiet, and with no heavy surplus on hand the prices are steadily held.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Honey of all grades is almost nominal, as far as prices are concerned, as there is hardly any of the better grades offering, and buyers pay little attention to what is on the market.

Comb, lb.	Nominal.
Water White, extracted	Nominal.
White	Nominal.
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Very little movement of hops is taking place in California at present. The growers are holding over comparatively little from the last crop, and with more favorable weather most of this will probably be moved off. So far contracting for the new crop has also been quiet. Prices remain the same, with slightly higher figures for long-term contracts.

Hops, per lb	6@ 10c

WOOL.

There is now a steady though moderate movement of spring clip from the San Joaquin and southern coast counties, at the prices quoted for year's staple. Prices for 6 to 8 months wool range between 7 and 13 cents. Buyers are taking some interest in Oregon wools, but California stock receives little attention in the East at present.

Red Bluff (f. o. b. Red Bluff) free	7	@ 9 c
Defective	less	2 c
San Joaquin (at S. F.) free	5	@ 7½c
Defective	4	@ 6 c
Mendocino, free	7	@10½c
Defective	6	@ 8 c
San Joaquin, spring clip	12	@15 c
South Coast, spring clip	11	@13 c

MEAT.

Dressed veal, both large and small, as well as all grades of mutton and lamb, are lower, with plentiful supplies. Both dressed beef and live cattle remain fairly firm, as the arrivals of grass stock are still light. Good grass fed steers bring 4 to 4½ cents, the quotations below being for fed stock. Hogs continue scarce and very firm.

Beef: Steers, per lb.	8	@ 8½c
Cows	7	@ 8 c
Heifers	7	@ 8 c
Veal: Large	7	@ 7½c
Small	8	@ 8½c
Mutton: Wethers	8	@10 c
Ewes	7	@ 8 c
Lambs	10	@11 c
Spring Lamb	12	@13 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	5¼	@ 5½c
No. 2	4½	@ 5 c
Cows and Heifers: No. 1	4	@ 4¼c
No. 2		3½c
Bulls and Stags	2¼	@ 2½c
Calves: Light	5	@ 5¼c
Medium	4½	@ 4¾c
Heavy	3¾	@ 4¼c
Sheep: Wethers	5	@ 5½c
Ewes	4½	@ 5 c
Lambs: Yearlings		6 c
Spring Lambs	7	@ 7¼c
Hogs: Grain fed, 100 to 150 lbs.		7 c
150 to 250 lbs.		7¼c
250 to 325 lbs.		6 c
Common Hogs, lb.	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

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SPECIAL CITRUS MARKET REPORT.

Los Angeles, March 30.—Oranges are coming into their own again, as evidenced by the prices now received at the auction markets. On Wednesday of last week the market jumped 15 cents a box and has continued to improve ever since that time. The news of the rains must have had some effect, as it looked as though shipments would lighten up and possibly the jobbers were only waiting for an excuse to go in and buy heavily. Present conditions warrant an increase, though some might disagree with this opinion. Prices have been low for some time now, and much of our good California fruit has been absorbed at these low prices. The demand is good; it must be good when 50 cars of California oranges can be sold in one city day after day without a break.

In the auctions on Monday of this week the selling prices for extra choice navels was about $2.60, which is 35 cents a box higher than at this time a week ago. Some brands, like the Elephant of Redlands, are away ahead of this price and others are lower.

The citrus fruit shipments for the past week have been as follows: Monday, March 22, 140 cars oranges and 15 cars lemons; Tuesday, 126 and 14; Wednesday, 88 and 16; Thursday, 197 and 26; Friday, 124 and 13; Saturday and Sunday, 181 cars of oranges and 41 cars of lemons. To date this season there has been shipped 12,359 cars of oranges and 1973 cars of lemons, as against 14,713 of oranges and 1819 of lemons to same time last season. There are available within the next 30 days 150,000 boxes of Sicily lemons, just the amount on hand at this time last year.

Asking prices for navels at this end of the line are from $1.60 to $1.75 a box, according to district. These prices are for immediate shipments and will go higher at once. For shipment after April 15 the growers are asking $2 a box, but it is doubtful if much fruit will be sold at that price this motnh. Seedlings are having quite a call and some sales have been made at $1.50 to $1.60 spot cash for immediate shipment. For shipment by April 15, $1.80 is being asked at Riverside and this may be the prevailing price if the markets keep up at the present strength. Some Valencias are being sold for April shipment at $2.25 a box. It is expected that northern Valencias will open at $3 a box f. o. b., but that this price will stick very long is not thought probable; there are too many Valencias this year and they will have to start earlier than common and so will be brought into active competition with navels.

New estimates of the navel crop have been made by two southern California papers, one showing 20,000 and the other 22,000 cars. One says that there are yet 8000 cars to go and the other 10,000. About 6000 more cars is the number guessed by the conservative shipper who tells what he thinks without having any ax to grind.

PUBLISHER'S DEPARTMENT.

Attention is called to the advertisement of the Spring Valley Poultry Co. at Rocklin. The dry grounds, grit, mutton, meat, etc., are very desirable for poultry raising. The plant of the above company is this year hatching out 6000 chicks and giving from 40 to 50 dozen eggs daily.

Oil and water mon't mix—but sometimes it does. The Rogers Chemical Co. presented us with a can of their "spramulsion" which is composed of oil and other ingredients, which when poured into water makes a perfect emulsion and from which the oil does not separate. This compound makes an elegant spraying material for fruit trees.

Registered Polled Angus bulls are advertised by A. W. Longley of Bishop, Cal., in this issue. Mr. Longley has some fine individuals of this famous beef breed, and parties wanting foundation stock would do well to write him.

The old-time readers of the RURAL PRESS will be glad to see the advertisement of the Byron Jackson Iron Works, Inc., in our columns again. This company has been for years one of the prominent pump houses of the coast, and their name stands for high efficiency, economy and durability. The works are located in West Berkeley and offices are maintained on Market St., San Francisco.

Many ranchers are asking where they can get gypsum or land plaster. We are pleased to call their attention to the Pacific Cement Plaster Co.'s advertisement of land plaster in this week's columns. The plant of this company is located at Amboy, Cal., and its gypsum is quarried and is not a manufactured product. The gypsum is sold in a finely ground raw state and also in the calcined. Gypsum is valuable to correct physical wrongs in the soil.

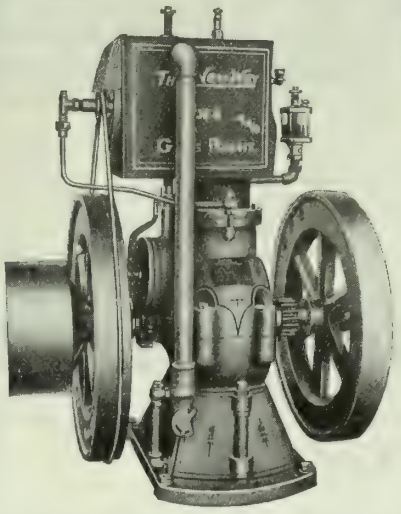
When remitting for her subscription last week, Miss Lizzie Armstrong Jones of Guerneville, calls attention to the fact that her name has been on our list for a great many years. She says: "Neither can I do without it. Tried to for six months." Many of our subscribers have taken the PACIFIC RURAL PRESS for over a quarter of a century and we appreciate their words of praise and loyalty to the paper. What a story these pioneers could tell of the development of agricultural matters in California which they have helped bring about. The RURAL PRESS would like to print such articles if the old time subscribers would send them in.

We are pleased to call our readers' attention to Henshaw, Bulkley & Co.'s ad in our columns. This company is one of the oldest engineering houses on the coast and they are engineers as well as being dealers in machinery. They make a specialty of handling engines and pumping plants and consequently can give as good advice and quality of goods as can be had. They have sold the Otto engines for the past twenty-one years and in that time have installed many hundred of these engines for all classes of duty. They will be pleased to mail you one of their catalogues and assist you in your irrigation questions or for wherever the use of an engine or pump is needed.

"The Business of Dairying" is a new book just published, which the author, Clarence B. Lane, says was prepared for the use of dairy students, producers and handlers of milk, and all who make dairying a business. The chapters treat of the following subjects: A debit and credit account with the soil; dairy business in relation to soil exhaustion; intensive system of cropping; cutting, handling and feeding forage crops; top dressing for soiling crops; succession of soiling crops; value of forage crops compared with clover hay and wheat brain; soiling v. silage; the dairy herd from a business standpoint, milk records, yield, records of cows, influence of pure bred sire; then follows feeds and feeding, dairy products and their cost, methods of retailing milk, dairy accounts, advertising, etc. The book contains 234 pages, is well illustrated and has many valuable tables on feeding and records of breeding. The book is well worth having by dairymen. Orange Judd Company, 439 Lafayette St., New York, publishers. For sale at this office for $1.25.

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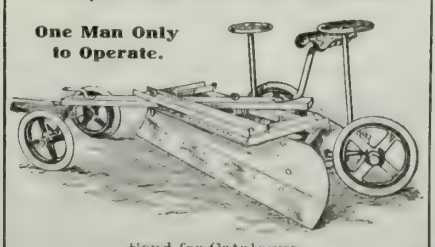
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The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

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Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

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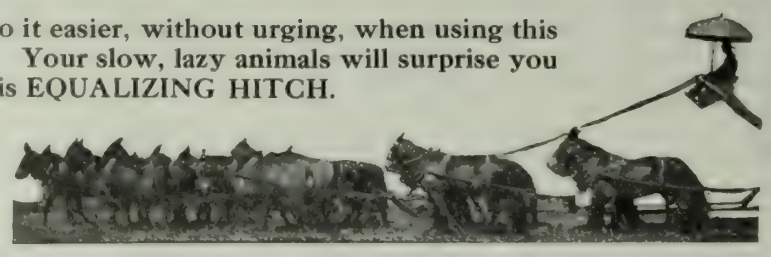
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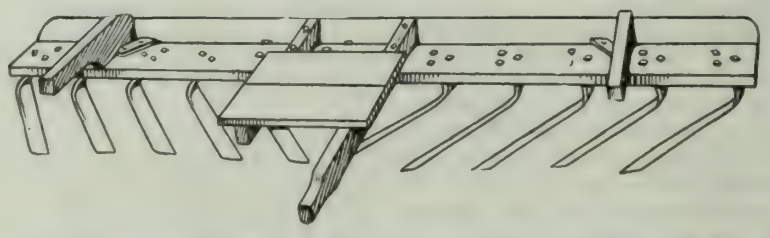
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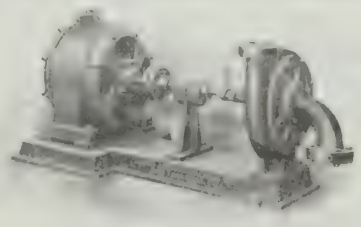
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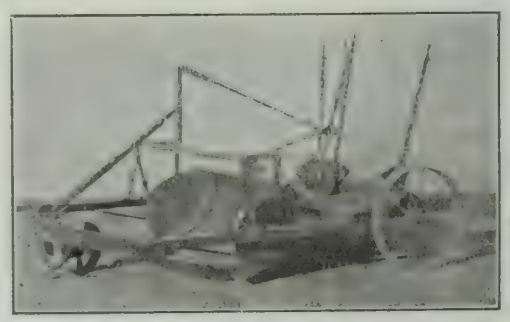
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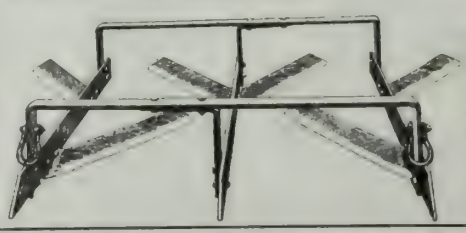
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AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 15. SAN FRANCISCO, SATURDAY, APRIL 10, 1909. Thirty-ninth Year.

Chemical Weed Killing.

How often have farmers sighed for some way to kill weeds which would be easier than pulling them out or cutting them off below the root crown. How eagerly they seized upon the suggestion that weeds could be successfully electrocuted, and when that daring claim could not be worked out successfully, with what hope they yearned for chemicals that could be poured or sprinkled upon the ground which would kill all intruding growths and not only leave the plant which it was desired to save unharmed but render the land more hospitable to the crop which it would free from weed invasion and encroachment. All earlier experiments in this line were disappointing, in that the agent used either accomplished nothing or else killed all vegetation and rendered the soil itself sterile for some time.

It is a very important thing for agriculture that more recent experimentation has shown that there are substances which will kill some most pernicious weeds and at the same time not injure some plants which are grown as crops. There is much still to be done in this connection, but two things seem now clear: First, that iron sulphate, a very cheap substance, will kill many broad-leaved plants which occur as weeds; second, that it may be be used in sufficient strength to do this without injuring certain very valuable narrow leaved plants, like cereal grains and grasses. These propositions have been tested out so fully that it must now be considered practicable to spray grain fields and grass pastures or lawns, to kill the most destructive weeds which infest them, because the killing is done at a price which the value of the improved crop can endure.

We have thought the matter important enough to our readers to present on this page an illustrated suggesoin of the method in which this is done. It is to be tested out for California on the University Farm in Yolo county, where there are grain fields considerably infested with mustard and other broad-leaved weeds, and an attempt will be made to compare the cost with the cost of hand pulling. The former owner of the University Farm followed the practice of paying an average of $2 per acre for mustard pulling—so there is something to measure by—and the fact that the expenditure of $2 per acre did not get out all the mustard is attested by the fact that there is so much of it left for the trial of the new method, which is being tried this spring, and of which report may be expected in due time.

As the matter is thus brought home to Californians, it is interesting to note that the wide reputation for efficiency secured by sulphate of iron is based upon results obtained at another of the chain of U. S. experiment stations, viz., that of North Dakota. In fact, a good deal has been done in the last five years in the matter of sprays applied for the destruction of weeds, especially for the destruction of mustard in fields of wheat and oats. The successful sprays for this purpose have been tested somewhat thoroughly in recent years by Prof. H. L. Bolley, of the North Dakota Agricultural College and Experiment Station, Fargo. These results are published in Bulletin No. 80, recently issued by the Experiment Station of North Dakota. In addition to salt and some other common remedies for weeds, good results are reported from the use of solutions of blue vitriol, copperas, and arsenite of soda. The latter is somwhat more injurious to grain than the two former. The recommendations are, to use 75 to 100 pounds of copperas in each 52 gallons of water; 12 to 15 pounds of blue vitriol for each 52 gallons of water, and 1½ pounds of sodium arsenite to each 52 gallons of water. In summing up the results of his experiments, Professor Bolley gives two lists—one of weeds which may be controlled by means of chemical sprays, and one of weeds upon which field-spraying methods as now in use are not effective.

The following weeds may be eradicated or largely subdued in cereal grain fields through the use of chemical sprays: False flax, worm seed mustard, tumbling mustard, common wild mustard, shepherd's purse, pepper grass, ball mustard, corn cockle, chickweed, dandelion, Canada thistle, bindweed, plantain, rough pigweed, kinghead, Red River weed, ragweed, cocklebur.

To do the best work, apply 52 gallons to the acre. To make the spraying solution, empty a 100-pound sack of the sulphate of iron into a kerosene, whisky or vinegar barrel; fill to the chine with water, and stir with a hoe for a few minutes until dissolved. Strain through several thicknesses of cheese cloth tacked over manhole of the spraying machine.



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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., April 6, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	T	41.80	39.52
Red Bluff	.00	30.58	21.94
Sacramento	.00	21.71	17.41
Mt. Tamalpais	.00	35.52	20 25
San Francisco	.00	25.58	19.92
San Jose	.00	18.22	11 30
Fresno	.00	9 81	8 38
Independence	.00	8.15	8.29
San Luis Obispo	.00	31.34	18 29
Los Angeles	.03	19.07	14.23
San Diego	.00	10.21	8 98

The Week.

California fruit growing seems to be charged with a strong vernal influence analogous to that which is now forcing the trees and vines themselves into notable activity, with promise of an exceptional season's growth and production. The disposition toward organization for specific purposes on very broad lines displays itself anew in districts where co-operative effort has been put forth before but has not attained all that was expected of it. The fact that the people are rising to strive again for joint action, though disappointment followed early undertakings, is itself proof that the fault of these early efforts was not in the principles but in the methods employed. It was perhaps wisdom accompanied by weakness. Manifestly desired results can only be reached by wisdom attended by strength. Is this to be now demonstrated, or must we wait again? Experience alone can answer.

We are pleased to give, at considerable length, upon a following page, the chief transactions of a representative assembly of prune producers, held last week in San Jose. There is a brief review of the occasion by a representative of the PACIFIC RURAL PRESS, and the formal report prepared with deliberation by a large committee, which the whole assembly made its own by a unanimous vote of adoption. We shall not undertake analysis of the matter further. It is so clear that each reader can serve himself in that regard. We must, however, express satisfaction that there was a declaration for general organization upon the basis of local auxiliary organization. We have contended for twenty-five years that such a basis alone promised enduring, effective and wide-reaching co-operation. We of course make no claim for discovery of such an idea. It always seemed to us the simplest and easiest deduction from all previous efforts at co-operation: it is simply a way to secure representative action and government when you have to deal with intelligent and self-dependent people. All great co-operative organizations attempted on the fiat principle have failed, though many of them accomplished something before death. All the growing co-operative systems at present succeeding are established upon the principle of uniting strong local auxiliaries. The greatest fiat-failure was the prune combine of 1900: the greatest auxiliary-success is the California Fruit Growers' Exchange of the citrus interest of today. It all seems to us too simple for either analysis or argument, and yet the fiat plan of enrolling a multitude to entrust their property to some central power in which localities have no responsibilities or representation is still cherished by some as likely to have more force and more freedom in its action. If that should be so, there should be urged against it that the former plan has greater chance of wisdom in its management and more loyalty in its constituency, and both these points shine brilliantly in the record of the citrus organization to which we have alluded.

This point of view affords some consolation for the fact that the Santa Clara growers are proceeding as though they were the only producers of prunes. They are, in fact, so great that they may be temporarily pardoned for looking upon themselves as the whole prune, especially as the building of a strong local organization, or group of them, in the greatest prune valley is the proper foundation for an organization which will be ultimately State wide. One weakness of the old fiat prune combine was that its parts were too loosely connected, or not connected at all, except by a lot of individual contracts with a great prune mogul and his cabinet. It was an attempt to build from the top downward, and the structure collapsed for lack of foundation. Perhaps not strictly without foundation, for there was a multitude of individual-contract sand grains without cohesion, and they were crushed. Perhaps it was the only kind of an organization which could have been effected in the emergency of short time and large product. Its experience demonstrated that it was both wrong in principle and weak in practice, and its only value was in the lesson it taught, which indeed may be great. If indeed building in the other direction from strong local foundations be approved the other prune regions need not be offended at Santa Clara's considering only her own interests in the meeting of last week. Of course the purposes to be served by co-operative effort are wide, as prune growing in California, if not indeed on the whole Coast, and the Santa Clara undertaking may finally not only point the way to wider organization but open a wider way for the whole American prune product. At all events, we counsel all growers to study the Santa Clara plan as it is set forth in our columns this week.

Another evidence of buoyant spring spirit in our fruit industries is the raisin-eating propaganda connected with the observation of Raisin Day, which we noticed appreciatively in our issue of last week. We hope it will commend the widest possible attention. The Fresno people are certainly leaving no promotive stone unturned: they have even turned the stones out of the fruit itself. April 30 will be raisin day everywhere, and they hope that every man, woman and child in the United States will eat raisins in some form as an article of diet on that date, and always afterward. Among other agencies in support of the work, they have enlisted the services of the Southern Pacific and Santa Fe railroads, and through them nearly every other line in the country. The leading newspapers of the United States, fraternal orders, churches, schools, labor unions, are all asked to correspond with affiliated bodies of a kindred nature. Also business men, such as manufacturers and wholesale houses, are being pressed to reach the retailer, who in turn reaches the consumer. They are issuing attractive printed matter of all kinds in great volume—in fact, the work under way is believed to be the most colossal piece of advertising ever undertaken in promotion of a single product. We hope all readers will take an interest in the work and a share in it. It is good to get earnest about a thing.

Another case of vernal fervor arose last week in the very southeast corner of the State, in fact lapped over into Arizona, to wit, the celebration of the opening of the great Laguna dam, the first of the Government's reclamation projects in the Southwest to be completed. Excursions from Arizona, bringing Governor Kibbey of the Territory and other officials, and trains from California carrying hundreds of visitors from the various cities of the South, rolled in to participate in the opening exercises. A local reporter, in adoration of the river god, writes: "Always spectacular in its movements, the Colorado river arose to the occasion, and a two-foot flood of the river will carry a volume of water over the dam as nature's christening of the giant irrigation project." It was evidently a victory for those who believe in baptism by pouring, but that does not matter, for the most important thing in that region is to get wet in any way whatever.

And this reminds us that Director Newell of the National Irrigation Service does not agree with Mr. Carter, whose opinion we mentioned last week as being rather against the small farm idea in Hawaii and preferring the large, well managed and financed agricultural enterprise. Mr. Newell thinks it probable that over 100,000 acres of land now practically useless may be reclaimed, and says that on this basis it would be possible to furnish 5000 farms of 20 acres each, which would provide for a population of about 20,000 persons. He, therefore, recommends a systematic examination of the water resources of the islands and the preparation of a contour map.

If this be undertaken as a National enterprise, it is important to know whether Director Newell or Mr. Carter is right in anticipating benefit or ill from such undertakings. The general question is one which European agricultural economists have been studying closely, and the following is a statement given by Mr. Fay in an English book on "Cooperation at Home and Abroad": "The range of the small farm specialties, and the range of the cultivations into which the development of the world's markets is forcing Europe, approximate very nearly to one another. We may, therefore, present as our broad conclusions (1) that statistical evidence proves the vitality and slow expansion of other forms of cultivation than that which we call big, distinctively big, and in particular of small cultivating ownership; (2) that the province of small-scale farming is permanently assured and capable of expansion; (3) that this expansion is directly stimulated by the trend of international agriculture." This seems to mean that small farming, and not great agriculture, is to be the mode of the future, but of course small farming which builds up a country is high small farming, and not the opposite, as we pointed out last week.

State rights and State sentiment are naturally strange to citizens of centralized countries, and they seem surprised to think there are any. Rather an amusing instance is found in a report from Paris of a meeting to protest against what was there considered to be anti-French features in the tariff now pending before Congress. It is reported that M. Leroux, the French author, who visited

the United States recently, made an address in which he attributed much of the hostility to France in the United States to Irish and German immigrants, and he reviewed the case of German students at a California university who protested against the works of Dumas on the ground of immorality. He said the misfortune of the situation was that the Washington Government was powerless to coerce the individual States of the Union. It seems strange that American notions about French morals should be credited to the Germans, and we wonder why the Irish were not included in the American position. But the funniest thing is the regret that the Government at Washington is powerless to coerce California in the matter of opinion about the morality of the works of Dumas. And this becomes funnier when one remembers the popular impression throughout this country is that California is apt to be more broad in such matters than the East. On the whole it will not do California any harm to be considered a paragon of uprightness in morals, and we are disposed, from this point of view, to be glad that Washington is powerless to coerce us.

Queries and Replies.

Green Manure Plants for a High Plateau.

To the Editor: I want to find out something about what kind of green fertilizer would from all points do for our orchard. We have to work the same slightly different than the orchardists do in the lowlands. Whatever plant we seed would have to be planted in September and plowed under during March. Now the proposition is, what growth will stand some hard, sharp frosts in the winter, say in November and December, yet keep its roots from being killed. Barley and wheat will stand the frost, although the tops may sometimes be killed when the temperature reaches 15 to 20 degrees Fahrenheit. However, the first warmth will bring them up better than ever. Will vetches stand this severe frost and yet not have their roots killed. If vetches will not stand this winter climate and we have to plant barley or wheat as a fertilizer, which of these is the better, and when plowed under, what do they analyze by chemical analysis?—Farmer, Fairmont.

There is practically no difference in value in the different cereals for green manure purposes. They are all, of course, inferior to legumes. They do, however, make a certain amount of humus and minister to soil improvement. The cereal which is best to select is the one which makes the best winter growth, and rye is indicated for that purpose. Common field peas and winter or spring vetches are perhaps the best winter growing legumes which we have for our valleys, but we do not know how they will act under your freezing. A very good experiment would consist of a broadcasting of rye and vetches in the fall, plowing in whatever growth you get during March, as you say. The presence of the rye may be to a certain extent protective of the vetch and it may thus be enabled to endure a little lower temperature than it would if planted by itself. The only way to get trustworthy information in a peculiar situation like yours is to undertage a reasonable amount of experimenting.

Few Pests on the Fig.

To the Editor: While talking to a gentleman who formerly lived in California, he told me that he had seen somewhere the statement that the fig trees in California were subject to the attack of a scale insect which found lodgment in the roots of the tree and was very destructive. He also said that this scale was brought to the trees by flood water and that if we had a flood next year after our trees were planted it would probably cause us great damage. Can you tell us whether there is any truth in this statement; are the fig trees in California subject to disease from this scale, and does the scale come with the flood waters? We have the department's books on the fig and fig culture by Prof. Eisen, and he mentions that in a short chapter on parasites that the fig is particularly free from the attack of such destructive agents, and in regard to the scale he says that while it has been prevalent in France and Mediterranean countries, it has not as yet appeared in California. Our land was flooded several times this spring during the heavy overflow, but this was before any fig trees were set out, and levee protection has been very strong this spring, so we do not expect any of the flood will reach us again. We would be glad, however, to know what your experiences have been with regard to pests in general attacking the fig trees in California and in particular in regard to this scale which attacks the root.—Reader, Nebraska.

The fig is relatively free from injurious insects in California, and yet not altogether exempt from them. It may be, however, counted one of the healthiest trees we have, and perhaps the one requiring least attention in the way of spraying. We have never heard about a scale insect on the root of the tree as following flood water. We have seen some trees with roots infested with nematode worms, an almost microscopic worm which lives inside the tissues and causes swelling on the roots, but this could hardly be designated as a scale insect, nor is it at all related to overflow. If you get more specific information about such an insect, or specimens of it, we shall be very glad to study it for you and to make such suggestions as seem warranted.

Pumping for Irrigation.

To the Editor: Is it true that grape vines and deciduous fruits will not thrive from irrigation by pump from wells? I have heard this stated. Our rainfall is from 4 to 8 inches and temperature from 24 to 114 degrees. There is no alkali nor hardpan and the same soil on surface as 100 feet down, being sandy and adobe loam.—Enquirer, Kings county.

There is no question concerning the desirability of pumped well water for fruit growing, providing the water is not alkaline. That matter has been demonstrated by experience beyond chance of doubt. Your rainfall is so small that your reliance must be upon irrigation and you can settle the economic aspect of it by correspondence with manufacturers advertising pumping machinery in our columns. The temperatures you mention are favorable for our most important deciduous fruits and the soil characters very good indeed. If the water you intend to use is acceptable for drinking purposes it is good for irrigation.

Not the Peach Blight.

To the Editor: I am enclosing herewith some twigs cut from one of my Elberta peach trees. I am inclined to think the tree is infested with the blight, but to make no mistake I will appreciate it very much if you can verify my belief, or if wrong to let me know the trouble, and if possible some remedy that will benefit the trees. If it is the blight I cannot quite understand why the trees should be affected with this disease, as I sprayed in December with the Bordeaux mixture, 35-30-200. I also sprayed in February, about the time the buds were swelling, with the same mixture, 20-20-200. Of course during the months of January and February we had very heavy rains, which may have washed some of the mixture from the trees, or diluted it to such an extent that it lost its strength. However, I shall esteem it a great favor if you can give me any enlightenment on the subject.—Fruit Grower, Modesto.

Your trees are not affected by blight, which forms rather large purple spots with pale centers on the twigs, and kills not only the buds but quite a patch of wood around them. The specimens you submitted show a gumming from the buds generally due to unusual cold or poor drainage, for which close pruning is the only remedy, beyond a correction of conditions as far as possible. A bark blister is also present which is rather common, but has never seemed to do any appreciable damage. It occurs on one side of the twig as though affected by sun or wind. The conclusion would be that spraying may prevent blight, but not save twigs which are in distress from root-sickness of the tree. No doubt there will be much of this this spring from the excessive water from rains in places where the surplus cannot drain away.

For a Young Pear Orchard.

To the Editor: I have a young pear orchard coming into bearing this summer and would like to know how to take care of it from a spraying standpoint; that is, when to spray and the spray to use, giving the strength of solution.—Constant Reader, Modesto.

There is no spraying to be done until you get definite indication of something to spray for; that is, you must know whether you have scale insects or codlin moth, or scab, or leaf-eating slugs, etc. If you fear codlin moth worms on the fruit it will be well to spray as soon as the petals fall from the blossoms with Bordeaux mixture to which arsenate of lead is added according to the detailed instructions given on page 234 of the PACIFIC RURAL PRESS of April 11, 1908. This will be good both for insects and fungi. Look out for pear blight and cut, far below the injury, all twigs which show blackening of young leaves and fruit. This is only an opening suggestion. Be assured that you have a good fight on hand and seize every opportunity to get wise by reading and observation on pear troubles.

Stocks for the Cherry.

To the Editor: Kindly advise us what has been your experience and observation as to the desirability of Morello stock for cherries as compared to Mazzard. Is the Morello as subject to gumming as the Mazzard and Mahaleb? We have this year observed considerable gumming on both Mazzard and Mahaleb, due, in our judgment, to the excessive moisture during the months of January and February. Please advise us what is the tendency of Morello in this respect.—Foothill Planter, Newcastle.

Although we do not definitely know it, we believe that the Morello is less subject to gumming than the Mazzard and Mahaleb. It is generally a tougher root, and the Morello cherries will do well under arid conditions which bring the sweet cherries into distress. As to how it endures sour sap, which is probably the trouble with the other cherries under the conditions which you mention, some inference can be drawn from its popularity along the Sacramento river, where some planters prefer it even if they have to do double-work to get it to take some of the varieties which they find it profitable to grow.

Killing Poison Oak.

To the Editor: Please let us know what liquid or solution would be most efficacious in killing "poison oak? We have some property which contains quite an amount of this pest, and it occurred to me that ammonia, quicklime or some acid would kill the stuff at the roots. Cutting it out seems to do very little good.—Suburban, Oakland.

We are inclined to believe that pouring gasoline around the roots of the poison oak would be more likely to destroy it than any other substance, because there is some experimental data supporting the killing quality of that liquid, and an experiment, if convenient for you to make it, would be valuable. Aside from that we know nothing except grubbing out the roots; not merely cutting off, but continually grubbing out the roots as they appear. If you wish to try gasoline, pour an ounce or two around the main shoot of the plant just at the ground surface.

The Irrigator.

NEW OREGON IRRIGATION LAW.

Irrigators everywhere will be interested in a new general irrigation law which has been enacted in Oregon. California has tried several times to enact a general law, but has such a host of precedents and vested rights, and court decisions upon both, that a general law has thus far been impossible of enactment. They have, however, done just that thing in Oregon, and the State Engineer, Mr. John H. Lewis, has issued an outline which all should give attention to, at least for purposes of current information:

General Statement.—A water law for Oregon, believed to be the best among all the States of the Union, became effective on February 24, 1909. Complete State control is provided. No water right can hereafter be acquired without compliance with this law. It abolishes the old requirement of posting a notice on the bank of the stream. Hereafter the priority of all rights will be determined by the date of receipt of an application in the office of the State Engineer at Salem. If the application is defective, it will be returned for correction without losing its priority.

The leading feature of this bill is the limitation of franchises to the use of water for power development to a period of 40 years from the date of application, and the requirement that reasonable fees be paid to the State in all cases by those benefitted. The schedule of fees has been designed to ultimately pay the entire cost of administration, thus relieving the general taxpayer, who derives only an indirect benefit through the added prosperity resulting from increased development.

The payment to the State of an annual license fee of 25 cents to $2 per horsepower hereafter appropriated was provided by the Eaton bill, which takes effect on May 22. This fee is to be collected by the board of control and adjusted from time to time, based upon the percentage of power appropriated which is put to beneficial use.

In brief, the new water code creates a board of control, composed of the State Engineer and the division superintendents of each of the two water divisions into which the State has been divided, and upon this board rests the responsibility of determining and recording all water rights heretofore initiated, the granting of new rights in accordance with law, and the protection of all water rights through a comprehensive administrative system.

Determination of Rights.—Before any protection can be granted to vested rights under the new law, such rights must first be determined and recorded. Where numerous ditches tap a stream, and especially if the stream is long and the summer flow limited, State protection is necessary.

The cost and time consumed in determining rights under the old law was very great. The water users along Silver creek, in Lake county, joined in a friendly suit to determine their rights, so that a water master could be employed to distribute the meagre supply, thus preventing annually recurring disputes. Fourteen lawyers were employed on only one side of this case. Recently the case was decided by the Supreme Court, after nine years in the courts. During this time one of the contestants died, one became insane, and a number, tiring of the conflict, sold to others.

If the experience of Wyoming is any guide, the most complicated case can probably be decided, under the new law, within a year.

The cost is set out in the law, and is designed to be less than the cost of an abstract to the land. For irrigation rights, the cost will be 15 cents per acre for each acre for which a water right is claimed up to 100 acres; 5 cents from 100 to 1000, inclusive; and 1 cent for each acre in excess of 1000 acres. For power, the cost will be 25 cents for each theoretical horsepower claimed, up to and including 100; 15 cents from 100 to 1000, inclusive; 5 cents from 1000 to 2000, inclusive; and 2 cents per horsepower above 2000, the minimum fee in either case to be $2.50. For any other rights claim to water the fee is $5.

The Procedure.—The procedure is simple. A list of questions is sent to each claimant or owner on the stream. He is required, under forfeiture of his right, to answer the questions which, together with a survey of streams and land areas and measurements of the water supply by the State Engineer, furnish all necessary information for an adjudication of rights. The maps and all statements, signed under oath before the superintendent, are submitted upon a given day for examination by all interested parties. If anyone thinks his neighbor is making an erroneous or extravagant claim, his testimony can be contested. By this procedure all erorrs can be corrected and, if necessary, further testimony taken. As soon as possible an order is entered by the board, determining the rights. This order is put into execution at once, and later filed with the Circuit Court for confirmation. If no appeals are taken, the order is confirmed. If the case is not reopened within six months the decree becomes final.

Upon such final determination water right certificates are issued in accordance with the decree. These certificates are then recorded in the county records, and bear the same relation to the water title as the patent from the United States does to the land title. The right of each user from the stream, or from a large ditch, will be thus determined. The law makes the grant to the use of water for irrigation appurtenant to the land irrigated. The title thereafter passes with the land, thus making it necessary to follow land titles thereafter in abstracts.

How to Acquire New Rights.—No right to the use of water from the streams of the State can hereafter be acquired for any purpose without compliance with law. For intelligent use and development of our water resources some central office must be provided, where a reliable record of all water rights can be found. The diversion of water without the necessary permit is made a misdemeanor.

Application for permit to appropriate water should be made to the State Engineer at Salem, Oregon. If the application is defective, it will be returned for correction without losing its priority.

The application should be accompanied by a fee of $3 for examining the same, together with the additional fees, depending upon the proposed use, as follows:

For irrigation, graduated as follows: 15 cents per acre from 0 to 100, inclusive; 5 cents per acre from 100 to 1000 acres, inclusive; 1 cent per acre or each acre in excess of 1000 acres.

For power, graduated as follows: 25 cents per horsepower from 0 to 100, inclusive; 10 cents per horsepower from 100 to 1000, inclusive; 5 cents per horsepower in excess of 1000.

For any other purposes, including applications by municipalities, $5.

Forms for Appropriations.—Three different forms are provided for the appropriation of water; one to be used in case of new appropriations, another to be used where the appropriation is to be made by the enlargement or extension of existing works; and a third form where the application is for a permit to construct a reservoir and impound surplus waters. A separate application must be made for permit to appropriate stored waters prior to its application to beneficial use. This application is made on the first form mentioned above, and is then known as a secondary permit, and must refer to the primary permit and to the reservoir from which the water supply is to be derived. These forms, together with instructions, can be secured by addressing the State Engineer, Salem, Oregon. They are simple, and can be filled out by anyone, assisted perhaps by a surveyor, as a map of the proposed ditch is required as a part of each application.

Work must commence within one year from the date of application and be completed within a reasonable time, as fixed in the permit, not to exceed five years.

If the water is applied to the beneficial use within the time allowed, proof is taken of such fact by the division superintendent and a certificate issued the applicant by the board of control. This certificate is of the same form as issued to early appropriators upon determination of their rights, as described above.

Protecting Water Rights.—The new method of initiating water rights may seem cumbersome as compared with the old method, but it is worth all it costs. The right, when finally granted, is absolutely determined as to all rights hereafter initiated. It will be determined as to all the world, after a determination as above outlined. This determination is made without cost to the new appropriator.

No large canal can be operated without one or more water masters to divide the water in accordance with the rights and needs of the different laterals. Likewise, irrigation from public streams cannot be a success without water masters to regulate diversions.

The use of streams is to convey stored water to its place of use was impossible under the old law, and the construction of many reservoirs was thus prevented.

Distribution of Water.—As rights are determined under the new law, districts are created and water masters appointed, where demanded by the water users, to enforce the decrees of the board or of the court. This officer is accountable to the division superintendent, and protects not only the early rights but also all new rights and the rights of reservoir owners.

When a headgate has been lawfully closed to admit the proper quantity of water, or shut entirely, it is a misdemeanor for the owner to disturb it. If the gate has been wrongfully opened during the night, the presence of moisture in the ditch in the morning is declared to be sufficient evidence to convict the owner of unlawful use.

With such an officer available, capital will not hesitate to invest in storage works. The water, when released, can and will be protected by the water master, no matter how many ditches intervene, and the owner permitted to divert an equal amount, less that lost by seepage and evaporation.

The General Purpose.—The final object of the new water law is the protection of vested rights, when determined, and to encourage the development and use of unappropriated waters. This encouragement is provided in the definite procedure for acquirement of new rights. The fees are of no consequence to the one who contemplates putting the water to beneficial use. In fact, the certainty of right, which is essential as a basis for intelligent investment on a large scale, is worth far more than it costs. The old-time notice-man, whose chief business under the old law was to hold up the public, is effectively discouraged by these fees.

The Vineyard.

THE PLACER COUNTY GRAPE INTEREST.

To the Editor: The Roseville winery, destroyed by fire last August has, like San Francisco, risen superior to disaster, the former wooden building being replaced by a handsome structure of corrugated iron, with a storage capacity of 600,000 gallons, and a plant capable of handling 6000 tons of grapes in a season.

The fortunes of this industry go hand in hand with the prosperity of Placer county, and are indicative of Placer's steady progress in viticulture, the stockholders of the company being, for the most part, local vineyardists.

During the past year Placer county has set out 1500 acres in wine grapes, in addition to table grapes, for which the county is famous.

There is a marked improvement over earlier years in the preparation and tilling of the vineyards, and in the better varieties of vines selected, the winery causing a demand for choice varieties, such as the Petit Sirah and the Alicante Bouschet, fine, dark red grapes, used in blending.

Manager W. Hayman, who is experienced in grape selection for wines, is a careful grader, and growers are stimulated to proffer the best fruit producible by careful and intelligent cultivation. The day has gone by when all kinds of grapes, ripe and green, were tumbled into vats, more or less diversified with grasses and other foreign substances, the only grading distinction then observed being between dark and light grapes.

In the two years preceding the fire the company had wiped out a heavy indebtedness, and had already shipped about 150 carloads of wine, chiefly sherry, port, angelica, and claret.

It is notable that this quantity, with the exception of five carloads which went East, was all marketed within the State, the bulk of it in shipments to Ventura and Santa Barbara counties, where good wines are supposed to hail from. This fact

certainly speaks a volume for Placer county vintage. The production of pure light wines for home consumption should be encouraged, as conducive to temperance. France and Italy are comparatively free from alcoholic excess, and it is not wines nor light beers that "make night hideaus" in the booze towns of California.

A. J. Lloyd.

Citrus Fruits.

THE QUESTIONS GROWERS ARE ASKING.

Written for the Pacific Rural Press
By Mr. Thomas C. Wallace.

Bacteria.—At a meeting the orator of the day gave very nice descriptions of the work performed by the various bacteria of the soil which work for our benefit by converting soil matter—primarily organic matter, but as well incidentally, mineral matter—into possible plant food. He aptly termed it the microscopic "flora of the soil." Its process of work is best understood by the lay man as a system of decay by which the organized elements are liberated to re-combine in compounds which in turn can be attacked and assimilated by higher types of plant life. The system of this decay seems to be but a microscopic instantaneous reflection of the life we see about us every day. While the cycle, or length of life, of the higher types of plants is measured by weeks, months and years, the life of these minute plants we call bacteria is measured only by minutes, and even seconds. We see the body of a clover, vetch, weed or any other plant die after it has run its cycle of life, and then yield up itself as food for other plants, or food for man and beast, and if we could observe the life processes and history of the flora of the soil we would see but a moving picture of what goes on higher up. What science has done, and is doing, for us is the making of microscopic research into the habits of life of these flora of the soil, so as to find out what conditions are best suited for them to increase and multiply in the soil and render their valuable aid to agriculture.

As these problems are studied we find that our systems of cultivation, of irrigation, and of fertilization importantly influence the lives of bacteria, so that multiplication, dissemination and general activity of bacteria results or is checked by methods which destroy them. And even our investigators have found that there are species of these soil flora that work against the interests of the agriculturist, at least temporarily. They are of the class that by their life processes practically separate matter into elements which are inert and as impossible plant food as flint rock is to us.

The every-day agriculturist cannot perhaps enter fully into the research of the trained scientific investigator, nor can he be expected to fully understand the evolutions of the vast army of soil workers called bacteria. Consequently, he can but take the advice of the student when that advice is backed up by practical experiment in every-day farming. It is idle to explain the intricate life history and work of the bacteria to the farmer, but it is of immense value to him when we are able to confidently explain a proved system of culture which experiment has proved to conserve the best work of bacteria in the interests of our plants, and which suits the soil and other conditions surrounding the work of the farm.

The important point which this suggests is that the soil should be frequently and thoroughly cultivated to keep it well aerated. The object of this is to supply the aerobic bacteria (called aerobies) with air, without which they cannot thrive and do their life work. This is why a soil devoid of air is called dead, meaning that the little soil workers are smothered. But with the exclusion of air from the soil a still greater harm occurs. The anaerobic bacteria, which work in the air-exhausted soil, and are killed by air, become active, and the result of their life processes is the destruction of assimilable plant food, as they break it up into gases which escape, or into other forms that enter insoluble combinations. It is well that we are able to assure the cultivator that there is no loss incurred by thorough cultivation, but that the result is wholly beneficial. Another important point in dealing with this bacterial question is, that the microbes must have something more than mere mineral matter to live upon. They must have for food organic matter, such as is supplied by manures, cover crops and organic fertilizers, from which they form by their life processes and ultimate dissolution the basis for the assimilation of the soil mineral food.

I think growers should be warned that care be exercised in irrigating soils, as a soaking of the soil so as to drive out the air is death to the benevolent bacteria and the making of a picnic ground for the destructive microbes. I have already in these columns explained the advantage of deep furrowing for irrigation, to prevent the surface flooding of the soil, which destroys the aerobic bacteria.

At our last meeting it was emphasized that as a business matter more attention should be given to the individual trees and their peculiarities, with a view to producing the most marketable fruit. It was nicely explained that it was immaterial how good the natural fruit of the tree appeared to us if it was not marketable to the best advantage. It was brought out that there were no specific diseases of the orange tree in California, but that all the troubles were the result of conditions within the control of the grower. Growers were urged to give specific attention to every tree in their orchards, and not wait until the tree became a confirmed invalid before attempting to relieve the condition. In this way gumming could be observed in its earliest stages and stopped by removing the cause; brown rot could be surely prevented, and practically all known troubles held in check. Perhaps the most important work suggested at this meeting was that of keeping the soil clean, free and loose well up to the tree trunks. Some growers do this by running a harrow over the soil when breaking the furrows after irrigating, letting the harrow come within a few inches of the tree trunk.

Horticulture.

GREAT PRUNE ORGANIZATION PROPOSED.

The prune growers of Santa Clara county are now at work perfecting the details of an organization which is designed to lift prunes from the commercial depression where they are now resting and place them in the markets of the world, that the consumer may have them at a fair price and the grower receive a profit on his product, and, more than all, sell the prunes.

Last Saturday, April 3, a large and enthusiastic number of orchardists of Santa Clara county met at San Jose to discuss the advisability of forming an association, and the means such an organization would have in helping to move the fruit.

This meeting was called by a committee of fifty growers, who had met previously and appointed a special committee of five to present a plan of organization. On Saturday the work done by the five was presented to the meeting by Mr. A. H. Hayes of the Mercury, who read the report and then answered questions relating to the proposed organization, to the end that every grower might understand the nature of the association proposed before being asked to join.

The plant of the proposed organization is along the same lines which have proved successful for the past fifteen years by the citrus growers of the South, though at this time the committee did not think it necessary to at once take over the work of packing and selling the fruit. District organizations are to be formed and representatives from them will compose the central association. This body is to advertise the goods, creating a demand; is to make contracts with the packers to pack and sell under its direction, particularly as to price the fruit is to be sold for to the consumer.

Many growers seemed to be afraid of a combination with the packers. This proposition was nicely answered by the chairman of the meeting, H. A. DeLacy, who said they had at this time nothing to do with the packers. What was necessary first was an association of at least 75% of the growers; then a contract could be made with the packers for handling the fruit. If a satisfactory contract could not be made, then the association could pack and market the fruit itself. When the bugaboo of the packer was done away with, the meeting went forward rapidly. A vote to settle the question of an organization was taken, and practically every one of the nearly 2000 people present were in favor of the move.

As stated by the committee of five, it is hoped the following objects will be accomplished by organization of prune growers:

1. Correction of wrong methods of curing and packing.
2. Stability and uniformity of price.
3. Fixing of a reasonable price to be charged by the Eastern retailer to the consumer.
4. Judicious advertising of Santa Clara valley prunes; printing and distributing books containing recipes for preparing prunes in an attractive manner, and in other ways working to increase the consumption of prunes.

Methods to Obtain Above Objects.—1. Growers to organize legal district associations under the new State law which was especially prepared for this purpose by the orange and walnut growers' associations.

2. Organization of central growers' corporation.

a. All district associations to become members of the central corporation.

b. Growers not members of district associations to be allowed to become members of central corporation, and to have equitable representation on managing board.

Prunes to be held, either in district association's or grower's hands, as growers elect, until sold and paid for.

At present work is going on in the several districts of the county forming temporary local associations. All work is being done by volunteer growers. Mr. De Lacey, of Coyote, who has taken a very prominent part in the work so far, is making his headquarters with the San Jose Chamber of Commerce, where he is helping to direct the work of forming associations. The movement is one entirely of growers, and is being assisted by San Jose business men, and has no connection with any other organization, and seems to have been brought about by the demoralized condition of the prune market.

The growers hope to form an organization that will move the 200 or more cars of prunes now in the valley before another crop comes on—which, by the way, promises at this time to be a large one. They hope by advertising to popularize certain brands of Santa Clara prunes, and also to raise the price to the producer and lower the cost to the consumer. The present price of 2½ cents per pound for first class prunes in the sweatbox is too low, and at the same times the prices asked the Eastern consumer run from 12½ to 20 cents for inferior stock is too high, causing a light demand for the goods.

Report of Committee of Fifty.—As the chairman of the Committee of Fifty, Mr. H. A. De Lacy was in the chair, the report was submitted by Mr. J. O. Hayes, as follows:

"Ladies and Gentlemen: Your attention need not be called in detail to the present deplorable condition of the prune market. You are all familiar with it. With two unusually light crops in succession, we are now confronted with the lowest prices seen in years. Some of the light crop of 1907 was sold to the packers on a 5-cent basis. This light crop was followed by the still lighter crop in 1908—the smallest crop raised in California in years, and althougs some of the early sales of this crop were made to packers on a 4-cent basis, we have seen the price gradually decline to a 2-cent basis. If present market conditions can follow two successive light crops, such as we have had, what may be expected if the coming crop should produce a full or a large yield?

"Something must be wrong with the prune business or present conditions would not be. To find these wrong conditions and their remedy the Committee of Fifty was called together. It has thoughtfully considered existing conditions and means for correcting them, and at its last meeting unanimously agreed upon a plan that will, it is believed, bring the prune business to a stable and prosperous conditions. This plan we are about to present to you.

Cause of Trouble.—"Before a remedy can be successfully applied, the cause of the trouble to be corrected must be found. The Committee of

(Continued on Page 288.)

AGRICULTURAL REVIEW.

With the Fruit Growers.

Fruit of all varieties around Penryn, Placer county, is setting well and promises a good crop.

The apple growers of the Pajaro valley are planning an exhibit for the Earl's Court Exposition in London this summer.

The Acampo Fruit Growers' Association is a new organization with a capital of $50,000. Joseph McKindley has been elected president.

It is stated that the fig growers of the district around Winters have formed a pool to sell their 250 tons of figs at a more advantagous price.

On April 10 A. V. Steubenrauch and G. W. Hosford will give the results of last year's investigations of shipping grapes at Lodi. All grape growers are invited.

The Department of Agriculture has under consideration the establishment of a branch bureau of entomology at Suisun, Solano county, to help orchardists there to subdue the thrips.

It is stated that the cherry shipments will be fully ten days later from the Vaca valley this year than they were last. Shipments are expected to commence about the 25th of April.

The Tulare Register says that more fruit trees have been sold and planted in that district this year than ever before. While no large orchards have been set out, many small ones have and that a large part of the trees have been used to fill out orchards where vacancies existed.

California shippers of dried fruits are sending out heavy cargoes from San Francisco billed to New York, in the line of steamers of the Arthur Sewell Co., of Bath, Maine. This company have six boats of large capacity now ready to handle freight by sea to New York at a greatly reduced rate.

A largely attended meeting of fruit growers was held at Newcastle last Saturday, which was addressed by A. R. Sprague of Sacramento and Mr. Gerber, president of the Earl Fruit Co. The object of the meeting was to discuss better distribution methods in marketing fruit. Another meeting will be held soon to take steps along the lines indicated.

While in most sections of Yolo county the prospects for a large almond crop are good, yet around Woodland the crop will be spotted. The big grove of the Yolo Orchard Company is said to have a very light setting of nuts and prospects are that not over a third of a crop will be raised. Apricots in that vicinity will also be light, but peaches and prunes promise a heavy yield.

The prospects at Pomona are for an abundant deciduous fruit crop, but the prices are not likely to rule high, according to G. H. Waters of the Pomona cannery, who states that there are 1,000,000 cases of canned fruits of last year's stock now in the hands of the dealers. Thus far Mr. Waters only has 2000 cases of new crop canned fruit contracted for and he is planning a business trip East soon.

Almond Growers to Meet.

A meeting of the almond growers of the State is to be held at Del Monte, on May 7, for the purpose of forming an association. The program as announced will include market, spraying and planting. All almond growers should make an effort to attend this meeting.

Imperial Canteloupe Acreage.

Now that melon planting has been completed in the Imperial valley it is found that not over 3000 acres have been set out, which is about half what was expected. Owing to the unfavorable weather, it is stated that the acreage having good stand will not be over 2000. This is a great falling off from last year, when nearly 8000 acres was set out, and which will doubtless mean more money for the growers from the smaller acreage this year than was made last season from the larger.

Another report as to the canteloupe acreage in Imperial valley is being sent out by H. Woods of Chicago, who says the above estimate is too small. Mr. Woods has handled most of the melons raised in the valley for the last two years and is in close touch with the situation, so that his estimate of 4500 acres may be more nearly correct than the first one we print.

Big Planting of Tokay Grapes.

The Western Development Company, a Philadelphia corporation, bought last week 1000 acres of land located south of Marysville, along the line of the Northern Electric railway. The new owners announce that they will set out the entire acreage this season to Tokay grapes, which will make one of the largest table grape vineyards in the State.

Agricultural Notes.

The alfalfa acreage around Tancred, Yolo county, has been greatly extended this season. Several hundred acres have been seeded.

The Murietta Eucalyptus Company purchased 2700 acres of land in Riverside county last week, for the purpose of planting it to trees.

Several hundred Mennonites from the Middle West are expected to arrive in Kern county next week to settle on lands already selected for them there.

The new beet factory at Corcoran is to have everything in readiness to commence its first campaign by June 1. The beet crop in that vicinity promises to be a fine one.

Several hundred acres will be seeded to sugar beets around Winters this season. This will be the first year that beets have been tried in that section. The Alameda Sugar Company will handle the crop.

A big Hart Parr traction engine was received by the Chapman ranch at Winters last week and has been put to work pulling six 10-inch plows. This is equivalent to the work of sixteen mules.

A great picnic to be held near Kingsburg, Tulare county, is being arranged by the Farmers' Union for "Raisin Day," April 30. The parties in charge expect between 5000 and 6000 people to be present.

The seventeenth session of the National Irrigation Congress will be held at Spokane, Wash., from August 9 to 14. Delegates are expected from not only all parts of this, but also from many foreign countries.

The Dunlap ranch, consisting of 4000 acres in the Yucaipe valley, is to be sold. As the land carries valuable water bearing lands several companies are striving to secure it. The price is now stated to be $350,000.

Thirty-six thousand acres in one block, mostly good farm land, lying six miles south of Paso Robles in San Luis Obispo county, changed hands last week. The new owners expect to subdivide and colonize the tract.

Cabbage growers in the Imperial valley are making good money this season. Last week they received over $40 per ton, which means a return of nearly $350 per acre for the crop. Several cars per day were shipped.

The School of Traction Engineering, which is now one of the short courses of the School of Agriculture of the Uni-

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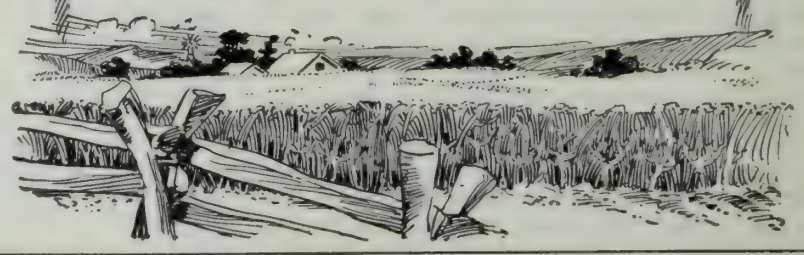
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versity of Minnesota, will be held this year at University Farm, St. Paul, for one month, commencing May 25.

News is sent out from Porterville that a new town is to be started near Alpaugh in Tulare county, to be named Solita, and is to be colonized by negroes from the Central States. Two thousand acres of land have already been secured for the new settlement.

The celery shipments from the Orange county peatlands are practically finished for the season. While the output was smaller than usual the growers had a very good market the entire season and the chances are that a larger acreage will be planted the coming fall.

A company has been formed to raise Turkish tobacco in southern California. A tract of land near Fullerton has been purchased and 25 acres will be planted this month. If the experiment proves successful a tobacco factory will be established to handle the product.

The government is preparing for the distribution of 100,000 basket willow cuttings from the experimental farm at Arlington on the Potomac river. These cuttings are sent to all parts of the country to land owners who have soil that is suitable for growing the basket willows.

Upon the application of the executors, three appraisers have been appointed by Superior Judge Ellison to make a new appraisement of the big Cone ranch in Butte county. This ranch consists of about 33,000 acres, of which 3500 are of the richest in the State, the balance being pasture lands. It is expected that the ranch will be subdivided for settlers.

Stock and Dairy Items.

The two creameries at Meridan in District 70, are now doing a fine business; they claim to be paying for milk over $500 per day.

George A. Smith's creamery at Corcoran is doing a good business. It is now turning out 1200 pounds of butter per day.

The Winters Breeders' Association met last Saturday for the annual election of directors and officers. One interesting question was the purchasing of a Kentucky jack. The following officers and directors were chosen: W. H. Robinson, president; W. Q. Baker, secretary and treasurer; H. R. Bowman, W. O. Russell, A. B. Ish.

CALIFORNIA DRIED FRUITS IN LONDON.

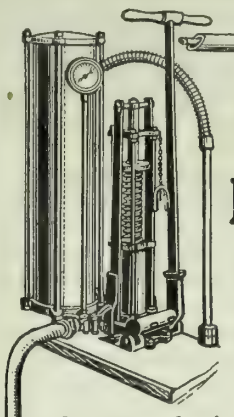
The London Telegraph gives notes on the use of our dried fruits in the great metropolis which are locally interesting:

From year's end to year's end the markets of the British Isles are well supplied with the best of foodstuffs, especially fruit and vegetables. Fresh fruits of every description are continually increasing in supply, but the fact must not be overlooked that the dried varieties play a most important part in the scheme of our national dietary. Great though the consumption of this class of food already be, there are thousands of English people who do not fully realize the value of fruit in its various forms, whether prepared or au naturel. We are now in the midst of the season when the merits of some of the best dried fruits may with advantage be considered. Now is the time when the wise housekeeper will pause and inspect the wares the grocer has to offer. Prominent among these is the ubiquitous plum. In almost every quarter of the globe where the white man is catered for there will be found the dried plum. If but one form of sweet is available in some isolated hostelry, the probabilities are in favor of its being stewed plum, or prune as it is more generally termed. The reason for this is not far to seek, as the dried plum has many qualities to recommend it. Of exceptionally good keeping qualities, well adapted for transport, universally palatable, and highly esteemed by medical men, everything points to its inevitable popularity. It is a wholesome article and forms a fitting conclusion to a meal, and is now in regular use at some of the very best restaurants.

France, California and the Balkan States are the countries of supply, and between the three there is always produced a sufficiency to satisfy the needs of consuming markets. It sometimes happens that in one of these districts the crop fails, either through late spring frosts or excessive drought in summer, but in this eventually the remaining two invariably compensate with an abundance of cheap fruit. France, as the mother of the industry, maintains the premier position in the trade, in the Eastern hemisphere at least, but in times of a comparative failure in the French crop Europe is well content to draw upon the resources of California, which has so perfected the art of growing and curing plums that her produce ranks with the French, while Bosnia and Servia provide annually important consignments of small fruit, which is retailed at lower rates than the other growths.

Other fruits well and cheaply supplied by the grocer this year are dried apricots, apples in rings, pears and peaches, all of which are retailed from 6d. to 10d. per pound. California provides the best of each of these articles, which, if soaked for 24 hours before being cooked, can be made into quite palatable dishes. It is futile, of course, to attempt to contrast the values of dried fruit and fresh fruit, as each has its separate and distinct use. In the case of evaporated apples, the point specially emphasized is that one pound of the prepared rings gives the equivalent of six times that weight of fresh fruit, and, being peeled and cored, there is an entire avoidance of waste. Another claim in favor of this form of apple is that the fruit can be kept for months without showing signs of deterioration, and is always ready for use in case of emergency. Vendors of California dired apples have gone as far as to say that for cooking purposes they are preferable to fresh fruit. Such a statement, of course, it attributable to business prejudice, and carries no more weight than the opinion of those who express a liking for cheap and inferior cigars in preference to the choice and delicate products of Havana.

Many of the perennial dishes of apricots provided by restaurateurs are prepared from the dried fruit of California, which country last year was responsible for an output of about 25,000 tons, in addition to 20,000 tons of dried peaches. Very few of the latter, however, were sent to this country, as their use is not so well understood here as in America, where the dried peach is considered to be one of the most economical of foods. The usual cost of dried peaches and apricots is about 6d. to 8d. per pound, and as the flavor is very much concentrated, a little of either preparation is very effective in producing palatable results. The soaking of both these articles should be of quite 48 hours' duration.



More Money For You

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Bean Magic Spray Pumps

Effective spraying means **High Pressure Spraying** and till the advent of the Bean Magics a high pressure could not be maintained with a hand pump for any length of time, on account of the body-racking effort needed to operate it. The Bean patent spring divides the work between the two strokes of the handle and works against only one-half the pressure shown on the gauge and saves exactly one-third the labor.

Our illustrated catalog No. 21 describes ten sizes of hand pumps, and contains much valuable spray information, and formulas. Catalog No. 22 describes Power Sprayers. Both books sent free. Write for our special offer; state number of acres and kind of fruit.

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In Strawberries we still have **Brandywine, Excelsior, Klondike, Jesse** and **A-1.** Also

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Write for special prices on Himalayas.

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POTATOES 60 cts. a bu.

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Largest growers of seed potatoes and early vegetables in the world. Big catalog free: or, send **16c** in stamps and receive catalog and 1000 kernels each of onions, carrots, celery, radishes, 1500 lettuce, rutabaga, turnips, 100 parsley, 100 tomatoes, 100 melons, 1200 charming flower seeds, in all 10,000 kernels, easily worth **$1.00** of any man's money. Or, send **20c** and we add one pkg. of Earliest Peep O'Day Sweet Corn.
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PLANTS——BULBS——TREES

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This melon is almost round in shape, dark green, mottled with darker green, rind exceedingly thin, not over a quarter of an inch in thickness, but hard. A splendid shipper. Flesh deep crimson clear through, crisp and of delicious flavor.

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Seedling Walnuts
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Blue and Red Gums
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And General Stock.

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All kinds of small fruit and berry plants.

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EUCALYPTUS Large Stock—All Varieties
Hardy and Selected Rapid Growers
Write for free illustrated booklet.
LLOYD R. TAYLOR, Modesto, Cal.

GREAT PRUNE ORGANIZATION PROPOSED.

(Continued From Page 285.)

Fifty therefore first sought to find the cause of the existing prune troubles. We finally concluded that lack of consumption was the primary cause. There are many wrong conditions that have contributed to produce this cause, and these have been fully considered. Among these may be mentioned the late financial panic, now happily past, though many of its effects are still with us; defective and improperly packed fruit, which has turned many customers away from prunes; bad methods of marketing the fruit, which have resulted in a constantly declining price that has brought loss to nearly everyone who has handled prunes, and disgusted dealers almost to the extent of causing them to refuse to handle prunes.

"All these conditions and others have been considered, and we have concluded that as growers we must deal with these conditions as business men. It is useless for us to rail at the packers, brokers, wholesalers and retailers. All these men are human, and they will act as their interests seem to them to require, without reference to what we say about them. The prunes are ours. If we have not interest enough in our product to see that it is properly handled and marketed, we need not expect others to do it for us, and we have only ourselves to blame of we find our market destroyed and our product of little value.

Must Do Two Things.—"Two things we must do if we are to make prune raising a permanently profitable business. We must have the prunes properly cured and packed for shipment, and then we must see that they are eaten. It is a comparatively easy matter to correct any wrong curing or packing conditions that may exist. The all-important thing with us, as growers, is to have our prunes eaten. If the consumer were buying and eating our prunes, all the troubles that have followed the prune from the box to the retailers' hands would disappear. The trouble with the prune market is to be found primarily in the fact that the prune has not been eaten. If the consumer were eating prunes he would be buying them from the grocer. If the grocer were selling to the consumer he would be ordering from his wholesaler. If the wholesaler were receiving orders for prunes he would buy prunes to fill his orders, and if the wholesaler were buying from the packer, the packer would be chasing the grower to buy prunes to ship to the wholesaler, and the grower and those who handle prunes would soon forget their troubles and all would make money and everyone who handled prunes would praise them instead of ridiculing them.

How to Get Prunes Eaten.—"The important question to us growers is, therefore, 'How can we get our prunes eaten?' Assuming that our prunes are properly prepared for shipment to the trade (and we must see that this is done) we must address ourselves to two things. We must see that our prunes are sold to the consumer at a reasonable price, and that the consumer is made to know the desirable quality of the prune and how to prepare it to be eaten, and that he is induced to eat it. If this can be accomplished you will all agree that our troubles as prune-growers will be over. Can we induce the consumer to buy prunes and eat them? We can. How?

"First. Dry them and pack them properly, so that they will be in attractive condition and not rotten when offered to the consumer.

"Second. Print recipe books telling the cook and housewife how to prepare the prunes in the many ways they may be prepared to make them palatable and attractive to those who are to eat them.

"In this connection also inform them of the healthful and nutritive quality of the prune.

"Third. Reduce the price to the consumer. We cannot expect the consumption of prunes to be what it should be while the retailer asks the consumer 15 cents per pound or more for prunes that cost him 5 or 6 or even 7 cents per pound.

"Fourth. Advertise to call the consumer's attention to the desirable qualities of prunes and how to cook them, and to induce them to buy and eat them. This advertising will also enable you to reduce the price of prunes to the consumer.

"To accomplish these results we need not start in to revolutionize the business of handling and marketing prunes. What is necessary is to follow the prune after it reaches the retailer and see to it that he sells it to the consumer at a reasonable price, and help him to sell it.

"To accomplish these purposes the following plan has been discussed and is submitted for the consideration of this convention:

Corporation Proposed.—"The organization of a corporation made up of growers; all growers being entitled to membership and a voice in its affairs. This corporation through its officers and agents shall investigate methods of drying, packing, etc., and inform all growers of the best methods to be pursued to put the fruit in the most perfect condition for sale to the consumer. This corporation shall also undertake an advertising campaign throughout the consuming districts in the East, this campaign being designed to inform the people how to prepare prunes in different attractive ways; to increase the consumption and to reduce the price charged by the retailer to the consumer.

Advertising Scheme.—"To indicate how this can be done the fololwing plan is suggested: An agent of the Prune Growers' Corporation goes into an Eastern city, visits the retail grocers and tells them that a campaign of advertising Santa Clara prunes, packed under a certain registered brand, is to be undertaken for that city; that books containing recipes for preparing these prunes in attractive ways will be furnished to all grocers who come into the scheme for free distribution to those who buy prunes; that the desirable qualities of these prunes will be advertised in the local papers, giving information as to where these prunes can be bought and the recipe book had, and the price at which the prunes are sold. The merchant will be told that, in view of this advertising and the increased business it will bring him, the price to the consumer is to be fixed at a reasonable percentage of profit over cost. In this way the price to the consumer can be reduced in most cities nearly or quite one-half that now charged. If any grocer objects to this reduction in price, he will be told that the name of his competitor will be inserted in the advertisement as the place at which these prunes can be bought at these lower prices, and it can be assumed that with this representation of the matter practically every grocer will be willing to sell at the reduced price. If found necessary, demonstrations can be conducted in the different stores, showing how prunes can be attractively cooked.

Consumption Increased 100%.—"It is confidently predicted that a campaign of this kind would increase the consumption of prunes more than 100%. In order to carry out this plan successfully it would be necessary to have all prunes so advertised packed under copyrighted labels or brands owned by the Prune Growers' Corporation, which would be used only by those packers who packed the prunes of



'Tis Roofed with REX and All is Well

The man who has his buildings covered by REX Flintkote ROOFING can feel that "all is well." The contents of his buildings are protected by roofs through which water cannot penetrate, that winds cannot blow off, that falling sparks cannot ignite. Furthermore, he has *lasting* protection, for

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is durable. REX ROOFING is good all through. Its body is high grade, long-fibre wool felt, heavy, dense and durable; the saturation or water-proofing is slowly worked in until the body is thoroughly impregnated with it—REX saturation will never dry out; the coating is of special rubbery, gummy compounds that unite with the body and the saturation, and present a surface that is absolutely weather-proof and fire-resisting; will not crack in cold weather nor blister, peel, scale or melt in hot weather.

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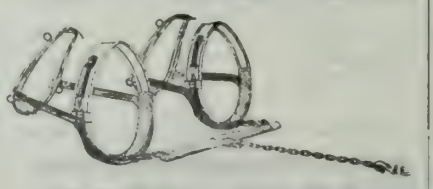
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Weight 55 lbs. Price $17.50.

A customer writes: "I have saved enough stakes already to pay for the harness." He has used it two days.

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THE H. C. SHAW CO., STOCKTON, CAL.



Kills Prairie Dogs and Gophers of all kinds. Endorsed by State Experimental Stations. 1,000 Labels prepaid for $1.50. Warranted. Rattcide Tablets 25 cents. Ask druggist or send direct. Booklet free.

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The Fresno Scraper



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FRESNO AGRICULTURAL WORKS

FRESNO CALIFORNIA.

those who are members of and under contract with the corporation, as hereinafter set forth. Every packer or large dealer would, however, be allowed to put his own name on the package, in addition to the brand of the Growers' Corporation, to show by whom the fruit was packed. Many advantages would result from the operation of this plan. Among others the following might be mentioned. The agents of the corporation should be sent through the Eastern cities early, say in the late summer, to arrange for the advertising campaign and obtain the agreement of the retail grocers to handle the brand of prunes to be advertised. They could then be told that they should place their orders with their wholesalers early, that they might have their stock on hand when the advertising commenced. These orders coming from the retailer to the wholesalers would cause the wholesalers to place their orders early, and so the prunes would commence to move into consumers' hands early, and the situation at this end would be early relieved.

GROWERS NOT LOSERS.—"This plan will require a considerable sum of money. This money need not come out of the grower. It can all be obtained from the Eastern retailer—the party who has been making from 100 to 200% on our prunes. This plan can be pursued to accomplish this result unless some better plan be devised. The growers sign a contract with the Prune Growers' Corporation, providing that in consideration of the money to be spent to advance the interest of prunes by the Growers' Corporation, they, the growers, agree that they will require the packer who buys their prunes to sign a contract containing a provision that the packer will add a certain amount per pound to the price charged the wholesaler to whom he sells, and pay over this amount to the Prune Growers' Corporation, to be used to correct curing and packing conditions here, and to press the sale and consumption of prunes in the East as herein provided.

"With contracts from 75% of the growers the packers assure us they think all the packers will be ready to sign a contract with the Prune Growers' Corporation, agreeing that they will pay over to it the money found necessary to carry on the work outlined on all Santa Clara valley prunes bought by them, whether from growers who have signed contracts with the Prune Growers' Corporation or not. The contracts with 75% of the growers would be evidence to the packers that the growers are supporters of the plan outlined, and will assure them getting prunes to handle.

SYSTEM OF INSPECTION.—"In order to prevent poorly prepared fruit from being packed under the brand that would be advertised, it would probably be necessary for some system of inspection of the fruit packed to be put in operation.

"It may be thought that this money would be taken out of the growers, and that the price he would receive would be so much less. This will not be true. The advertising compaign and the work of the Growers' Corporation to promote the sale of prunes to the consumer would both make it easier to sell prunes and bring such stability to the business that the packer, wholesaler and retailer could all well afford to contribute their effort to get this money for use of the Growers' Corporation without cost to the grower. But with the organization of the growers as planned they will be in position to demand and obtain a price that will enable this money to be obtained without cost to them. But they must show a determination to correct the wrongs that have grown up in the business and promote and push the sale of their product, or nothing can be accomplished. If we dump our prunes onto the market and let them become the ridicule and prey of every competing interest, we may expect a continuance of the unpleasant conditions of the past. But if we put the prune in the strong position among food products that it is by its merits entitled to, we can make it a popular and profitable product. We must not wait for others to do this; we must do it ourselves.

"This is only a brief outline of the plan contemplated, but it can be easily worked out in detail by the central corporation, and if the prune growers of Santa Clara valley will enter heartily into it, it is believed that it will furnish the solution of the difficulties under which they are now laboring.

"The plan may not furnish much, if any, increase in price the first year, but it will market the prune crop and help it to be consumed, and if pursued for a term of, say five years, it is believed that each succeeding year will show an increasing demand and an advancing price, and this without cost to the grower.

POOLING OF FRUIT.—"It is believed that it will greatly aid the successful carrying out of this plan if the growers will organize district associations in which they will pool their fruit and sell it together somewhat after the plan of the very successful Orange Growers' Association. They need not store their fruit together unless that is found desirable, but if they would select one of their number to sell their fruit to the packer and to represent them in the general Growers' Corporation referred to, they would greatly reduce the danger of competition in selling, and their representatives, coming together in the general Growers' Corporation, would make that corporation a smaller and less unwieldy body.

"Assume that there are in this valley 20 or 30 of these district pools or associations, representing all the prune growers, each district association could, if they were legally incorporated, contract with the general Growers' Corporation to carry out the plan proposed and the contracts required to cover the prune crop of the valley would be greatly reduced in number and the business much simplified.

"Each association would elect one member to represent it in the Central Growers' Corporation, and it would be easy for these 20 or 30 men to meet together and after fully reviewing the situation fix a price at which the crop would be sold to the packers or the trade. Under this plan every grower in the valley would obtain the same price for the same grade and quality of fruit, and the prune business could be put on such a stable basis as it has never up to the present time known.

"Of course, some growers would not join these district associations and it would be necessary to permit growers who were not members of the district associations to join and make contracts with the General Growers' Corporation that all the fruit might come under the plan to be carried out by the Growers' Corporation.

PREVENT PRICE-CUTTING.—"While the organization of these district associations would accomplish much in preventing price-cutting and the demoralization in the trade that follows, it is believed that the organization of the district associations alone would not accomplish all that needs to be done to put the prune business on a stable and profitable basis. We must correct market conditions in the East and enlarge the market for prunes. With this done, it is believed that the organization of the district associations would, by providing a means by which the growers may act together, enable them to reap the full benefit that should come to them as a result of the work of the Central Growers' Corporation.

"We desire to make it clear that this plan does not contemplate the transfer of the fruit from the grower to the Central Growers' Corporation. The grower holds his fruit until it is sold and the money paid for it.

WORK TOGETHER.—"The plan is designed to bring all the growers into closer co-operation and to enable them to work together as one man for the common welfare. It will not take from the grower his fruit before he is paid for it and subject him to the danger of having it unwisely handled, with resulting loss to him. It will not subject him to the danger of the hostile opposition of all the packers and dealers now handling his fruit. It is designed rather to enlist the hearty and enthusiastic co-operation of everyone now engaged in the business. In short, by showing that the growers are united in an effort to promote and aid the marketing and consumption of their product to bring to the conduct of the business the active and harmonious co-operation of all those engaged in all its branches, which will certainly result in enlarging the market for prunes and establishing the business upon such a permanent and profitable basis as it has never before known. The one who will reap the profit from all this labor will be the grower."

After discussion the foregoing report was, on motion of W. E. Stephens, unanimously adopted.

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YOU SAVE ONE-THIRD

You save positively **one-third** or more of the price of new pipe by ordering second-hand pipe from us. We have sold hundreds of it to hundreds of Satisfied Customers. Every piece of pipe is critically inspected, asphaltum dipped, new threads. All pipe is in merchantable lengths. New couplings used—shipped with each order.

PIPE PRICES
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Size.	Weight per ft.	Price per 100 ft.
½ inch	.84 lbs.	$ 2.50
¾ inch	1.12 lbs.	3.85
1 inch	1.67 lbs.	4.50
1¼ inch	2.24 lbs.	6.25
1½ inch	2.68 lbs.	7.25
2 inch	3.61 lbs.	10.00
2½ inch	5.74 lbs.	16.00
3 inch	7.54 lbs.	19.75
4 inch	10.66 lbs.	30.00
5 inch	14.50 lbs.	42.50
6 inch	18.76 lbs.	50.00

ALEXANDER PIPE CO.,
1083 HOWARD ST., SAN FRANCISCO.

Pear Blight

We have positively demonstrated that WE CAN CURE THIS DISEASE.

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TREE PROTECTOR
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Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES
12 in. long, $ 9.00 per 1000
14 in long, 10.00 per 1000
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Agents Wanted Everywhere.

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EUCALYPTUS
GROWN IN SUNSHINE

with roots balled while growing in flats. Saves all roots; make sure success when removed to the field and good growth the first season.
Sample lots at wholesale rates. Can take from flats and send in tight packages to save cost, risk and time.

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A WARNING TO FERTILIZER PURCHASERS.

During the past year a number of attempts have been made to induce farmers of certain sections of the State to purchase fine ground rock and sand as fertilizers. In some cases these attempts have been successful and innocent purchasers have been defrauded to the extent of their outlay.

As an aid to their operations, the exploiters of this fake have issued anoynmous circulars entitled, "What Will Fertilizing with Stone Dust Accomplish?" "Will Fertilizing with Stone Meal Pay?" If by "Stone Meal" and "Stone Dust" they mean the worthless materials they have been selling and of which this department has made analyses, we cheerfully answer these questions. Fertilizing with "Stone Dust" will accomplish nothing. Fertilizing with "Stone Meal" certainly will not pay!

In view of the above facts all fertilizer consumers are warned against the purchase of such materials. Consumers are further informed that they cannot hope to obtain reliable fertilizers unless the manufacturers are registered with this department, in accordance with the terms of the California fertilizer act. Lists of registered manufacturers are published in the Experiment Station bulletins, which may be had on application.

JOHN S. BURD.
Chemist in Charge of Fertilizer Control.
University of California, Department of Agriculture, Berkeley.

THE PRE-COOLING SYSTEM.

To the Editor: Further observation of the ice plant and pre-cooling works in course of erection at Roseville, which was mentioned in a recent RURAL PRESS, brought out more interesting facts of the new system of shipping fruit. The term "revolutionize" scarcely exaggerates when applied to pre-cooling fruit and cars for distant markets. Hitherto the picking of California fruit before complete maturity was unavoidable. There are thousands of Easterners who have never tasted a thoroughly ripened California orange and are strangers to its perfect delicacy. The effect of fruits' own internal heat causing incipient decay has eventually hurried sales at a sacrifice. Eastern shipments, although arriving in good outward shape, are often retailed at lower prices later in the year. We have known of Tokay grapes sold in Chicago in October at 25 cents for six pounds instead of ten cents a pound, which they should bring readily when in best condition. The idea of pre-cooling had been tentatively applied on a small scale, with results so satisfactory that the Fruit Exchange is erecting two great plants, one at Colton in San Bernardino county, and this one at Roseville.

The building is of reinforced concrete and the plant is already turning out 250 tons of ice daily. The maximum daily requirement of the Fruit Exchange will scarcely exceed 500 tons, which this plant hopes to be able to supply when complete. Two immense storage rooms now nearly ready will have a capacity of 20,000 tons of ice.

An inspection of the process is highly interesting. It is the effect of the expansion of liquid ammonia into its gaseous state that produces the ice by rapid extraction of heat. When expanded, the gas is forced back again into liquid, and so the process continues with very slight diminution of material. Blocks of ice of 300 pounds each are raised by air elevators, drop automatically into shoots, are then sawed up and travel along a platform to the cars, there being no handling of the ice from start to finish. Everything is kept scrupulously clean to insure purity. Steam is the motive power for the machinery, which is compound, and elevators and platform are worked by air pressure. The electricity used for power and lighting is generated within the building.

There is an effective system of fire protection, although little woodwork is in evidence and there is nothing suggestive of inflammability. Thousands of tons of ice, pipes encrusted white with sparkling frost, steaming caldrons, the dripping of condensing steam, and the weird whir of massive machinery rather reminds one of the world pictured by Flammarion, when the Sun shall have completed his heating and lighting contract.

This pre-cooling is certain to bring our fruit to the East in better condition, and still further enhance its reputation with consumers. Easterners will have upon their tables fruit with a flavor hitherto known only in California groves and orchards.

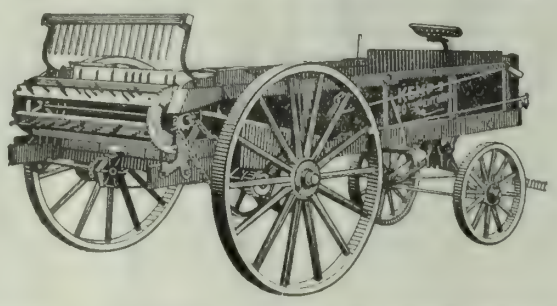
The ice-making portion of the Roseville plant is about complete. The pre-cooling buildings attached are being rapidly pushed to be ready for the coming season.

Cars thoroughly pre-cooled could be sent to many points for loading and shipment, so that these two great plants at Roseville in the north and Colton in the south are far reaching.

A third plant of less extent has been established at Las Vegas in Nevada.

ALLEN J. LLOYD.

MAKE THE MOST OUT OF THE BARNYARD MANURE



THERE is no better fertilizer in the world than stable and barnyard manure, the right use of which will keep up the fertility of your soil.

Right here lies the great usefulness of the manure spreader. It makes the manure go farther, decreases the labor of spreading, and greatly increases the value of the manure. If you are spreading manure by hand, you do not in reality get more than one-half of its value. Spreading it with an I. H. C. manure spreader will give you the other half.

If you have on your farm as much manure as there is on the average farm, say $100.00 worth a year, you can make it worth an additional $100.00 by spreading it with a—

"Kemp's 20th Century," return apron spreader,
"Corn King," return apron spreader, or a
"Cloverleaf," endless apron spreader.

An I. H. C. manure spreader makes the manure go farther because there is no waste. The manure is spread evenly and before it deteriorates in value. It is not dried out, leached out or washed away as it is when thrown out in piles on the ground, and afterwards spread by hand.

The manure is pulverized and made fine when it is spread. The spreader puts it into a form so that it is available for plant food. It leaves the spreader beater in so fine a condition that the first rain washes every particle into the soil and the plant roots get the benefit. The effects of applying manure to the land in this condition are immediate and there is a greatly enlarged producing capacity given to the soil

The I. H. C. manure spreaders not only make the manure fine, but they spread it evenly—far more evenly than you can do by hand.

And they reduce labor. The largest load of manure can be spread inside of five minutes, covering the ground just as thickly or thinly as may be desired.

There is no way that you can get so much value out of the manure for your land as by spreading it with one of these machines. As the I. H. C. spreader doubles the value of the manure, it repays its cost the first year and each succeeding year. I. H. C. spreaders are very substantially constructed. The main frames of these machines are made of heavy, thoroughly seasoned lumber, and the cross sills and side sills are joined in the most durable manner. The wheels on these machines supply abundant power in all conditions of spreading. The beaters are made of strong wood cross bars provided with long steel teeth so arranged that manure in all conditions is correctly spread. The aprons are made of wood slats that are attached to chains that have been thoroughly tested before they leave the factories. These machines are convenient to operate, light in draft, and do excellent work in spreading all kinds of manure.

The International local agent in your town will supply you with catalog and give you all particulars on the I. H. C. spreader he sells. Take the matter up with him or write to nearest branch house.

WESTERN BRANCH HOUSES: Denver, Colo.; Helena, Mont.; Portland, Ore.; Salt Lake City, Utah; Spokane, Wash.; San Francisco, Cal.

INTERNATIONAL HARVESTER COMPANY OF AMERICA, Chicago, U. S. A.
(Incorporated)

DON'T BUY GASOLINE ENGINES

UNTIL YOU INVESTIGATE "THE MASTER WORKMAN," a two-cylinder gasoline, kerosene or alcohol engine, superior to any one-cylinder engine; revolutionizing power. Its weight and bulk are half that of single cylinder engines, with greater durability. Costs Less to Buy—Less to Run. Quickly, easily started. Vibration practically overcome. Cheaply mounted on any wagon. It is a combination portable, stationary or traction engine. SEND FOR CATALOGUE. **THE TEMPLE PUMP CO., Mfrs., Meagher and 15th Sts., Chicago.** THIS IS OUR FIFTY-SIXTH YEAR.

SQUIER'S WEED KILLER

For exterminating all obnoxious vegetation everywhere.
For exterminating all vegetation upon roads, paths, etc.
Very economical to use.
Absolutely best made.
Send for circulars giving prices and testimonials from the largest users in the world.

F. HARRISON MFG. C., Rahway, N. J.

CALIFORNIA IMPROVED FARMS

ICKES-LANE-NEFF CO.

COLUMBUS, OHIO. **WOODLAND, CAL.**

Are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. They offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley, on which they agree to build and complete, according to plans submitted, a house of 6 rooms and a barn and shed of proper size, to irrigate and fence the farm, and plow, harrow and sow 40 acres to alfalfa. They also plant a mixed orchard of 500 trees and vines best suited to the soil, 500 eucalyptus trees, and furnish the purchaser 2 horses, 2 cows, 10 hogs, 25 chickens, a suitable farm wagon, plow, harrow, mower, hay-rake and double set of harness. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land itself.

Of the 22 farms, about one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.

THE NEW SPRAY

"SPRA-MULSION" (pronounced Spray Emulsion) is the name of it. It cleans your trees or other plants of **all** scales, such as San Jose, Black, Red, Brown Apricot, Purple and Cottony Cushion. It is the only spray to use for Aphis (Plant Lice) of all kinds on the Apple, Plum, Prune, Cherry and other trees, the Cabbage, Pea, Bean, Hop; also for Red Spider, Cankerworm, Caterpillars and other soft bodied insects that suck the sap and life out of trees and plants.

"SPRA-MULSION" is exactly suited for these plant diseases, whether on trees of any kind or on Berry Bushes, Vegetables, Nursery Stock, Hot House Plants, Garden Plants, Ornamental Trees, etc. There are some diseases for which "SPRA-MULSION" is not good, but it is perfect for these diseases named above.

"SPRA-MULSION" contains dissolved petroleum oils, it mixes with water and gives a perfect permanent milk-white emulsion which requires no stirirng at all while spraying. It keeps forever. It is a pleasure to spray with it. It does all that Lime and Sulphur does, and more too; is cheaper, and injures nothing nor nobody. It is sold in 50 gal. barrels, in 10 gal. cases, gallon cans, and quart cans. For spring and summer use it is diluted to 1 to 30, 40, 50 or 60.

R. R. ROGERS CHEMICAL CO., 529 Commercial St., San Francisco, Cal.

We want a representative in each county. Can you spare some time to make some money on the side.

Live Stock and Dairy.

GUERNSEY CATTLE.

Written for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

In reply to the request of a Santa Cruz county subscriber for information regarding these cattle we give the following account of their origination, improvement and leading characteristics.

Guernsey cattle derive their name from their native home in the island of Guernsey, one of the Channel island group, off the northwest coast of France. Like the Jersey, they are supposed to be descended from the cattle of Brittany and Normandy, but more particularly from Normandy. Being carefully protected from the infusion of blood from foreign sources they have become of a distinct type and their markings and color have necessarily assumed uniformity. For a great many years the importation of cattle into Guernsey from any quarter except for purposes of slaughter has been strictly prohibited.

As the climate of the island of Guernsey is more rigorous than that of Jersey, more hardihood in development has been sought. The island of Guernsey is only ten miles in length and contains only 16,000 acres of land and rocky surfaces. To California ranchers this is only an averaged sized ranch. The growing of cattle and dairy products is the chief industry of the farmers. While the total number of cattle on the island is less than 6000 head, many animals are exported each year.

The Guernsey cattle are exceedingly docile, due to the fact that they are tethered, or, as we would say, "staked" in the fields during the summer and are fed in the winter, with hay, roots, meal and bran. The improvement of the Guernseys has been the outcome of more than a century of careful endeavor and breeding in their island home, and has resulted in increased size, earlier maturity and a more fully developed lacteal system. The animals have been selected and bred with a view to utility rather than beauty, and for a maximum butter production of a high quality, which readily explains the relatively plain appearance of Guernseys, as well as the rich orange color of the skin and the superlative golden coloring of the milk and butter.

Guernseys have been exported for many years to various countries, but chiefly to England and the United States. In England they stand in high favor in several of the southern counties. They have been numerously imported into the United States in the last two or three decades. In Guernsey, United States and other countries, associations have been formed to protect their interests. Two herd records have been established in Guernsey, one on the principle of selection and the other admitting all Guernseys on the island to registration. In this country the American Guernsey Cattle Club was organized in 1897, and now offers prizes from time to time to the largest producing cows, to encourage the breeders to keep private records and to aim for greater production. This association is now registering cattle from some twenty-eight States and from nearly ever province in Canada. The larger proportion of Guernseys are to be found in New England, New York, Pennsylvania, New Jersey and Wisconsin, and in the Southern States in less numbers.

Registration in the United States is handled by the Guernsey herd register, first published in 1878 and published quarterly since 1895 under the name of the Guernsey Herd Register and Breeders' Journal, with a total number of 18,053 animals, of which 6123 are bulls and 11,921 are cows.

So much for their origin and history. Their leading characteristics are worthy of notice. While there is great resemblance between the characteristics of Guernseys and Jerseys, they have never become so generally popular in this country, probably due to their greater plainness in form, but particularly because of the lack of effort to place them before the public. They are better adapted to temperate and mild climates than those that are rigorous, although good herds have done well in the climate of Quebec.

They are not well adapted to areas where thin pastures and hilly lands are common, because of ancestral inheritance. For the average farm where milk is wanted for the creamery or the private dairy and an attractive and high-class butter is an important consideration they are best adapted. For instance, the large dairy can very well add a limited number of Guernseys, as they will add to the marketable quality of the butter by the rich color imparted.

In size the Guernseys are about equal to the Ayrshires in size of frame, but slightly lighter in average weight.

The average milking qualities of the Guernseys are good, as they have deep and prolonged milking qualities, and the relative cost of production is low. The milk is fully equal to that of the Jerseys in butter fat, is even richer in color and the average yield per cow is greater.

It is well adapted for cheese making, but rather better for butter making. The naturally rich color of the butter is unexcelled and when mixed with that from certain other dairy breeds improves proportionately the color of the butter. In maturing qualities they are only average, probably being a little behind the Jerseys in this respect, usually coming into milk at something over two years of age. They are not by inheritance adapted to anything but productive grazing, and where the feed is easy of access, and, like the Holsteins and Jerseys, have special qualifications for the combined system of grazing and soiling. The offspring of the Guernsey grows to a larger size than the Jersey and are more favorable for meat production, but should be fattened for the block considerably prior to maturity to obtain the greatest profit. Discarded cows from the dairy have some qualifications for meat production.

For crossing and grading on cows of mixed breeding to produce milkers of fair size and hardiness that give a fair quantity of high-class milk for butter making, they are especially valuable. Their breeding qualities are about average, although like other breeds, they improve or decrease according to whether they receive good or poor management in breeding, feeding, etc.

They have no pronounced weak points, not being delicate, yet not as rugged as some other breeds. Guernseys are considerably ahead of the Holstein in average richness of milk, and slightly ahead in easy keeping qualities. They are better adapted for crossing and grading where improvement in the character of the milk and butter product are both desired. In weight or quantity of milk produced they are not equal to the Holstein, but in other essential characteristics they are about equal. In size and form the Guernseys, as has been stated, are considerably smaller and are more prominent in the angular points than the Holstein. They are not so long in the head, are less incurved at the horn, less straight in the back and at the rear, shorter, lighter and not so square relatively in the hindquarter and thinner and more uncurved at the thigh. They are thinner, higher colored in the skin

Squelching One of The Users of Abandoned DE LAVAL Cream Separator Inventions

Our attention is called to the recent advertisement of the Vermont Farm Machine Co., makers of the so-called "U. S." cream separators, which bristles with assertions likely to convey a false impression to those who may have read it.

They refer to the Houston & Thomson patent in a way to imply that DR. DE LAVAL was not the inventor of THE FIRST PRACTICAL CONTINUOUS FLOW CENTRIFUGAL CREAM SEPARATOR, when they know that the Houston & Thomson patent as well as the De Laval patent BOTH belonged to the DE LAVAL Company, that a usable machine was never built according to the Houston & Thomson patent, and that they themselves helped other infringers sued by the DE LAVAL Company to have the courts decide that the Houston & Thomson patent DID NOT show a continuous separator, even in a technical patent sense, let alone a machine capable of practical use.

They say "No discarded or abandoned inventions are used in the United States separators," when they know that since DE LAVAL separators forced them to abandon their antiquated gravity creamers and take up cream separators they have twice escaped the penalty of infringement suits brought against them by the DE LAVAL Company by narrow legal technicalities alone, such as a patent being taken out by two men together, one of whom had added to the inventive work of the other, when the American law, different from that of European countries, requires two separate patents being taken out in such circumstances.

And furthermore they know that their so-called "1909 MODEL" machines utilize merely the curved vertical "blade" bowl construction of the NOW EXPIRED NINETEEN (19) YEARS OLD DE LAVAL PATENT NO. 432,719, ISSUED JULY 12, 1890, which "blade" type of bowl construction, while DE LAVAL owned, was NEVER GOOD ENOUGH for DE LAVAL use,—and that any child can see the "new" U. S. utilization of it now by reference to a copy of the patent, obtainable from the Commissioner of Patents, Washington, D. C.

They hark back again to a skimmilk "record" claimed to have been made at the Buffalo Exposition in 1901, which has been exploded so often that it's threadbare and at most is a pretty ancient basis to seek patronage upon in this progressive age in the year 1909.

They reprint a "testimonial" letter from a man who has long been THEIR OWN AGENT, posing as the "president" of a little creamery near Poughkeepsie, N. Y., which letter they have been simply changing the date of and varying a little from year to year for ten years.

While most of this letter is untrue, it is true that this agent of theirs did sell a few "U. S." machines to patrons ten years ago, but they were sold at half-price, or less, as a sort of "stage-play," because of the nearness to the De Laval Works, to farmers who were led to believe they were getting "bargains" at the price, some of whom have never used the machines, while others have long ago abandoned their use or traded them in at "scrap" values for DE LAVAL machines.

In this connection it may be remarked that in 1908 the DE LAVAL agents made competitive "trade allowances" for more abandoned "U. S." separators to be thrown into the scrap pile than for any other make of separator, even of the trashy "mail order" kinds, which bears out the judgment of the agents NOW advertising "U. S." separators at "mail order" prices—manifestly putting them in their right class.

We should not devote this much space to the "U. S." machine —which we consider a "dead duck" competitively—but for the fact that this kind of advertising by their makers is more or less typical of that of would-be competitors generally in their desperate effort to keep all 1909 business from going to the Improved DE LAVAL machines.

DE LAVAL DAIRY SUPPLY CO.

108 So LOS ANGELES ST.
LOS ANGELES
42 E. MADISON STREET
CHICAGO
165-167 BROADWAY
NEW YORK

General Offices:
101 DRUMM STREET,
SAN FRANCISCO

107 FIRST STREET
PORTLAND, ORE.
1016 WESTERN AVE.
SEATTLE
BOX 1052
VANCOUVER, B. C.

and differences in color markings from the Holsteins. The color is usually of some shade of fawn, with white markings, but this is considered subordinate to the color of the skin, which should be of a rich orange tinge. The American Guernsey Cattle Club have adopted a very elaborate scale of points covering the judging of Guernsey cattle and the desired qualities.

In general appearance the Guernsey has that plain attractiveness and evenness of balance in dairy development which conveys the idea of capacity for everyday work and her mild look indicates a quiet and contented disposition.

Berkeley.

THOSE COLORADO STOCK PEAS.

Our readers have had several full accounts of the pea-fed sheep which are largely grown in one or two Colorado valleys. Something more about the kind of pea is given in the Denver Field and Farm, and it appears that the growers have their troubles, just as do other farmers. The San Luis valley farmers find themselves short of pea seed for the spring planting, and it may be difficult to secure enough of the right sort to go around. The Mexican field pea is the variety usually grown, but the seed that has become acclimated has the fault of remaining green so late in the season that the fall frosts nip the vines before the peas are ripe, and this curtails the supply of seed. These peas are gray, green and white in color, and have been grown there ever since they were introduced in the early fifties by the late Lafayette Head of Conejos county. In every lot of seed there is generally a considerable per cent of small gray peas, which produce poorly podded vines with few peas in a pod. The yield can be considerably increased by screening them out before seeding. Several new varieties give promise of larger yields than the Mexican, and one of these is the Colorado Golden. From 35 to 60 pounds of seed are sown to the acre. Many growers plow and thoroughly prepare the ground for the previous crop, seeding the peas on unplowed ground with a grain drill, stopping every other hole and setting the drill to seed three to four inches deep. This is done to stunt the vines and force the plants to produce large yields of peas. When the ground is plowed the plowing should be shallow and the peas seeded to rest on hard ground. The largest yields of peas come from either February or early March seeding. April or May seeding usually results in a poor crop and often in total failure. Some experienced growers believe that profitable crops of field peas may be grown at an altitude as low as 5000 feet if seeded early in February. At such a low altitude the pods must form and the peas set before there are hot days.

PACIFIC BUTTER CONTRACT.

The contract for 270,000 pounds of butter for the annual supply of the naval vessels on the Pacific Coast has been awarded to the Central Creamery Co. of Eureka, at an average price of 30 cents. It will be placed in cold storage for issue as required. The bids for 500,000 pounds on the Atlantic Coast were unsatisfactory, and new bids on the modified proposals will be opened April 11.

THE PRESIDENT A CATTLEMAN.

President Taft, who is supposed to be a stockholder in the Coleman-Fulton Co. of Texas, is interested in the sale of 50 high-grade bulls and a number of cows to the Vera Cruz Cattle Co. of Mexico City. All the cattle came from the Taft herd at Gregory, Texas. It is reported that a record-breaking price was obtained.

TWO NEW CLOVERS IN HUMBOLDT COUNTY.

Written for the PACIFIC RURAL PRESS by ALBERT F. ETTER, Briceland, Cal.

Trifolium Shaptal, serial Nos. 3229 and 3230. This clover is an annual species from India; or, speaking more accurately, it is an annual, but under certain favoring conditions, with abundant moisture and absence of frost, it becomes something akin to a perennial. I believe Mr. Brand told me it was such in Imperial valley.

Like most clovers, the seed is a quick germinator. The young seedlings endure the frosts of winter here, but do not grow much until the warm days of spring arrive. When sown in the spring it develops rapidly and attains a height of about three feet. I believe, though, that under more favorable conditions it would grow somewhat taller, for it is a rank sort of a grower. The size of the stem would astonish one by their apparent coarseness, but they are nevertheless tender and succulent like a peavine, even though they be nearly half an inch in diameter.

The blossoms are numerous and of a light pink color. The head in blossom is somewhat less than half an inch in diameter, and is followed by a peculiar puffed up seed head. The seeds are numerous, and being enclosed in this sort of a windbag receptacle, it does not shatter in the field or in harvesting, even when quite dry. Yet when dry it is easily threshed out and thoroughly cleaned by running it through a fanning mill.

In this Shaftal clover I believe we have a promising clover for California. The plant is very nutritious if desired for feeding, and the texture of the plant should make it desirable for a green manure plant, but what is of more importance still is: would it make its growth early enough in the season for orchard purposes? On farming lands where it could be left to make a more mature growth it might be valuable. If it will thrive well, the ease with which the seed could be grown and harvested would make it a popular plant.

TRIFOLIUM SUBTERRANEUM.—This is a good winter grower; better in this respect I think than several of our native annual clovers. In general growth it somewhat resembles white clover, but it is an annual species. The blossoms are a dirty white and inconspicuous. There are but four florets on a head. As soon as they have blossomed they turn down and bury themselves in the earth, whence comes the name subterraneum. The seeds are quite large for clover seeds, and are planted at just the right depth to germinate well. Indeed it is a beautiful idea, well worked out by the mother plant. If the seed was to be harvested on an extensive scale we would be likely to need some novel combination of a harvesting machine—a sort of a hybrid between a garden rake and a mowing machine.

FOR SALE

Registered Polled Angus Bulls, all ages. My herd is headed by the Imported bull Inkerman of Cullen, No. 62268, assisted by the Blackbird bull Brechin, No. 64119. Both are splendid types of the breed. My cows comprise the Queen Mother, Princess, and Heroine families. Look up the record of this breed at the International Exhibition at Chicago, where all breeds compete. Here they have topped the beef breeds for fifteen successive years. Prices reasonable and correspondence solicited.

ABERLOUR, Bishop, Calif.
A. W. LONGLEY, Prop.

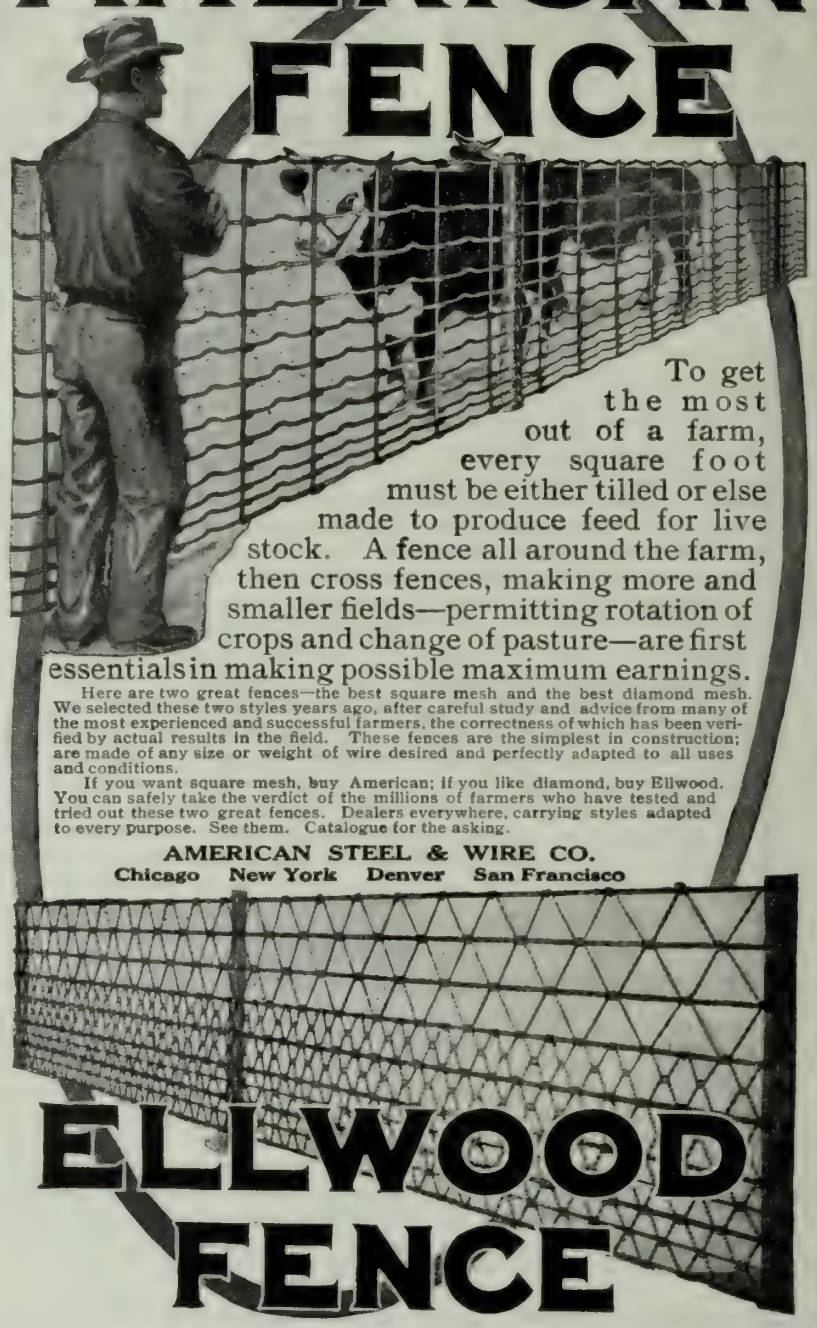
FOR SALE

FOUR THOROUGHBRED AYRSHIRE BULLS, Aged 12 to 20 Months.

If you don't want tuberculosis, breed the Ayrshires.

J. W. & J. D. McCORD,
Phone Red 128. Hanford, Cal.

AMERICAN FENCE



To get the most out of a farm, every square foot must be either tilled or else made to produce feed for live stock. A fence all around the farm, then cross fences, making more and smaller fields—permitting rotation of crops and change of pasture—are first essentials in making possible maximum earnings.

Here are two great fences—the best square mesh and the best diamond mesh. We selected these two styles years ago, after careful study and advice from many of the most experienced and successful farmers, the correctness of which has been verified by actual results in the field. These fences are the simplest in construction; are made of any size or weight of wire desired and perfectly adapted to all uses and conditions.

If you want square mesh, buy American; if you like diamond, buy Ellwood. You can safely take the verdict of the millions of farmers who have tested and tried out these two great fences. Dealers everywhere, carrying styles adapted to every purpose. See them. Catalogue for the asking.

AMERICAN STEEL & WIRE CO.
Chicago New York Denver San Francisco

ELLWOOD FENCE

REX

LIME AND SULPHUR SOLUTION FOR DIPPING SHEEP AND CATTLE

This famous preparation has now been used over a decade in the United States for dipping sheep, cattle, and hogs. It bears the endorsement of the Bureau of Animal Industry at Washington, D. C. It will not discolor the wool; will not injure the eyes of the sheep; positively prevents scab, and does not in any way set back the stock when dipped.

Ask your nearest dealer or write for particulars to:

CALIFORNIA REX SPRAY COMPANY
Benicia, Cal.

COMPARE PRICES AND RESULTS

Analysis (from Bulletin 164, Jan. 1905—University of California.)

DIGESTIBLE PROTEIN IN

Linseed Oil Cake Meal	24.4	per cent	Shorts	12.2	per cent
Cocoa Cake or Meal	16.4	"	Mixed Feed	9.6	"
Wheat Middlings	12.2	"	Corn Meal	6.4	"
Wheat Bran	11.2	"	Wheat Hay	3.6	"

If you feed for Protein you get Results.
Ask your jobber for prices or write

PACIFIC OIL & LEAD WORKS, - - - SAN FRANCISCO, CAL.
PORTLAND LINSEED OIL WORKS, - - - PORTLAND, ORE.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

H-H-H LINIMENT

A SAFE-GUARD IN YOUR HOUSEHOLD

FOR SORE THROAT, RHEUMATISM, ACHES, PAINS, SPRAINS, POISONOUS BITES, SWELLINGS, NEURALGIA, CUTS, OLD SORES, LAMENESS, STIFF JOINTS & MUSCLES, ETC.

H.H.H. Horse Medicine

THE STOCKMAN'S STANDBY

FOR TREATMENT & CURE OF THE MANY AFFLICTIONS OF HORSES AND OTHER DOMESTIC ANIMALS

MORE THAN 40 YEARS OF TEST HAS PROVEN IT BEST.

50¢ & $1 Bottles - Sold Everywhere

IT DOES THE WORK

H.H. Moore & Sons, Mfrs. and Proprietors, Stockton, Cal.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg

THE CUTTER LABORATORY

Temporary Address
Grayson and Sixth Streets, BERKELEY, CAL.
West of San Pablo Ave.

Pure Bred Holsteins

At present we are offering a fine lot of **Young Bulls and Heifers** at very attractive prices. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co. now owned by the

OAKWOOD STOCK FARM
LATHROP, CAL.

FOR SALE.

BRUTUS NO. 12007

Registered in the National French Draft Horse Association, Fairfield, Ill. Weight 1800, color black, active and good foal getter. Address

P. O. BOX 0, VACAVILLE, CAL.

WHAT HOLSTEIN COWS ARE DOING.

The official Records of Holstein-Friesian cows from February 9th to March 4th, 1909, show that records for 151 cows were accepted of which one was extended to 12 days, thirteen to 14 days, two to 15 days, one to 21 days, and sixteen to 30 days. The averages by ages or classes were as follows:

Forty full aged cows averaged: age, 6 years, 9 months, 16 days; days from calving, 22; milk, 480.8 lbs.; per cent fat, 342; fat, 16.466 lbs. Four senior four-year-olds averaged: age, 4 years, 8 months, 12 days; days from calving, 24; milk, 443.1 lbs.; per cent fat, 3.40; fat, 15.066 lbs. Eleven junior four-year-olds averaged: age, 4 years, 2 months, 19 days; days from calving, 29; milk, 444.6 lbs.; per cent fat, 3.43; fat, 15.243 lbs. Thirteen senior three-year-olds averaged: age, 3 years, 9 months, 3 days; days from calving, 24; milk, 445.2 lbs.; per cent fat, 3.43; fat, 15.278 lbs. Thirteen junior three-year-olds averaged: age, three years, 2 months, 23 days; days from calving, 26; milk, 389.7 lbs.; per cent fat, 3.50; fat, 13.629 lbs. Twenty-nine senior two-year-olds averaged: age, 2 years, 9 months, 10 days; days from calving, 33; milk, 341.5 lbs.; per cent fat, 3.41; fat, 11.634 lbs. Forty-one junior two-year-olds averaged: age, 2 years, 1 month, 9 days; days from calving, 25; milk, 297.3 lbs.; per cent fat, 3.50; fat, 10.404 lbs.

This herd of 151 animals, of which nearly 60 per cent were heifers with first or second calves, produced in seven consecutive days 58,844.4 lbs. of milk containing 2,026.306 lbs. of butter-fat; thus showing an average of 3.44 per cent fat. The average production of each animal was 389.7 lbs. of milk containing 13.419 lbs. of butter-fat; equivalent to 55.7 lbs. or nearly 27 quarts of milk per day, and 15⅔ lbs. of the best commercial butter per week. This is a very large average production for so young a herd; being the largest, considering the age, ever yet reported.

In this issue of the official records, the aged cow class and whole list is headed by Bertha DeKol Boon, 22.454 lbs. fat 550.2 lbs. milk in 7 days, 89.78 lbs. fat from 2,520.8 lbs. milk in 30 days, while Kuperus Pietertje De Kol, 21.946 lbs. fat from 548.9 lbs. milk, gains a place in the 21-lb. list. The 20-lb. list is increased by Queen Cantrilla 3rd, 20.377 lbs. fat from 516.6 lbs. milk in seven days, 81.66 lbs. fat from 2,198.9 lbs. milk in 30 days, and Castine Lulu, 20.272 lbs. fat from 556.5 lbs. milk in aeven days, 81.403 lbs. fat from 2,412.3 lbs. milk in 30 days. In the 19-lb. list come Netherland Johanna Rue 2nd, 19.964 lbs. of fat from 546.6 lbs. milk in 7 days, 82.825 lbs. fat from 2,396.4 lbs. milk in 30 days; Clothilde Copia DeKol, 19.662 lbs. fat from 521.4 lbs. milk; and Koroba Piertertje, 19.353 lbs. fat from 565.5 lbs. milk. Klara DeKol Butter Girl, Lady Hijlaard Hengerveld DeKol, Little Fay, and Lady Ormsby Hengerveld Dean produce in excess of 18 lbs. fat and gain honorable mention.

The best among the senior four-year-olds is Hazelet DeKol Pauline 2nd, 17.549 lbs. fat from 472.1 lbs. milk in 7 days, 71.783 lbs fat from 1,938.2 lbs. milk in 30 days; and Pontiac Netherland Hengerveld, 15.393 lbs. fat from 444.4 lbs. milk stands second. The junior four-year-olds have at their head Heegstra Pietertje Johanna 2nd, 17.371 lbs. fat from 605 lbs. milk; with Black Diamond Pledge 16.959 lbs. fat from 478.5 lbs. milk in 7 days, 67.824 lbs. fat from 1,821.3 lbs. milk in 30 days, holding second place.

The senior three-year olds show finely; Lady Princess Beets, 20.446 lbs. fat from 513.9 lbs. milk in 7 days, 80.002 lbs. fat from 2,235.1 lbs. milk in 30 days, being far in the lead. Karel Bos Meibloem, 16.939 lbs. fat from 478.5 lbs. milk, and Polly Aaggie Queen, 16.563 lbs. fat from 481.7 lbs. milk follow, and are very closely together. The junior three-year class also shows up well as an average; its leaders being Princess Cornucopia Pietertje, 16.575 lbs. fat from 429.8 lbs. milk, and Bloomingdale Hengerveld Meta, 16.558 lbs. fat from 423.2 lbs. milk. The two leaders of the senior two-year-olds make fine records. They are Jamaica Veeman Cornucopia, 17.301 lbs. fat from 475.4 lbs. milk, and Pauline Jamaica DeKol 3rd, with 16.030 lbs. fat from 486.2 lbs. milk.

Nine heifers have places in the list of honor among the junior two-year-olds, and for so young an average the whole list shows strong. At the head is Pontiac Keka, 14.797 lbs. fat from 367.1 lbs. milk; followed by four heifers in the 13-lb. list, and four in the 12-lb. In the 13-lb. list are Bloomingdale Hengerveld Jewel, 13.976 lbs. fat from 376.9 lbs. milk; Jamaica Cornucopia Bess, 13.665 lbs. fat from 381.6 lbs. milk, Netherland Johanna Rue 7th, 13.571 lbs. fat from 343.9 lbs. milk in 7 days, 53.861 lbs. fat from 1,534 lbs. milk in 30 days; and Aaltje Salo Colantha Mercedes, 13.243 lbs. fat from 355 lbs. milk. Those producing above 12 lbs. fat and so gaining honorable mention are Schroeder Johanna, Netherland Johanna Mercedes, Pansje Coruncopia Maid, and Highland Lady Beets.

A LARGE CATTLE RANCH.

A wire fence enclosing 10,500 acres of cattle range in the western part of Tehama county has just been completed, making the largest enclosed tract of grazing land in that part of the State. This land was formerly a sheep range, but it is now to be devoted to raising cattle and horses. The fencing was commenced two years ago. The land was formerly known as the Blossom sheep range, extending from Reed's creek to the south fork of Cottonwood creek.

DR. KEANE IS REAPPOINTED STATE VETERINARIAN.

Dr. Charles Keane of San Francisco has been appointed to the newly created job of State Veterinarian by Governor Gillett, under the new law by the last legislature. His salary is $3600 a year. W. D. Morrison was made assistant, at a salary of $3000.

HORSES AND CATTLE.

JOHN LYNCH, breeder of Registered Short horns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321. Petaluma, Cal.

BULLS AND COWS FOR SALE—Shorthorned Durhams. Address E. S. Driver, Antelope, Cal.

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CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

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BERKSHIRE AND POLAND-CHINA HOGS C. A. STOWE, Stockton, Cal.

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R. H. CRANE, Santa Rosa, Cal. Breeder and Importer of South Down Sheep.



Harness leather becomes hard, brittle, unsafe, when the pores in the leather are open to wind and moisture. An application of

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fills the pores, seals them against these hardening, rotting agencies and keeps the harness a beautiful black, soft, elastic, and tough. Eureka Harness Oil does wonders for a harness. Ask your dealer.

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Importer and Breeder of

Red Polled Cattle

Color Deep Red. Both Sexes for Sale.

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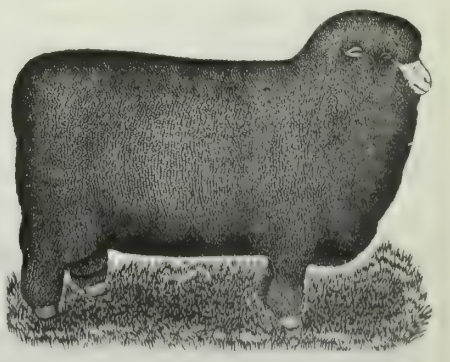
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They were all imported from England or bred direct from imported stock.

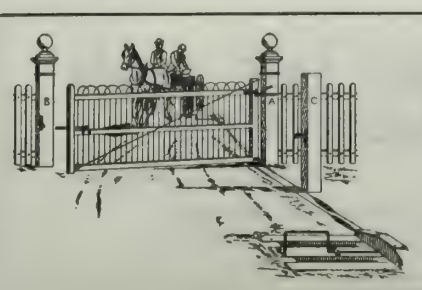


We have also bred American Merinos—Hornless Sheep—for 30 years. They are a large sheep without wrinkles. Rams will produce 20 to 25 pounds of long, white wool yearly. Sheep of both sexes for sale.



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It adds to the beauty, value, convenience and safety of any home.

A. J. BLOOM
Petaluma, Cal.

STEERS FROM MILKING SHORTHORNS.

For the purpose of those who still adhere to the dual purpose cattle we choose a paragraph from the London Farm and Home: The earnest endeavors of certain breeders to cultivate the milking properties of their Short-horn herds are meeting with gratifying success, and appear to be fully appreciated by those dairy farmers who have long found much difficulty in finding bulls whose breeding would render them reliable sires for the special purpose of milk production. There is already a large and growing demand for these young bulls, which have been bred for two or three generations, on both sides, from deep milking strains. Some doubt has been expressed, however, as to whether or not this cultivation of the milking type involves the loss of merit from the butcher's point of view, in the steers from these highly trained dairy cows. That depends on the breeding, and this is just where the skill of the breeder comes in, and also the value of pedigree. If scale and substance be disregarded entirely in favor of milking points, and the form of the cow becomes a too close imitation of the Jersey, it is natural to expect that weedy, thin-fleshed steers will be the result, but we have ample proof that the Short-horn, bred on the original lines of the old Yorkshire type, may be made to yield abundance of milk and yet possess in herself and in her offspring aptitude to fatten and to excel in the quantity and quality of its beef. Among the four or five pedigree breeders who, a few years ago, became the pioneers of reform in the milking character of pure-bred Short-horns, was Mr. R. W. Hobbs, of Kelmscott, near Lechlade, who, with his father before him, has always combined milk-selling with pedigree breeding. He has a very large herd, and steers a portion of his bull-calves, and of the doings of some of these we have some very interesting information. A farmer purchased 20 of these steer calves and reared them, bringing them out fat for the Christmas that is just passed. He exhibited several of them at the local Christmas shows, and they won $150 in prizes. The highest price realized was $155, the lowest $100, and the average of the whole 20 was $125. The chief point of this story, however, is that most of these calves were from cows that gave 1000 gallons of milk in the year, a positive proof that good beef and milk production can be made to go hand in hand by careful breeding. Yet this is far from saying that the milking type can be combined with show points for winning prizes in the open classes at great shows, where beef is the first consideration. This is quite another matter, as we are now dealing with the practical wants of the ordinary dairy farmer.

Machinery has been ordered for the new milk skimming station to be established at Brawley, Imperial county. More than 500 cows have already been pledged for the station and it is expected the number will reach 1000 shortly.

THE FOLLOWING IS A REPORT OF THE

California Mutual Live Stock Insurance Association

of the amount of insurance in force in each county in the State. This is for the purpose of showing to our policy holders the large amount of insurance we are carrying and the way the insurance is scattered thoughout the State. One can readily see that a vast number of farmers and stockmen are joining this Association, which insures all kinds of live stock against death from disease, fire, lightning, or accident which may necessitate the death of an animal. The best farmers and stockmen are becoming aware of the fact that they cannot afford to be without insurance where the rate is so low and the insurance furnished at actual cost to the policy holders.

Counties.	Amt. of Insurance.	Counties.	Amt. of Insurance.
Alameda	$ 5,021.00	Total Forward	$ 649,939.00
Butte	15,455.00	Sacramento	20,416.00
Calaveras	1,400.00	San Bernardino	12,920.00
Contra Costa	28,790.00	San Diego	41,755.00
Colusa	17,800.00	Santa Barbara	6,560.00
Eldorado	1,700.00	Santa Clara	9,295.00
Fresno	120,366.00	Santa Cruz	21,425.00
Glenn	9,650.00	San Francisco	12,109.00
Humboldt	50,812.00	San Joaquin	51,604.00
Imperial	32,390.00	San Mateo	3,950.00
Kern	30,610.00	San Luis Obispo	41,783.00
King	6,270.00	Shasta	6,975.00
Lake	4,300.00	Siskiyou	12,800.00
Los Angeles	129,549.00	Solano	58,514.00
Madera	28,165.00	Sonoma	80,461.00
Marin	30,075.00	Stanislaus	118,665.00
Mendocino	29,935.00	Riverside	5,080.00
Merced	42,921.00	Sutter	34,649.00
Monterey	26,474.00	Tehama	39,630.00
Napa	11,410.00	Tulare	13,255.00
Nevada	3,800.00	Ventura	49,767.00
Orange	3,550.00	Yolo	32,625.00
Placer	19,493.00	Yuba	14,470.00
	$649,939.00	Total	$1,338,647.00

This Association has already paid to its different members 486 claims, all of which have been paid promptly and without unnecessary red tape, as is so customary with the old line companies.

This is the only Asosciation of its kind in the State authorized to do business under the State law.

We respectfully refer you to
National Bank of California.....Los Angeles
Security Savings Bank .....Los Angeles
Bank of Germany .....Oakland
Oakland Bank of Savings .....Oakland
Or any reliable bank in the State.

For further information relative to the workings of this Association address

CALIFORNIA MUTUAL LIVE STOCK INSURANCE ASSOCIATION
270-71-72 Bacon Building, Oakland, California.
M. L. WRIGHT, President and General Manager.

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The Most Perfect
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That Money Can Buy.
The United States 1909 Models

Nos. 14 and 15, like all other sizes, are absolutely unequaled.

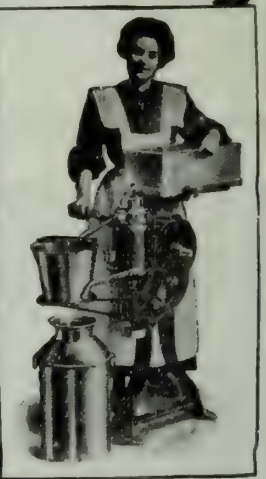
They are **the standard** Separators of the world.

They are entitled to this claim of being **Standard** because they won out in the greatest contest of Cream Separators ever held at any National or International Exposition in 50 consecutive runs, lasting through one month, on the milk of 10 different breeds of cows. The ***De Laval Disc Separators*** and the ***Sharples Tubular Separators*** were entered in this contest and **were beaten.**

The United States Separators are used by a very large percentage of the leading breeders in all the 10 leading dairy breeds of cows.

The United States Separators are used by progressive dairymen and creamerymen everywhere.

The United States Separators have **handsome frames,** cast in **one solid piece.** They have **waist low supply cans.** The **gears** are all **enclosed, dust proof** and **self oiling.** The **bowls** are **most simple** in construction and **easily washed** thoroughly in all parts in from two to five minutes. No long goose neck pipe in the United States to get foul and difficult to clean.



Dairy women as well as **experts consider** that the **United States** is now the **easiest cleaned, turns easiest, skims cleanest** and **wears longest.**

The United States was the originator of the enclosed, dust proof, self oiling gears. All others using this feature are imitators.

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(or Stock Food). The best Condition Powder made. A vegetable compound, very strong and effective, but perfectly harmless. It will make young stock grow and develop in a rapid yet natural way. It purifies the blood, tones up the system, acts on the digestive organs, enabling the animal to assimilate all of its food and convert the same into blood, bone, fat, sinew, and muscle. Hence it is a great feed saver. It has been a standard preparation on this West Coast for many years. Send for our free Booklet, with many testimonials.

25 lb. pail, $3.00; 50 lb. sack, $5.50; 100 lb. sack, $10.50. If not sold by your dealer we will prepay the freight to any point west of the Rockies. Guaranteed as represented; money back if not fully satisfied.

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Successors of the WEST COAST STOCK FOOD CO.

Hereford Bulls For Sale

WE HAVE FOR SALE

75 Head of Pure Bred Hereford Bulls, Yearlings and Two-Year-Olds.

These bulls have all been raised especially for range conditions. Constitution perfect. Price right. For further particulars apply

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Buy Your Herd Leaders

From my Herds of Prize-Winning Jersey Cattle, Poland China Hogs, M. B. Turkeys. A large herd of all ages to select from. Prices are right. All stock guaranteed. Correspondence solicited.

GEO. A. SMITH, Corcoran, Cal.

The Poultry Yard.

SELECTING LAYING HENS BY "SYSTEMS."

By M. R. James.
Written for the Pacific Rural Press

In the poultry industry, "system" farming beats poultry farming out of sight. As a proof, note the advertisements of various "systems" in publications where the rates run up into the dollars per line—and in some cases almost per word. Who furnishes the dollars to pay for these ads? Alack, not the people who are able to part with dollars. For the benefit of such who are trying to rustle up a dollar, two dollars or mayhaps ten dollars for some desired system we make the following excerpt from an article by J. S. McFadzean in the Journal of Agriculture of Victoria, Australia, in regard to one of the "systems":

"In the columns of the Melbourne press there have recently appeared advertisements in which the claim has been made regarding the discovery of a system whereby the heavy laying hens can unfailingly be picked from a flock of hens. In order that the poultry farming community of this State may not suffer loss through inability to distinguish between the possible and the impossible in connection with such systems, the following explanation of the principles involved is here set out:

"The skin of most animals when in good condition is soft and pliable to the touch; this also applies to domestic poultry. In hens this elasticity is most noticeable in the hinder part of the body from the legs to the vent, and especially when they are in full laying. If a bird has been out of condition for any length of time, or even when overfat, this pliability of the skin is reduced and a certain coarseness, dryness or firmness of the skin is then apparent. There is also a corresponding expansion and contraction of the pubic bones of the pelvis at this part of the body according to the laying or non-laying condition of the fowl; and on this fact is based the so-called discovery of these several systems. When it is understood that laying almost wholly depends on condition, the fallacy of any such system of picking heavy layers is apparent. No matter what width the pelvic bones may be apart, if a hen is overfat she will not be a heavy layer, and any reduction in flesh below normal laying condition that has a tendency to interfere with the vitality of the bird will both check her laying and cause a speedy contraction of the abdominal parts mentioned. However, when once a correct knowledge of the application has been acquired, this combination of fair condition, wide pelvic bones and pliability of the skin beneath the fluff, will prove a sure guide as to whether the bird handled is laying at that particular time. If hens are carefully looked over at stated intervals, and those found to be not laying, removed, the drones of the flock will soon disappear, for they cannot possibly escape detection."

The writer here mentions that one of the originators of the "systems" admitted that the physical conformation of a hen may change according to her condition as much as 25 per cent; and that one of his customers asserted that a 280-egg hen, according to the system, went "off" so much in condition that she showed equal to about 30 eggs per year; then continues:

"This statement is quite in accordance with my observations; and hens that have been proved exceptionally heavy layers by the use of the trap nest do not in many cases support their known exceptional egg-producing capacity by their structural form at the time of handling. When lifting a hen to examine her condition the most handy way to take hold of her is by placing the hand on her shoulder from the front and slipping the thumb under one wing and the finger under the other, to grasp them at the butts firmly but gently; the hen may then be handled without any fuss. Then by placing the other hand on the fluff or rear part of the bird's body from the underneath side, or by slightly turning her over with the tips of the fingers the two pelvic bones which lie one on each side below and adjacent to the vent can be located. Almost invariably in a low-conditioned bird the points of these bones stand clearly defined to the touch; as the bird makes flesh they gradually become covered, till in an overfat bird there is some difficulty in exactly locating them. The structure of fowls varies greatly in the formation of these parts, some birds having a much larger space between the pelvic bones than others even as chickens, and others, when matured, having the points of these bones not more than half an inch apart; others again will have them at various widths, even up to two inches. To a practical poultryman who understands feeding for condition, and who consequently is well versed in the handling of fowls, the position of these bones when taken with the birds' general condition, is a tolerably good guide as to whether she is laying or not. He can also determine how long it would take to put a particular brid into laying condition. When from any cause whatever the bird is not laying there is almost immediately a drawing together and tightening of the skin and a closing toward each other of the points of the pelvic bones. There is also a corresponding relaxation in those parts as laying approaches. As size, age and breed, all to some extent control the structure of each bird, the actual width between the pelvic bones cannot be taken by itself as positively demonstrating the laying condition of any hen. Speaking generally, the bird that is fairly wide between these bones may be looked upon as a good layer; just as one is so considered that is wide and deep in the fluff when viewed from the rear. The condition of the bird can only be ascertained by handling, and without the knowledge of her condition as drawn from the actual touch no external appearance of the hen will correctly indicate whether she is laying or not. The want of a simple method of culling out the non-layers from an ordinarily well bred and well cared for flock has been the cause of much annual loss to poultrymen. Trap nests have done much, but these contrivances are not suitable for the practical working of an ordinary farm flock. The periodical handling of the fowls is a much simpler and almost as effective a method; and for general egg farming nothing more is needed. Molting occupies from six to eight weeks, and unless she is hatching or raising chickens, a hen well kept should be engaged in laying throughout the rest of the year. Many hens will take an occasionel rest for a week after a long spell of laying; and unless these rests are too prolonged no notice should be taken of them; but the hen that does not do something toward paying for her board during any four consecutive weeks should be removed from the flock and either fed to promote laying or sold for what she will bring."

THE WORLD'S CHICKENS.

Some interesting figures concerning the number of poultry in various countries of the world are issued by the British Board of agriculture. It is stated that the enumeration of the stock of poultry is undertaken in several countries, although in some cases only in connection with a decennial census. The scope of the returns varies, but, generally speaking, they are confined to poultry kept on farms, and do not include those kept in towns or by persons occupying only small quantities of land attached to their residences. In Europe six countries have detailed returns as follows:

1903 — Denmark — Fowls, 11,555,000; geese, 188,000; turkeys, 58,000; ducks, 889,000.

1892—France—Fowls, 54,103,000; geese, 3,520,000; turkeys, 1,968,000; ducks, 3,684,000.

1900 — Germany — Fowls, 55,396,000; geese, 6,239,000; turkeys, 351,000; ducks, 2,467,000.

1908—Ireland—Fowls, 17,663,000; geese, 1,838,000; turkeys, 1,051,000; ducks, 3,477,000.

1904 — Netherlands — Fowls, 4,935,000; geese, 34,000; turkeys, 11,000; ducks, 433,000.

1900—Norway—Fowls, 1,640,000; geese, 7000; turkeys, 4000; ducks, 8000.

In France 300,000 Guinea fowls and 8,000,000 pigeons were also returned, and in Germany 120,000 Guinea fowls were enumerated.

The United States, according to the last census, in 1900, possessed 234,000,000 fowls (including Guinea fowls), 5,500,000 geese, 6,500,000 turkeys, and nearly 5,000,000 ducks.

Canada had, in 1901, on farms and lots 16,500,000 fowls, 396,000 geese, 585,000 turkeys, 291,000 ducks, and 89,000 other fowl. According to a partial enumeration made in 1907, the poultry stock of the Dominion on farms only had increased very largely, in Ontario alone the total having risen from 9,500,000 in 1901 to 13,500,000, and in Quebec from nearly 3,000,000 to nearly 4,500,000.

Queensland had in 1906-07 688,000 fowls, 8600 geese, 23,000 turkeys and 26,000 ducks; while South Australia had a total of 1,634,000 poultry. In Victoria in 1901 there were 3,620,000 fowls, 77,000 geese, 210,000 turkeys, and 257,000 ducks.

Hungary returned nearly 33,000,000 head of poultry in 1895, and Servia in 1905 was credited with nearly 5,000,000.

The enumeration in Algeria in 1902, in connection with the French decennial agricultural inquiry of that year, revealed about 3,500,000 head of poultry of all kinds, including pigeons.

Japan returned in 1907 nearly 19,000,000 poultry, of which 300,000 were ducks.

POULTRY AND EGGS FROM COLD STORAGE.

There is a statute now in existence which requires that when eggs or poultry have been kept in cold storage, or otherwise preserved, they may not be sold unless such fact is designated by label.

The new law is the result of a bill introduced by Senator H. G. S. McCartney, of Los Angeles, who has been sponsor for most of the pure food legislation at this and the last session of the legislature. That part of the McCartney amendment to the law, which relates to eggs and poultry, is as follows:

"Sixth. If, having no label, it is an imitation or adulteration, or is sold or offered for sale, under a name, designation, description or representation which is false or misleading in any particular whatever, and in case of eggs and poultry: if they have been kept or packed in cold storage, or otherwise preserved, they must be so indicated by written or printed label or placard plainly designating such fact when offered or exposed for sale."

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley s "Little Red Book No. 51." Free. Send postal GEORGE H. CROLEY, 637 Brannan St., San Francisco. **POULTRY SUPPLIES.**

OAKLAND POULTRY YARDS
Established 36 Years
Importer and Breeders of all Varieties of Land and Water Fowls
Stock for Sale Dept. 31, 320 McAllister St., S. F.

PETALUMA HATCHERY
The leading varieties of chicks every week.
L. W. CLARK,
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COULSON'S SPECIAL CHICK FOOD

makes them grow. Throw it in the litter and let them work for their feed.

It contains the best quality of everything they require for first six weeks, **except grit.**

FREE SAMPLES AND PRICES ON APPLICATION TO
Coulson Poultry and Stock Food Co.
PETALUMA, CALIFORNIA.



WARD'S ORIGINAL FIRELESS BROODERS
PRODUCES STRONGER, HEALTHIER CHICKS THAN ANY HEATED BROODER
FULLY GUARANTEED
NO LAMPS. NO OIL BILL. NO DANGER OF FIRE
WRITE FOR ILLUSTRATED BOOKLET AND DELIVERED PRICES
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THE CHICKEN BUSINESS

Now carried on by **THE SPRING VALLEY POULTRY COMPANY**, at Rocklin, on the Spring Valley Ranch; up to date and most successful, hatching out 6000 chicks this year and giving 40 dozen eggs per day. Those wishing to engage in the business come and examine, and can engage in the business on most favorable terms. Send for circulars, with full particulars, to

ROCKLIN, PLACER CO., CALIFORNIA.

The Home Circle.

The Pine Trees.

Oh, the dark pines and the dim pines, in the misty winter weather,
Wreath'd with filmy lace of cobwebs, hung with raindrops tinkling low.
Oh, the green pines and the gray pines where the shadows crowd together;
Pines in splendor on the hillsides, heedless tho' the storm winds blow.

Oh, the frost chains, oh, the snow stars in the tossing branches gleaming.
Oh, the wonder of the pine trees when the world lies sheeted white,
Like a row of lovely ladies in the realm of fairy dreaming,
How the pine trees sweep their curtseys, holding skirts aglow with light.

Oh, the green pines, oh, the gray pines, when the other trees are sighing,
And the bare boughs sway and shudder in the wild wind as with fear.
Oh, the green pines and the gray pines, when the winter's slowly dying,
And the spring comes in and hails them bravest children of the year.

—Pall Mall Gazette.

The Call of Memory.

The sun shone on the surface of the road. A shower had laid the dust and washed the hedges, and the air was sweet with the scent of May. Down the little village street a man passed slowly, walking as though absorbed in thought; a man of no more than twenty-nine years of age, whose hair was yet a silver white and whose face was stamped with the lines of some bygone sorrow. The thrushes sang their merriest songs in the branches, and from the woods beyond came the clear call of a cuckoo. But neither the beauty of the morning nor the songs of the birds sufficed to rouse John Lyall from his sad absorption. He passed slowly down the hill, looking neither to the right nor the left.

From a corner of the vicarage garden, where a gap in the thicket of laurel and rhododendron gave a glimpse of the road, a girl stood and watched him as he passed: a girl with masses of dusky hair and dark eyes that wore an expression habitually thoughtful even when they lit up with mirth. She raised her hand to call the attention of her father, an elderly and benign looking man, who stood not far off in the garden, admiring the blossoms of a laburnum. Attracted by her gesture, he came to the wall.

"See, father," she cried, pointing down the road, "there is the clergyman I told you of yesterday. You wouldn't believe me. Confess now that you were wrong."

"Ah, yes, my dear," said the Rev. Mr. Hawes, seriously, "I confess at once. Last night I heard all about him. He is staying with the Lamberts. He is a missionary and has been in China."

"He looks young, and yet his hair is white," she said thoughtfully.

"His is a sad story—a terrible story," answered her father gently. "Mr. Lambert told it to me last night. He went out there four years ago, taking with him his young wife. They seem to have been very much attached to each other. They were given charge of a small station in the interior—somewhere on the Yang-tse river, I believe. He was doing good work there. He had a school and a hospital. Then disturbances came. Printed lies were circulated among the natives, their passions were excited, and the nearest mandarin was too far off to render any help. They burned his school. For a time he defended himself in his house, until that too was burned. He was struck on the head, rendered unconscious, and cast into the river. His life was saved by a few faithful members of his flock. He was taken down the river in a junk and sent home to Europe to recover."

"And his wife?" asked the girl, with parted lips.

"That is the saddest part of the story," answered his father gravely. "He was forced to shoot her with his own hands, to prevent her from falling into their power."

The beauty of the morning darkened befor the girl's eyes. She stood silent, a shadow of pain upon her forehead.

"Poor man!" she said with a sigh, "it must be terrible for him to think of."

"Mercifully, he does not think of it," replied her father. "The blow he received seems to have affected his mind. He has no memory of it. He does not even know that he has been in China. At times he even talks of going there."

Edith Hawes passed into the house, filled with pity for the man whose story she had heard. His face, with its lines of suffering, haunted her. She was by nature and by training deeply religious, and in her eyes the man who had suffered so much for his faith's sake became invested with the halo of the martyr. She pitied him from the bottom of her heart, and it needed only time and opportunity that that pity should ripen into love.

Two days later she met him at a garden party at the Lamberts'; Mrs. Lambert introduced them casually and bustled off to attend to other guests. So the threads of their fate were interwoven. She stood looking at him with pitying interest; he at her with an arrested attention that had in its intensity something that was almost painful.

"You go to China shortly, I believe?" she stammered, in the effort to make conversation.

"Very soon," he answered, quietly. "My work will lie there. It is, I heard, a most interesting country."

She was startled as she realized his lack of recollection. True, her father had told her of it, but to gather it from the man's own lips gave her a shock. It seemed to her that he must have spoken in much the same way four years ago, when first he went out.

"You are interested in the work?" she asked, after a pause.

"Very much," he answered. "It has been my life's aim."

That was all that passed between them. There seemed no more to say, and she moved away. He stood looking after her."

"She is very beautiful," he mused—"strangely beautiful. She is like some one. I wonder——" He broke off and passed his hand across his forehead with a gesture of pain.

Edith too was thoughtful.

"This is the man who is to be my husband," she kept saying to herself. "That is the man who is to be my husband."

There was only a vague wonder within her at the knowledge; no doubt at all.

When at length the marriage was arranged, it was not without considerable opposition on the part of the Vicar. Greatly as he admired the missionary's character, he looked upon his loss of memory as a mental weakness, and could not consider him a desirable husband for his daughter. Moreover, Mr. Lyall was fully determined to go to China, and Edith not only accepted his determination, but even sustained him in it. In the end her quiet persistence won its way, and her father gave in at last and resigned himself to the loss of her. On the day of the wedding he himself performed the ceremony, saw the newly married pair drive away, and then shut himself in his study to pore over books he could hardly see for the tears that gathered in his eyes.

Edith was quietly happy. She had learned from her husband something of his missionary zeal, and looked beyond the happiness of the early months of marriage to the work they were to accomplish together. Not until they had started on their voyage to the East did she begin to realize the mere pleasures of living. Then the world in its mystery and beauty took hold of her. She saw it unroll before her as a map. The hot sands of Port Said, the long blue levels of the Indian Ocean, the vivid green of Singapore, became all constituent parts of one glorious whole. The evenings spent under awnings in calm seas, listening to the throbbing of the screw, were so many hours of placid happiness, hours to be stored in the mind as precious memories. It was with a half sigh of regret that she reached Shanghai at last, and, putting aside those memories, faced the future that lay before her.

Here she learned to give up her European dress and to wear the straight, ungraceful garb of the Chinese woman. She worked hard at the language and spoke long with men and women who knew the interior. A month was spent in preparation; then her husband received his orders. He accepted them without comment. They left together on one of the big shallow-draft river steamers with white sides and high decks, and a stand of muskets on the wheelhouse. At Hankow, 600 miles up the muddy river, they changed to a smaller steamer, which took them another 300 miles to Ichang. From this onward they traveled in junks, passing upward through the gorges of the Yang-tse, where the river, pent within mountain walls, rushes swiftly down in a series of mighty rapids; where their boat was dragged by main strength of coolie labor against the current, through reaches each more savage and desolate than the last.

It was here that Edith began to notice something of a change in her husband—a suppressed excitement, a curious mental exaltation that showed itself at times in words and gestures that almost frightened her. One evening, as they sat in the stern of their junk, anchored for the night, he swept his arm toward the mountains.

"These are the gates of a strange land," he said, solemnly—"a land peopled by dev-



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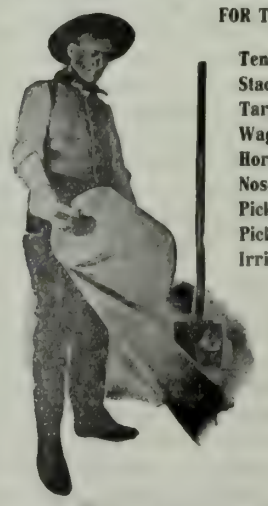
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ils. All the false gods of the world who have fled before our faith have come here to dwell together. And power is here given unto them over the souls of men. To them the whole land is utterly given over. And we too," he added, with sombre deliberation, "we too are delivered into their hands."

"John!" she cried, startled and distressed.

He started, and when she questioned further, did not seem to know that he had spoken.

At length they passed the gorges, and two days later came to the village that was to be their home. They parted from their European companions, who were going higher, to Chungking, and took up their quarters in the house provided for them. It stood in a compound on the extreme edge of the village, a cluster of red-roofed houses separated by narrow, insanitary streets, crowded upon the black mud of the shore. Here they began their work. The missionary who had preceded them had left some weeks before, his health having broken down, and there was much to be done. The dispensary was thrown open, and Lyall busied himself in reaching the souls of his charges through their bodies. Edith did what she could with the women and children. But the work was slow.

The sense of isolation weighed her down. She felt that she could not have supported it save for a new hope that she began to whisper to herself—a hope delicious, but as yet too uncertain to be spoken aloud even to her husband. About him she began to be greatly troubled. While at work he was quietly happy, but at other times he would stare about the rooms with a pained expression, as though the lost memory were struggling against the bars of its prison, striving to return and to take up its proper abode. One evening she found him tapping at the wall. When questioned, he muttered something about setting the barometer. But there was no barometer there; and from that moment she formed the incredible suspicion that he was not living with her, but in a past wherein she had no part—in which she but served to remind him of one who had been his wife, but who was now with the dead.

The thought pierced her keenly, but she fought against it, hoping for better times with the birth of her child. Surely that would reknit the bond of affection that had bound them together. Yet every day his fits of abstraction became longer, his manner more strange. He spent hours cleaning and polishing his revolver. He merely shook his head when she asked him the reason. Day by day she became more and more filled with the conviction that the story of her life was to end in tragedy. But she was no fatalist, and she fought hard against the feeling. She told herself that she had so much to live for. She determined to live. She resolved that when the next junk called she would send a message to Chungking, asking for relief and for leave of absence for her husband.

One night she awoke from the sleeping mattress that served her for a bed, to find him absent from her side. She sat up and looked about her. Beyond the window the night was calm and the moonlight streamed upon the floor, lighting the farther room through the open door. In that room, their living room, she could see the figure of her husband going to and fro with stealthy footsteps, peering through the chinks in the shuttered windows and drawing back again with nervous haste. In quick alarm she rose and went to him. At her touch he turned and gripped her wrist fast, his eyes alight with insanity.

"They are coming! They are coming!" he whispered. "I hear them whispering all about. They will be upon us soon."

"Dearest," she cried anxiously, "there is nothing—no one. The night is calm. There isn't a sound."

"Listen!" he said sharply, releasing her wrist and lifting up his hand. In the silence that followed she strained her ears to hear what he spoke of, but in vain. Not even the gentlest murmur of the wind broke the peace of the night. But his face was distorted with terror. He cast his eyes upward and shrieked aloud.

"The smoke! The smoke!" he cried. "Look at it curling up there. They have fired the house. They are devils—cruel devils with yellow faces! Lucy, we must part. You must not fall into their hands alive."

She felt a pang at his words. She had never heard the name of his first wife before. But she had little time to think. A revolver gleamed in his hand, and he forced her upon her knees.

"John! John dear!" she cried in utter terror. "There is nothing! All is quiet!"

The sharp sound of the shot shattered the silence. She pitched forward without a groan. She lay very still, a little trickle of blood gathering in a pool upon the floor. Outside in the night the unhappy man raced madly along, firing at imaginary foes, shouting and clutching at the air. The wheel had come full circle. He had passed back through the years of forgetfulness to the point where memory had been lost.—The Sketch.

"Couldn't, Cos He Sung So."

Leaning idly over the fence, we noticed a little four-year-old amusing himself on the grass. At length a bobolink perched himself upon the drooping bough of an apple tree within a few yards of the place where the urchin sat. The boy seemed astonished at his impudence, and after regarding the bird a moment or two, obeying an instinct of his baser part, he picked up a stone and was preparing to throw it, steadying himself carefully for a good aim. The little arm was reached backward without alarming the bird, and Bobo was within an inch of damage, when lo, his throat swelled and forth came—

"A link-a link-bobolink! No sweet—no sweet, don't throw it—I know it—a link-a-link-bobolink!"

The child listened and the stone dropped from his hand. The minstrel had charmed the murderer. We heard the song through and watched the singer's unharmed flight as did the boy. Curious to hear an expression of the little fellow's feeling, we approached him and asked:

"Why didn't you stone him, my boy? You might have killed him and carried him home."

The child looked up doubtfully, as if suspecting our meaning, and with an expression half shame, half sorrow, replied:

"Couldn't, cos he sung so!"

No Land Grabber.

"That boy," said the Billville farmer, "beats my time! Jest now, when I quoted Scripter to him, he come back at me hard!"

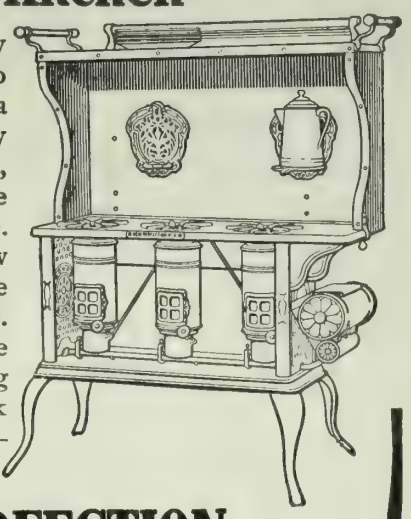
"You don't say?"

"Shore. I told him to git a hoe an' foller the furrow. 'Thar's gold in the land,' I said, and what do you reckon he made anser?"

"You tell it."

"'Father,' he says, 'I don't keer for the gold o' this here world; I've laid up treasure in Heaven.'"—Atlanta Constitution.

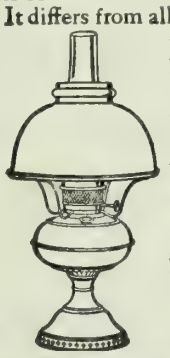
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THE MARKETS.

San Francisco, April 7, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The movement of wheat to California from the Northern ports during the last month has been heavier than ever before. Stocks in the warehouses are accordingly somewhat larger than a month ago. All grades remain very firm, California White Australian being practically nominal at the last quotation. All the Northern grades have advanced. On account of the high prices and increased competition from the northern mills, the local milling interests are not purchasing very freely, and the market remains quiet.

California White Australian	$2.20
California Club	$1.97½ @2.05
California Milling	2.10 @2.15
California lower grades	1.75 @1.85
Northern Club	2.02½ @2.10
Northern Bluestem	2.12½ @2.20
Russian Red	1.95 @1.97½
Turkey Red	2.00 @2.20

BARLEY.

While the arrivals have been rather liberal, stocks have decreased considerably in the last month. With a more general demand for feed the market is now quite strong at an advance of 2½ cents. Brewing and shipping grain is also higher. More interest is shown in futures, with advancing prices.

Brewing	$1.55
Shipping	1.55
Chevalier	$1.55 @1.70
Good to choice Feed, per ctl.	1.50 @1.52½
Common Feed	1.45 @1.47½

OATS.

The movement of this grain is fairly large, considering the amount available. Stocks on hand are extremely small, and both white and red oats are higher. Gray oats are moving at quite a sharp advance, but blacks are nominal.

White, per ctl.	$2.07½ @2.15
Gray	1.97½ @2.05
Red, choice	2.05
Common	1.90 @2.00
Black	Nominal.

CORN.

There is more activity in this grain than for some time past. Western grades have been arriving more frely, but the amount on hand is very small. Prices are firmly held at the recent advance, with a slightly higher quotation on Western mixed.

California Small Yellow	$2.00 @2.10
Western State Yellow	1.70 @1.75
Mixed, in bulk	1.63
White, in bulk	1.66
Egyptian White	1.80

RYE.

The market has been bare for several weeks, but some is no offered at the prices quoted. No movement is reported, however, as the figure asked is more than buyers are willing to pay.

Rye	$1.90 @2.00

BEANS.

Stocks on hand are light, especially of bayo and cranberry beans. Bayos show considerable advance. Blackeyes are also higher, though the demand is largely speculative at present. Pink beans are decidedly firm. The stock on hand appears to be sufficient for the season's requirements, but holdover is expected to be small, and the values should be well maintained, if not advanced. White beans also continue strong, though without further advance. Limas are higher, with growers holding for a greater advance than most buyers are willing to pay.

Bayos, per ctl.	$3.60 @3.70
Blackeyes	3.15 @3.30
Cranberry Beans	3.25 @3.50
Garvanzos	2.00 @4.00
Horse Beans	1.90 @2.20
Small Whites	5.25 @5.40
Large Whites	4.35 @4.45
Limas	3.90 @4.00
Pea	5.25 @5.35
Pink	2.70 @2.85
Red	6.00 @6.50
Red Kidneys	3.50

SEEDS.

Alfalfa is still moving freely at former quotations. Brown mustard and flaxseed are higher, while canary and hemp are a little easier. Other descriptions are unchanged.

Alfalfa, per lb	18 @19 c
Broomcorn Seed, per ton	$20.00 @ 25.00
Brown Mustard, per lb	3¾ @ 4 c
Canary	4 c
Flaxseed	3½ c
Hemp	4 c
Millet	2¾ @ 3¼ c
Timothy	6¼ @ 6½ c
Yellow Mustard	6 @ 6¼ c

FLOUR.

All grades are extremely firm at the advance, and while buying is generally restricted to immediate demands the local movement is about up to the average.

Cal. Family Extras	$6.20 @6.80
Bakers' Extras	6.20 @6.45
Superfine	5.00 @5.30
Oregon and Washington	4.85 @5.75

HAY.

The arrivals have been about the same as last week, and the market shows no very pronounced change, though prices are a little firmer, particularly on the better grades. With a continuation of present weather conditions, the new crop should soon be available. As there is enough hay to last until then, prices are expected to show little further change. Consumers here are making only limited purchases for present needs, and there has been a marked falling off in the demand from outside points. Reports from producing sections indicate a large acreage and prospects of a heavy crop.

Choice Wheat, per ton	$23.00 @26.00
Other Grades Wheat	21.00 @23.00
Wheat and Oat	21.00 @25.00
Tame Oat	22.00 @25.00
Wild Oat	20.00 @22.50
Alfalfa	14.00 @17.50
Stock	11.50 @16.00
Straw, per bale	60 @ 85c

MILLSTUFFS.

Rolled barley has advanced $1 per ton, following the advance in the raw grain. The market is quiet on all descriptions, and bran, shorts and middlings are inclined to weakness, other varieties being fairly steady.

Alfalfa Meal, or mealfalfa, per ton	$25.00 @26.00
Bran, ton—	
White	29.50 @30.00
Red	28.50 @29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00 @27.00
Corn Meal	37.00 @38.00
Cracked Corn	38.00 @39.00
Middlings	33.00 @35.00
Mixed Feeds	28.00 @32.00
Oil Cake, per ton	38.50 @40.00
Rolled Barley	31.00 @32.00
Shorts	31.00 @32.00

VEGETABLES.

Choice onions are becoming rather scarce, and while the Australian variety is unchanged, Oregon stock shows a sharp advance. A lot of Texas Bermudas came in early in the week. Green onions are lower. Arrivals of asparagus have again increased, causing a marked reduction in values and a wide range between the different grades, the inside figure being paid by the canning interests. The canneries are not yet operating extensively, but have taken up the surplus in this market most of the week. Mexican tomatoes are still plentiful, but prices show some improvement. Rhubarb is lower, and local garden truck has declined, but peas have advanced.

Onions, Yellow, per ctl.	$2.00 @ 2.25
Australian Onions	4.00 @ 4.25
New Green, per box	50 @ 85c
Garlic, per lb.	9 @ 10c
Green Peas, per lb.	7 @ 9c
Cabbage, per ctl.	2.00
Tomatoes, per crate	1.00 @ 1.25
Cauliflower, per doz.	65 @ 75c
Celery, doz.	40 @ 50c
Asparagus, per box	75c @ 1.75
Rhubarb, per box	1.10 @ 1.75
Turnips, sack	1.00 @ 1.25

POULTRY.

The demand for the last week has been rather large, owing to the Jewish holiday and the approach of Easter. Arrivals from the East have increased slightly, though the offerings are by no means excessive, and with light supplies of native fowls there is little accumulation on hand. Prices in general have been satisfactory, with another advance on choice young roosters and fat hens, as well as ducks. Other descriptions show little change.

Broilers	$ 6.00 @ 7.00
Small Broilers	3.50 @ 5.50
Fryers	8.00 @ 8.50
Hens, extra	9.00 @ 12.00
Hens, per doz.	7.00 @ 8.00
Small Hens	5.50 @ 6.00
Old Roosters	5.00 @ 6.00
Young Roosters	9.00 @ 10.00
Young Roosters, full grown	10.00 @ 12.00
Pigeons	1.50
Squabs	3.00 @ 3.50
Ducks	7.00 @ 9.00
Geese, per pair	2.50 @ 3.00
Turkeys, live, per lb	Nominal
Turkeys, dressed, per lb.	Nominal

BUTTER.

The decline in butter has continued, extras and firsts being 3 cents and seconds 2½ cents lower. There has been no shipping movement, and the impression prevails that it is over for the season. Arrivals of the upper grades have increased still further, and as the reduction in prices has so far brought little increase in the local demand most dealers are carrying a heavy surplus. There was some activity a few days ago, but the market now is quiet, with a tendency to easiness. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	23 c
Firsts	22 c
Seconds	21½c

EGGS.

Extras continue firm, and the price has shown only about ½ cent fluctuation during the week. While the arrivals are considerably in excess of the local demand, the storage business keeps the market well cleaned of the top grade. There was some accumulation of low-grade stock earlier in the week, but the surplus has been moved and the only change in quotations is an advance of 1 cent in seconds. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	23½c
Firsts	22 c
Seconds	20 c
Thirds	18 c

CHEESE.

Cheese has received little attention this week, trading being very light, though prices on all grades are pretty firmly maintained. There has been a slight fluctuation in fancy new flats, but the only change in quotations now noted is a slight advance in Y. A.'s. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	15 c
Firsts	13½c
New Young Americas, fancy	15 c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Cal. Flats	13½c
Storage Oregon Flats	15½c

POTATOES.

New potatoes are arriving freely, causing a reduction of 1 cent per pound. While the market is not especially active at the moment, there is no surplus on hand, and all grades of old stock show some advance. Choice Salinas stock shows the most strength, being firm at $2, while Oregon Burbanks bring $1.75 at the outside. Sweet potatoes are fairly plentiful but unchanged.

River Whites, per ctl.	$ 1.25 @ 1.50
Salinas Burbanks, per ctl.	2.00
Oregon Burbanks, per ctl.	1.60 @ 1.75
Sweet Potatoes, per ctl.	1.85 @ 2.00
New Potatoes, per lb.	2½ @ 3c

FRESH FRUITS.

The first straight carload of strawberries for the season have arrived from Los Angeles this week. The market is now fairly well supplied for this season, but with attractive offerings and an increasing demand the prices are quite firm. Apples are held as before, but receive little attention.

Strawberries, per crate	$ 1.75 @ 2.00
Apples, fancy, per box	1.25 @ 1.75
Apples, common	60 @ 85c

CITRUS FRUITS.

While stocks of oranges are rather heavy, the market is active and firm, with a steady local demand. Grape fruit and lemons are unchanged. A large shipment of limes which was due to arrive has been lost by wreck, and this fruit is no longer quoted, though a few small lots are offered at very high prices.

Choice Lemons	$2.00 @ 2.50
Fancy Lemons	2.75 @ 3.00
Standard	1.25 @ 1.50
Limes	Nominal.
Oranges—	
Fancy Navels	2.25 @ 2.50
Choice	1.85 @ 2.00
Tangerines	75c @ 1.50
Grape Fruit	2.50 @ 2.75

DRIED FRUITS.

The local and Eastern dried fruit markets show comparatively little feature at the moment. A fairly active movement has been going on for some time past, causing considerable reduction in coast holdings on all lines. The Eastern buyers have been acting with caution, however, and in the last few days local packers state that the demand has fallen off. At the same time, with prospects of a heavy crop next summer in nearly every line, many growers who have been holding back are showing some anxiety to sell. Prices accordingly incline to weakness, though they are not quotably lower. There is quite a liberal movement from grower to packer at about the prices quoted. A liberal movement of raisins is taking place from the growers to Eastern firms, but the local packers report a quiet market and are taking little interest in offerings. They quote about 2 cents in the sweatbox, and the prices below on packed raisins:

Evaporated Apples	5 @ 6¼c
Figs, black	2 @ 3 c
Figs, white	2 @ 3½c
Apricots	7½ @ 10 c
Peaches	3¼ @ 4½c
Prunes, 4-size basis	2¼c
Pears	3 @ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Almonds are still scarce and decidedly firm, with very little stock remaining in the hands of growers. There is very little movement of walnuts, as the market is fairly well supplied, but no pressure to sell is noted on the part of holders, and prices remain steady.

Almonds, Nonpareils	11 c
I X L	10½c
Ne Plus Ultra	10 c
Drakes	9 c
Languedoc	8 c
Softshell, No. 1	9½c
Softshell, No. 2	6 c

WALNUTS.

HONEY.

The honey market is practically at a standstill. There is scarcely any comb held by growers or larger dealers, and only the inferior grades of extracted are offered in any quantity. There is little market for such stock, and no activity is expected until the new crop arrives.

Comb, lb.	Nominal.
Water White, extracted	Nominal.
White	Nominal.
Light Amber	5 @ 5½c
Dark Amber	4¾c

HOPS.

Few lots of California hops of any consequence remain unsold, and as there is no very strong demand at present the market continues dull and featureless. The prices quoted are offered to growers for stock on hand, with some contracts for future delivery at 10 to 11½ cents.

Hops, per lb	6 @ 10c

WOOL.

Some fairly large lots of the spring clip in the San Joaquin valley have been disposed of, as the clip in some quarters is more desirable than usual. The market in general, however, is quiet, and the demand from the East is comparatively small. The south coast wools are lower. Fall clips are no longer quoted, as there is practically none unsold.

San Joaquin, spring clip	10 @15 c
South Coast, spring clip	7 @11 c

MEAT.

Supplies of mutton are larger and spring lamb is becoming quite plentiful, causing a reduction of prices on both lines. Young veal is a little firmer, though there is no scarcity of supplies. Arrivals of hogs are increasing, but prices are quite firm for desirable stock. Beef and live cattle remain as before.

Beef: Steers, per lb.	8 @ 8½c
Cows	7 @ 8 c
Heifers	7 @ 8 c
Veal: Large	7 @ 7½c
Small	8 @ 9½c
Mutton: Wethers	8 @ 9½c
Ewes	7 @ 8 c
Lambs	10 c
Spring Lamb	12 @12½c
Hogs, dressed	9½ @11½c

LIVESTOCK.

Steers, No. 1	5¼ @ 5½c
No. 2	4½ @ 5 c
Cows and Heifers: No. 1	4 @ 4¼c
No. 2	3½c
Bulls and Stags	2¼ @ 2½c
Calves: Light	5 @ 5¼c
Medium	4½ @ 4¾c
Heavy	3¾ @ 4¼c
Sheep: Wethers	5 c
Ewes	4½c
Lambs: Yearlings	5½c
Spring Lambs	6½ @ 6¾c
Hogs: Grain fed, 100 to 150 lbs.	7 c
150 to 250 lbs.	7¾ @ 7½c
250 to 325 lbs.	6½ @ 6¾c
Common Hogs, lb	4 @ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., April 6.—For the first time since the holidays the orange market is somewhere up to grower's price ideas. The average orchard run grades in the auctions on Monday was $2.70 a box, and when freight and auction

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"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

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charges are deducted it means a price to the shipper of $1.80 at this end. A profit of 5 cents a box for the shipper would leave $1.75, and from this must be deducted packing charges of 35 cents, leaving $1.40 the shipper could afford to pay if he were sure of the present prices right along and if all the fruit bought would grade orchard run, which it will not, at least five pounds to the box being standards and culls. Some misguided individuals have been paying from $2 to $2.10 a hundred weight for this fruit for some time past, and this week is the first time since Christmas that the buyers could come out even. There is a well founded suspicion that parties well able to stand it have been taking these losses for the purpose of freezing other handlers out of certain districts where they, the "able to stand it" parties, were getting weaker every year, and also for the purpose of getting growers' ideas up so that it would be hard for cash buyers to do business.

As usual, the Elephant brands topped the markets in the auctions, $3.40 being the price in New York city and $3 in Boston. Other brands that were right in line were the Alta Cresta of Riverside, the Gold Buckle of East Highland and the Iris and Violet brands of Duarte all going over the $3 mark.

All look for a good, high market on oranges until the present heavy shipments reach the other end, at which time there will probably be some slight reaction. Seedlings, bloods and tangerines are now going forward in quantities, the sizes of the seedling making them attractive as against the large sized navels. Seedlings are being quoted at $1.75 cash California and bloods and sweets 10 cents higher. Lemons are very low and there is no present indication of better feeling, and low prices for May and June are predicted. At this time very good extra choice lemons can be bought for $1.50 cash California.

The citrus fruit shipments for the past seven days have been as follows: Tuesday, 110 cars oranges, 22 cars lemons; Wednesday, 178 and 15; Thursday, 209 and 21; Friday, 251 and 14; Saturday and Sunday, 361 cars oranges and 25 cars of lemons. Total shipments to date this season, 13,559 cars of oranges and 2083 cars of lemons. Total to same time last season, 13,903 cars of oranges and 1875 cars of lemons.

WOOL WAREHOUSE IN CHICAGO.

In connection with the campaign for producers' control and sale of wool, the following item telegraphed from Chicago may be of interest:

The election of officers of the Warehouse & Storage Co. and the laying of the cornerstone of an immense warehouse which when completed will accommodate 25,000,000 pounds of wool, were two steps recently taken in a movement to make Chicago the wool center of the world. J. E. Cosgriff of Rawlins, Wyo., was chosen president; A. G. Leonard, Chicago, vice-president; R. B. Thompson, Chicago, secretary and treasurer.

The building will occupy nearly two acres of ground. It likely will be ready for occupancy May 15, in ample time to take care of this year's clip of wool. It is proposed to store at least 25,000,000 pounds of wool each season, and arrangements are under way to increase the amount 50,000,000 the second year.

RUBBISH FOR PIG FEED.

The way the pure food laws work in England is shown by the conviction of a dealer for selling as feeding stuff, under the name of "shudes," a mixture of sawdust and gypsum, originally manufactured for polishing tin plate, but latterly supplied for pig feeding. The following letter to the Times may interest readers:

"Recently William Phillips, trading as William Phillips & Co., of the Liverpool City Corn Mills, was convicted of selling to a miller an article known as "shudes," which consisted of a mixture of half sawdust and half gypsum. This rubbish was sold as a feeding stuff for pigs, etc., and it was admitted that the sale of this article had been going on for 25 years. How many thousands, tens of thousands, and hundreds of thousands of pigs may have perished miserably through the use of this deleterious compound is not possible to say. And the perpetrators of such a fraud have so far escaped with a mere money payment of $200."

PUBLISHER'S DEPARTMENT.

H. H. Moore & Sons of Stockton are putting a liniment on the market and have commenced advertising it in this issue of the PACIFIC RURAL PRESS.

Alfalfa seed is advertised by the C. C. Morse Co. this week, and as the firm is one of the best on the coast, seed secured from them will be as represented.

The David Jacks Corporation of Monterey are offering some fine young Hereford cattle for sale. Look up their advertisement in the stock department.

A combination heating and lighting machine is advertised this week by the Detroit Heating and Lighting Company. See their advertisement in the Household department.

At the rate the new "California Fruits" are being sold it will not be long before the edition is exhausted. The book is worth many times its price to every fruit grower, and those who have been thinking of securing a copy should send now.

The California Mutual Live Stock Association publish a statement of their business in this issue. This company is doing a fine business among live stock owners over the State and as the business is done on a cost basis it is a good proposition to insure in.

"THE SCIENCE AND PRACTICE OF CHEESE-MAKING."

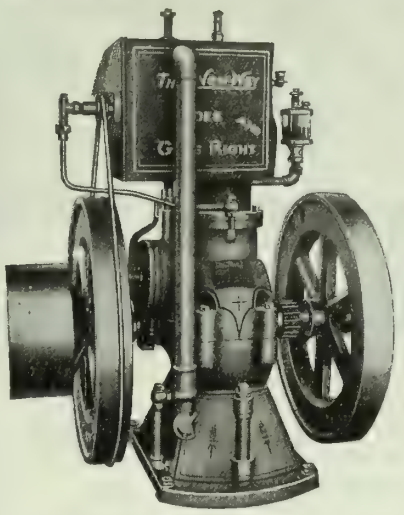
A treatise on the manufacture of American cheddar cheese and some other varieties, intended as a textbook for the use of dairy teachers and students in classroom and workroom; prepared also as a handbook and work of reference for the daily use of practical cheese-makers in cheese-factory operations. By Lucius L. Van Slyke, Ph.D., and Charles A. Publow, A.B., M.D., C.M. Not only are the operations of cheese-making described in a clear, systematic and practical manner, but special attention is given to making prominent the reasons for each step.

During the past 17 years there has been great activity in the investigation of the cheese problems peculiar to America, but the results of this extensive work have been widely scattered throughout the reports of experiment stations and government departments. All this great mass of material has been carefully digested for this book and now for the first time becomes readily available to dairy students and teachers. Illustrated, 480 pages, price in cloth $1.75 net. Orange Judd Co., publishers, 439 Lafayette St., New York. On sale at this office.

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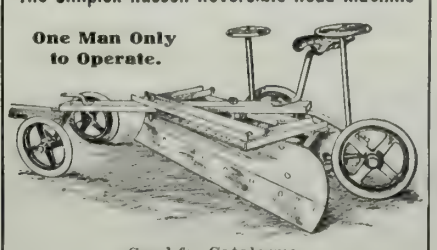
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That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceeding y scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15 000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

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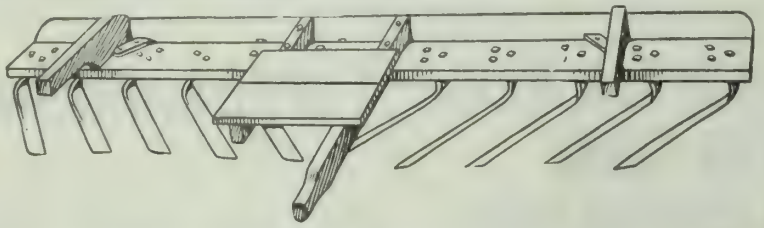
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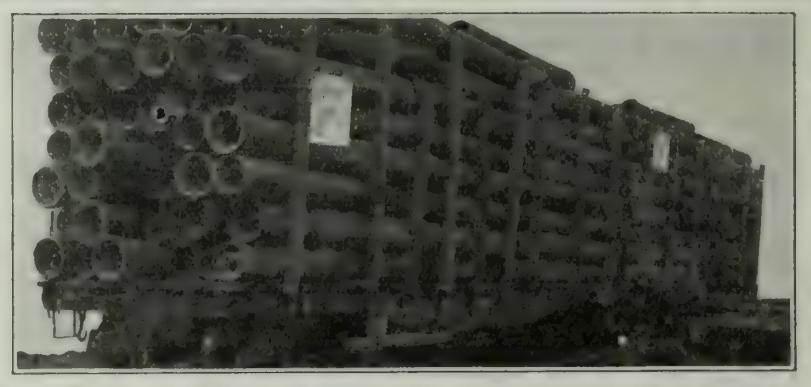
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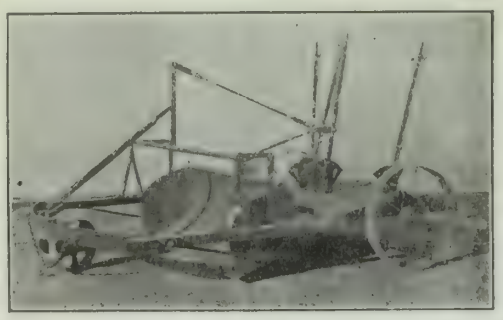
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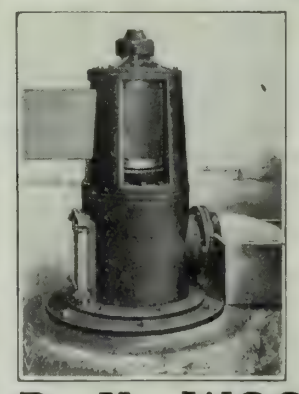
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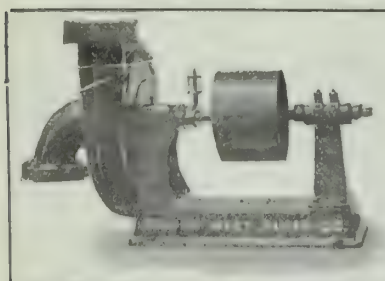
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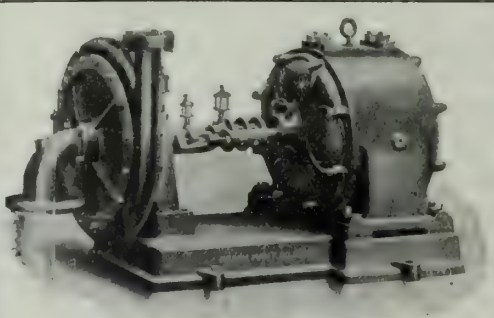
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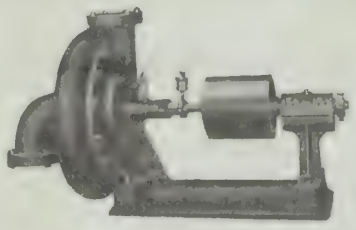
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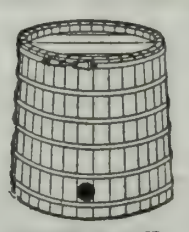
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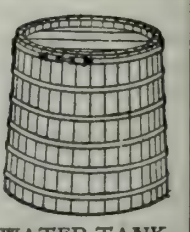
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 16. SAN FRANCISCO, SATURDAY, APRIL 17, 1909. Thirty-ninth Year.

The Kaghazi Walnut.

Nearly a third of a century ago, when it was supposed that the trade name "English Walnut" represented something geographically European in its origin, the late James Shinn of Niles secured in some way a nut from the real home of Juglans regia in Persia, and he called it the "Persian walnut," using also a specific name which was in some way connected with it, to wit, "Kaghazi." Subsequently it became widely recognized that Juglans regia should never have been called the English walnut, but Persian walnut should have been its name. Reforms in names are, however, very slow to enforce, no matter how true and rational they may be.



The Kaghazi Walnut Near Linden.

When we received the other day a photograph of a fine walnut tree from Mr. D. W. Miller of Linden, San Joaquin county, and the name Persian walnut attached to it, we recognized that we had been dropped back for more than a quarter of a century, and realized that a nut then distinctly known as Persian walnut must now live under its other name in order to differentiate itself from other varieties which we are growing, and which are all Persian, though they have wandered widely and made many stops on the way. The tree is described by Mr. Miller as growing on the old Hildebrand place, a few miles above Linden on the south fork of the Calaveras river.

The late Mr. Shinn was not the only distributor of the Kaghazi. If we remember correctly, Mr. W. P. Hammon, who is now so well known as a leader in river land dredging for gold, took a hand in distributing the variety when he was a prominent California nurseryman in the eighties. The nut was also sent out as a complimentary premium to subscribers of the San Francisco Bulletin under the direction of Mr. G. P. Rixford, and of these Mr. Hildebrand received two, from one of which grew the splendid tree shown in the picture on this page. The nuts were planted in the bottom land below the ranch house. Mr. Miller writes us that one of the nuts grew, but being planted close to the fence which separated the pasture from the tillable land, the cattle kept it eaten down so that it was not much higher than the fence at the end of ten years. At last it got started, and with several main limbs branching out near the ground it soon grew into a large spreading tree. At the present time it has a spread of fully sixty feet, and is about seventy feet high. Its branches are very close together, as will be seen by the accompanying photograph. The nuts are of fine form and the meat is of excellent color and flavor. During its earlier years the tree did not bear well, but for the last eight or ten years it has averaged between 300 and 400 pounds of nuts each year. There are no other walnut trees growing near it.

It is interesting to see what was said of Kaghazi soon after it began to fruit in California, at Niles, in Alameda county. At that time Mr. Shinn wrote: "Much larger than the ordinary kinds, and thinner shelled. The tree is late in putting out leaves and blossoms, and is therefore especially good for places that are in danger of late frosts."

Mr. Shinn did not have a chance to compare Kaghazi with the larger nuts which are now grown, and his estimate of size is relatively less now. His appreciation of the advantage of late blooming remains a good point, but we have now others that are late as compared with the southern California seedling which Mr. Shinn used as a standard of measurement. We doubt then if the Kaghazi can be advocated on the same ground that it was twenty-five years ago, but all will be glad to see the fine picture of the tree which Mr. Miller sends.

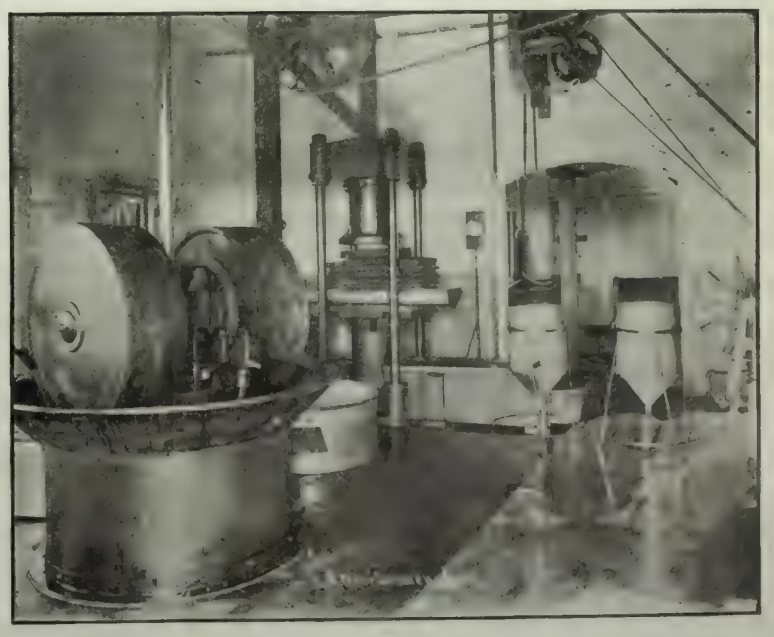
A SUGGESTION OF THE OLIVE.

It is time to make suggestions of the olive because the fruit has been depressed during recent years. The tree has been a disappointment to many for lack of bearing, and others have found difficulty in profitably gathering and handling the fruit. Much of the trouble has been due to unwise exaltation of the olive in the earlier years of California fruit growing, for this resulted in planting in wrong places and in looking upon the tree as an arid land proposition, while the fact is that the olive is like other fruit trees and requires good land, adequate moisture, and intelligent care in all that affects it and its products. Although considerable losses and disappointments have followed misconception of the tree and its requirements, it is nevertheless true that at the present time the olive is on the upward path in the public mind, and it may ultimately attain all the commercial importance which was once prescribed for it, although this may be attained in different ways from those then advocated.

The accompanying pictures show olive picking and oil making at the Sylmar orchards in Los Angeles county—perhaps the largest in the State.



Picking Time—Sylmar Olive Groves, San Fernando.



Interior of Olive Mill in Los Angeles County.

Pacific Rural Press

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E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., April 13, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.00	41.80	40.58
Red Bluff	.00	30.58	22.29
Sacramento	.00	21.71	17.91
Mt. Tamalpais	.00	35.52	20.78
San Francisco	.00	25.58	20.47
San Jose	.00	18.22	11.65
Fresno	.00	9.81	8.46
Independence	.00	8.15	8.38
San Luis Obispo	.00	31.34	18.44
Los Angeles	.00	19.07	14.54
San Diego	.00	10.21	9.17

The Week.

Weather conditions are proceeding favorably now, and barring north winds, which, however, are usually to be reckoned with in some parts of the State, air, temperature and sunlight have behaved themselves fairly well. The spring aspect of crops is generally pleasing and horticultural soils are in vastly better conditions than they have been in many earlier Aprils. It is too soon to undertake any definite statement of crop prospects except that the present promise is for plenty of almost everything and yet not too much for profitable sale if markets continue their present strength and bouyancy. We do not remember a spring with a better general outlook, nor one in which people were busier or more confident. This is particularly desirable because some of the phases of production of the census of 1910 will be pictured upon the basis of the crops of the coming summer, and California certainly desires a chance to make returns representative of the progress attained during the last decade. It would have been a misfortune to have had this year below grade in this respect.

There is another matter at least in which we are expecting something good for California from the coming census. Readers will remember these words of Ambassador Brice in his Berkeley address, of which part was published in our issue of April 3:

"One is told that in California as well as everywhere else the tendency is for the dwellers in the country to flock into the cities. Yet in California the conditions for an enjoyable rural life are especially favorable. The scenery is beautiful and the climate genial. Over nearly all of the country you have not the grim winter of the Eastern States to fear. In many of your agricultural districts and especially in the irrigated lands the farms are so small, and yet the yield of the soil so large that the cultivators dwell near together, living under good conditions and in populous communities. Here, therefore, if anywhere, country life ought to be attractive. Yet even here, one is told, the dislike to the comparative solitude and isolation of rural life, and the passion for amusement produces a steady drain away from the land into the city."

That is a fair statement and a justified protest, when based upon the census of 1900 when, if we remember correctly, only one rural county in a great valley was saved from retrogression by the gathering of people by one colony enterprise, while other rural counties declined in population. We are expecting to see this tide from country to city turned backward by the census of 1910, for surely the last decade has been generally characterized by recourse to settlement of our agricultural districts. One can hardly go abroad in the State without seeing something of this and in some districts local rural improvements have been notable in volume. The whole east side of the San Joaquin shows this all the way from the Cosumnes river to Bakersfield, even though a few million people might still be dropped in that vast area without crowding. The Sacramento valley will also show a notable return to the land, while in southern California, in spite of the wonderful city growth, there will be a larger proportionate increase of rural residents all the way from Santa Barbara to Yuma. Mr. Brice is right about the exceptional joy and opportunity in California rural life and we expect the next census will show that his comments could be turned from exhortation to gratulation. And there is still more than a year in which to achieve such gain before the people will be counted in the summer of 1910. During that time we hope all legitimate colonizing enterprises, and we now have more of that desirable and rational class of efforts than ever before, will pull hard for the agricultural shore. There are, of course, siren's songs here and there on the shore, but fewer perhaps than formerly, and where one can be content with the silver fleece of moderate expectations he is in less likelihood of being fleeced himself as was the valorous Jason—the first gold-brick victim of antiquity.

The raisin raising, which will lift its highest timbers on April 30, as we have already noted in these columns, is making progress and securing popularity beyond anything which could have been forseen. We shall probably take another push at the raising in next week's issue, as that will be the last before the great day of the raisin, and we simply note a fact or two to keep the subject alive in the minds of readers. We are told that more than twenty large railroad companies have actively enlisted in the campaign, and in addition to featuring raisins on their dining-car menus, the officials and agents are bringing their influence to bear on grocers and fruit venders to persuade them not only of the wisdom of carrying large stocks of raisins, but also of making attractive window displays and in other ways advertising this article of diet. The importance of the movement to California is great. There are now produced annually in this State about 120,000,000 pounds of raisins, and an extension of the market for the product will mean a considerably increased revenue to the growers. At the present time there are about 20,000 tons of raisins that have not been marketed, and if the present agitation only puts that amount out of the way of the new crop it will be worth making. But such a movement does not stop; it acts forever afterward. Therefore we say to all: help to raise the raisin.

It is a good thing to raise a good fruit and the same is true of a good man, and we take all the more interest in one such elevation because it is the raising of a good fruit man. Governor Gillett has appointed ex-Lieutenant Governor Alden Anderson to the position of State Bank Superintendent, although the latter was not a candidate for the office, and it required two weeks' interceding on the part of the Governor to induce him to accept the appointment. Mr. Anderson is the vice-president and assistant manager of the Anglo and London-Paris National Bank, which position he assumed but recently after a long and praiseworthy term as manager of the California Fruit Distributors. He has important fruit interests in Solano county and has been from youth identified with the fruit shipping interests, a business taught him by his father, Mr. J. Z. Anderson, one of the pioneers in that line. He will see that the banks are as sound as the fruit he handles. He ought to have a high seat in the Fresno Raisin Day parade.

After all, this matter of sound banks can hardly be overestimated, and it is a State asset to have the soundness in the hands of a sound conservative man. Too many of our banks have been rattled by the onset of boomers and grafters and have placed money upon some of the wildest agricultural cats imaginable. At the same time they have turned a deaf ear to the showing of the surest, safest enterprises. Their managers seem often to have backbones of reinforced concrete against the admission that sound agricultural security is the best in the world and some times have about as much backbone as a jelly fish when they are tempted by fake investments. As we understand it, it is the business af the Bank Superintendent to check up such things, and the more of the bad things he rejects the more money there will be for the movement of sound, rational undertakings. Under the new law the superintendent of banks has full power to supervise all the banking institutions of the State and all the national banks used as repositories for the funds of any State institution. The act in many particulars was patterned after the New York State banking act, which has proved very effective there, and also in some respects after the national banking act. To enforce it it is a mighty good thing to have a man who knows the farming industries and can take a conservative agricultural point of view.

We have had stories of imported edible snails and how a colony planted on Pierce street had advanced several miles in the course of a couple of years, but that is a slow movement of snails, for it is related that after bringing a barrel of the juicy delicacies from France and after issuing invitations for a grand dinner of French snails, Baron Baroteau, Frenchman and snail fancier of Alameda found that his imported snails had broken out of their corral and started back to France. His 2700 imported French snails dwindled to about 700, and 700 are just about enough for one man who is real snail hungry. The host has been out early and late and all over town with a basket and a spy glass picking up the runaways, but could not get enough to satisfy his guests.

Mr. Powell's experiments in shipping sound oranges have demonstrated that it is really possible to ship a much riper fruit than is usually done from this State and that oranges with a much finer flavor can be readily set down in the East if attention is paid to the details of handling which have been fully set out in the PACIFIC RURAL PRESS during the last two years. The matter of present interest is that this demonstration by Mr. Powell is to be made still more valuable by the effort of the railways. It is stated that as the result of improvements undertaken by the Santa Fe road, which are considered among the most notable advances of recent years in fruit-shipping facilities, it may be possible to shorten by almost 24 hours

the freight schedules between California and Chicago. If this is true there may also be hurry-up schedules on other roads and that will be the grandest thing both for the citrus and the deciduous interests. Everything seems to be moving now-a-days and rapid transit for fruit is a very good phase of the condition.

Returning to the movement in raisins, we think of a convention of grape growers and winemakers of California, which will be held in the California building, Union Square, on Tuesday afternoon, May 18, at 2 o'clock. The directors of the Grape Growers of California at their last meeting decided to call such convention to devise means by which the grape and wine industry of the State can be fostered, protected and exploited the world over. This is to actuate the declaration of the California legislature on the grape industry, which we published in our issue of March 27, and to promote the passage of such laws and regulations of the Nation, State, counties and cities as would foster and develop this important industry.

Queries and Replies.

Walnuts and Almonds.

To the Editor: Would irrigation overcome the dying back of leaves due to a dry fall season during which the ground does not retain sufficient moisture? Do walnut trees withstand frost? Under what maximum summer temperature can they thrive? Do almonds thrive under the same conditions? How deep must favorable soil be for walnuts?—Reader, Palo Alto.

Irrigation certainly overcomes the autumn difficulties of the walnut tree when they are due to insufficient moisture. Walnut trees are not subject to frost; they are hardy in wintry climates, because they are deciduous. Fruiting is sometimes interfered with by frost in the blooming season, and for that reason late bloomers like the Franquette are safest to plant. Walnuts grow under the high temperatures of the interior foothills, although sometimes burning of leaves and nuts does occur, and the chief commercial product is made in the coast region. Still, there are plenty of situations in the interior valley where they do well. On the other hand, almonds are rather more satisfactory in the interior than near the coast and rather safer on the broad valley plains than in low places in small valleys, because air currents reduce the danger of spring frosts, which are the chief enemy of the fruiting of the almond. We have seen satisfactory walnut trees on good soil five or six feet in depth, but ten or twelve feet or more must be considered desirable.

A Home Asparagus Bed.

To the Editor: My bed of asparagus grows slowly and puny this spring. Can you tell me what is the reason? I bought this home two years ago and have been told that the former owner used asparagus about five years from this bed. Did I injure the roots by letting the foliage grow until the frost cut it in December? Ought I to have covered the bed with fertilizer? Did I do right to cover the bed with salt slightly in January? The ground seems hard and I wet it to keep it soft enough for the crowns to push through. Does it need to be transplanted? Can the top be hoed in the early spring without injury to the asparagus? Kindly tell me if I am at fault in my treatment and tell me how to succeed in restoring my asparagus bed, which I highly prize.—Reader, Madera county.

Probably your asparagus bed needs a thorough application of stable manure, which should be applied at the end of the dry season, after you have cut off and removed the top growth. It is right to let this growth remain as long as possible until it begins to die naturally; then clear it away, put on the manure and it will be leached into the soil by the rains, or if rains are shy the bed can be thoroughly wet down by sprinkling and thus bring the manure to the use of the plants. Then it should be forked into the soil carefully so as not to injure the root crowns. If you make an application of this sort frequently you will find that the disposition of the soil to bake hard will be overcome and it will remain light and loose, so that the shoots can readily reach the surface. A bed which is properly cared for in this respect does not need renewing for many years.

If you find on examination that the root crowns are very near the surface the application of sand or other light soil in connection with the manure may deepen the covering and give you a better chance to secure long, thrifty shoots. You speak of the "crowns" pushing through. The crowns should be from six to eight inches below the surface in a light sandy loam and it is the shoots from these deep crowns which should be seen pushing through.

Poplars for Windbreaks.

To the Editor: I am planting poplar trees for a windbreak around a vineyard on light sandy loam in the southern part of San Joaquin county. Some are quite tall, often from eight to ten feet in height. Is it proper treatment to cut these trees off (say in about the middle), or should they be left to grow as they do naturally with a long slender central stem? The method of cutting them back as mentioned is preferably on account of their tendency to lean over in the wind, but I have my doubts as to whether the trees would thrive as well if the central stem were thus cut.—N. G. W., Stockton.

According to our observation the poplar tree can safely be cut back and shaped in any way you deem desirable without any danger of injury to the tree. Of course if the tree has a direct upward habit, like the Lombardy, the side branches will shoot directly upward, although the center be removed, but your process of cutting may give you more branches and thus increase the bushiness of the tree.

Eucalyptus in River Bottom.

To the Editor: I have bottom land, very rich soil, subject to overflow along the Stanislaus river. The water stands on the land three or four days at a time during very high water. Alfalfa drowns out about once in eight years. What I desire to ascertain is if such land is adapted to eucalyptus growing and what variety, and if such variety is of commercial value. In how many years can one get returns from the eucalyptus and what is a reasonable estimate in cash per acre? If planted to grass, is rye grass the preferred sort?—Owner, Stockton.

There is probably no question at all about a satisfactory growth of eucalyptus on land which will carry alfalfa for several years at a time, because it can endure much more overflow than alfalfa. Probably you could grow the blue gum, Eucalyptus globulus, which is, on the whole, the most desirable species in places where it is hardy enough. We cannot estimate how much growth you will get, nor how much it will be worth; these things depend upon how favorable conditions are for growth and what the market may be at the time.

Australian rye grass is the best grass we know of for situations retaining moisture enough to keep it alive during the summer time. It is an excellent winter growing plant.

Kaffir Corn for Mowing.

To the Editor: Please tell us about Kaffir corn: how much to sow to the acre for cutting with a mower, and feeding green corn to milk cows. How does it stand alkali land? Any information you can give a dairyman will be appreciated. We have heard that in Kansas where they irrigate it is often irrigated and cut same as alfalfa. Please state at what stage it is cut.—Dairyman, El Cajon.

Kaffir corn or other sorghum can be sown broadcast after frost danger is past, about 40 pounds to the acre, and cut with a mower, providing it is not allowed to grow too long. After cutting it will also make a second, and possibly a third growth with irrigation. You must be careful about feeding in excess; either use it sparingly at first or cut and allow it to wilt a day before feeding. The plant is not very tolerant of alkali and only an experiment could show whether it will endure the amount which you have in the soil which you propose to use.

Paspalum Dilatatum for Imperial Valley.

To the Editor: I recently read an article in a newspaper which contained part of a report of the State Experiment Station highly recommending "paspalum" grass as a forage plant, also that it will grow on quite strong alkali land, preferably in a warm climate. As I have a ranch in the Imperial valley I am anxious to obtain some of the seed or plants and make a test of it there. Will you kindly tell me where I can procure some.—Farmer, San Diego county.

Paspalum grass is, it seems to us, exactly suited to conditions in Imperial valley, so far as endurance of heat and exceedingly rapid growth under ample moisture conditions are concerned. We have also ascertained that the plant will endure considerable alkali, but still it is possible there may be too much of it. It would be easy for you to get a start of the plant from seed, which you can obtain from seedsmen advertising in our columns. If you can get a few plants started you will have no trouble in getting a larger acreage by taking root pieces, for it grows readily from these fragments. The plant is course, but still furnishes good feed when young. It cannot be expected to make growth during frosty weather.

Disposition of Orange Windfalls.

To the Editor: Will you please to advise us as to the disposition we should make of the oranges that are lying on the ground, as to whether or not it would be best to allow them to remain on the ground and go back into the soil, or have them picked up and carried away. What we really wish to know is whether they would be of benefit to the soil or injurious to it if allowed to remain on the ground.—Grower, Tulare county.

There is objection to allowing oranges to decay upon the ground, because of the dissemination of mold spores therefrom; nor is it desirable that too many be turned into the soil, unless they are distributed so that no fermenting mass be produced which would be injurious to the roots and otherwise objectionable. Theoretically the fruit should be composted with some absorbent, like gypsum, or even dust, with moisture enough to prevent too rapid fermentation, but it is a question whether the fertilizer resulting therefrom would be worth what it cost. Probably scattering and plowing in would be the most practicable treatment.

PRUNE EFFORTS TO BE BROAD.

To the Editor: While the Prune Growers' Committee of Fifty thought it advisable to limit their efforts for the present to Santa Clara county, we hope and we shall try hard to see the plan adopted by all the prune growing districts of this coast. We are ready to organize the district associations in accordance with the plan of the orange growers, and the trouble will commence next Tuesday. We are facing a large crop and and 3000 prune growers who are shouting with one great voice, "Come on with your paper; we are ready to sign." Thanks for your generous report of proceedings and suggestions in your editorials.

H. A. DeLacy,
Chairman of Committee.

Coyote, Cal.

Horticulture.

SHORT COURSE IN HORTICULTURE AND ENTOMOLOGY.

Those who can give the time from April 20 to 23 can attend at the University at Berkeley an entomological conference in which entomologists from several Pacific coast States will take part in a course of which the latest discoveries in the treatment of injurious insects will be set forth and the utmost effort to make all the best methods clear by discussion and demonstration.

Those who can attend from April 26 to May 21 are invited to attend a Special Short Course in Horticulture. Since the law providing for county horticultural commissioners and inspectors as amended by the last legislature requires the holding of examinations to secure lists of eligibles from which the supervisors of each county shall make appointment, the Agricultural Department of the University desires to assist in making this new requirement accomplish the purpose intended by the legislature and has provided the course of instruction outlined below, to afford instruction of an elementary and fundamental character.

It must not be supposed that this course is sufficient to prepare a prospective horticultural officer for the duties contemplated by this act, but it will certainly aid him by supplementing his present knowledge, and will serve as a thorough review of the subject that will place in a concrete and available form some of the information, concerning which the examining commission will be liable to ask, in order to judge of the candidate's qualification.

No charge whatever is made for tuition in this course and no entrance requirement will be insisted upon except that the student must be at least 18 years of age. Students in this course are registered as special short course students of the Agricultural Department.

The Instruction.—The work presented in this course is calculated to cover as fully as possible the problems of the work of the commissioner and inspector in a thoroughly practical manner. The mornings will be chiefly occupied by lectures, the afternoons by laboratory work and the evenings by library work or by special lectures on more general topics.

A special circular has just been issued giving details and a schedule of exercises, covering following groups of lectures and demonstrations:

Plant Physiology.—Two lectures by Prof. W. S. V. Osterhout, April 26 and 27, 9 a. m.

Weeds and Their Control.—Four lectures by Prof. H. M. Hall, April 26-29, at 10 a. m.

Horticultural Laws.—Fourteen lectures by Prof. C. W. Woodworth, April 26-May 10, at 11 a. m.

Excursions for field study of fruit and ornamental plants and their pests, conducted by Mr. R. E. Mansell, assisted by Profs. Woodworth and Babcock, Tuesday afternoons, April 27, May 4 and 11.

The Microscope and Its Use.—Four lectures and four practical exercises by Prof. W. B. Herms, afternoons of April 28, 29 and 30 and May 3.

Insecticide Treatments.—Five lectures by Prof. Woodworth, April 29, May 1, 4, 6 and 8, at 9 a. m.

Horticultural Crops.—Four lectures by Prof. E. J. Wickson, April 30, May 5, 7 and 10, at 10 a. m.

Fertilizers.—Three lectures by Prof. J. S. Burd, April 28 and 30 and May 3, at 9 a. m.

Manufacture and Composition of Insecticides and Fungicides.—Five lectures by Prof. G. E. Colby, May 1, 4, 6, 8 and 11, at 10 a. m.

Identification of Insects.—Seven lectures and seven practical exercises, by Prof. Woodworth, afternoons of May 6, 7, 8, 10, 13, 14 and 17.

Identification of Plants Handled by the Nursery Trade.—Four lectures and demonstrations by Mr. Mansell, May 3, 5, 7 and 10, at 10 a. m.

Recent Entomological Problems in California.—Two lectures by Prof. Woodworth, May 11 and 21, at 11 a. m.

Diseases of the Vine.—By Prof. F. T. Bioletti, May 13 and 14, at 9 a. m. and morning of May 15.

Control of Important Insects.—Six lectures by Prof. Woodworth, May 13, 14, 17, 18, 19 and 20, at 11 a. m.

Horticultural Practices.—Seven lectures by Prof. Wickson, May 13, 14, 17, 18, 19, 20 and 21, at 10 a. m.

Foreign Fruit Pests.—Four lectures by Prof. Herms, May 18, 19 and 20, at 9 a. m.

Plant Disease.—Five lectures and four practical demonstrations by Prof. Babcock, afternoons of May 18, 19, 20 and 21, at 9 a. m.

Evening lectures on general topics particularly for students in this course have been arranged as follows, the exact dates to be announced later.

Insects in Their Relation to Public Health, Prof. W. B. Herms.

Bacteria and Their Role in Farm Life, Prof. C. B. Lipman.

Pure Food and the National California Food Laws, Prof. M. E. Jaffa.

Cereal Improvement in California, Prof. G. W. Shaw.

Those desiring fuller information may address: Dean of the College of Agriculture, Berkeley, Cal.

THOSE REBELLIOUS STRAWBERRIES.

To the Editor: As we are making a business of raising strawberry plants, our experience in propagating from runners may be of interest to those who have been reading the articles which have been appearing in the Pacific Rural Press regarding this subject.

While it may be said that we know something about plant life, the fact is we know almost nothing. We know that the life purpose of a plant is to reproduce its kind. And we also know that it depends somewhat on the conditions of soil, weather, etc., as to amount of increase, but is there anyone who knows why one variety of strawberries will bear two or three times the number of runners as some other variety, and both grown under exactly the same conditions, so far as one is able to tell? While our experience has enabled us to form some idea of what will result under certain conditions, we are not sure of our ground, and as for knowing the why of it, we are helpless.

After several years propagating strawberry plants our conclusions are that a plant that is about run out will continue to make runners more and more with each generation, and fewer and smaller berries. Yet there are plants that have been grown each year from carefully selected stock that will also start many runners, in the end making good thrifty plants. However, if these runners were kept off, the plant's effort to reproduce would have resulted in a good crop of big berries.

We always keep blossoms picked off from mother plants, though I cannot say that there are any more runners on that account, but mainly that the whole vitality of the plant may go into the growth of the young plant.

We have also learned that we cannot continue to raise plants year after year on the same ground, as fewer plants will result each year. We believe, too, that the longer plants have been propagated in California, provided they have been properly bred each year to keep up the vitality of the plant, the greater the tendency to make berries and the fewer the runners, as is evidenced by the continued cultivation of such varieties as Longworth, Prolific, Marshall, Sharpless, Brandywine, etc., and such also appears to be the case with varieties which originated in this State, as the Dollar, Linda, and perhaps the Arizona.

It seems to us that the best soil condition is to have plenty of humus in the soil, by either plowing under weeds or a cover crop, such as peas or alfalfa. We are planting this season one plot where Canadian peas were plowed under. So that after all is said and done, we are brought back to our first statement, that we know mighty little about it.

G. H. Hopkins.

Burbank, Los Angeles County.

[This is very interesting. Please write us some more fact and philosophy on small fruit growing. —Editor.]

RAISED BEDS FOR EARLY STRAWBERRIES.

To the Editor: The writer is in search of some new or old plan by which extra fancy early strawberries may be grown for market. Santa Cruz is well adapted to all kinds of berries; that is, as to climate, but some of our soils are very poor, and many who are trying to raise even good fruit fail. The rainy season is very hard on the plants, for the water will stand and sour the soil. I have a plan which I wish you could give me advice upon.

I intend putting up 6-inch boards every 4 feet, thus making a 4-foot raised bed, and leaving a 2-foot path between each bed. This would give me thirty-five 4-foot beds that are raised 4 or 5 inches above the level of the ground and thirty-four 2-foot paths or aisles per acre. In these beds I would plant two rows of berries, 1 foot each side and 2 feet between rows in the beds and 1 foot apart in the rows. In this way I would get 14,560 plants per acre.

Now, then, when planting my plants would it be good to make a furrow 5 inches deep and fill up this with rotted manure (or some fertilizer) and then, on top of this, put sand and loam—the plants to be put on top of this? Or would it be better to fill up the two feet between rows (in the bed) with manure to a depth of 3 or 4 inches (not putting any manure under the plants then) and letting the water for irrigating run down this manure and soaking to the plants?

Again, would it be a better way to let the water run down or fill up in the 2-foot aisles and soak under the 6-inch sideboards of the beds and act as sub-irrigation; for, of course, the boards would only be put on top of the ground and stakes driven in on the outside and the beds filled up with earth. In such a way I should think irrigation could be made easier. This way of fixing up beds, manuring, sand and loam would cost $300 per acre here, but wouldn't I get earlier, larger and more fruit by this method? I would like very much your opinion on this plan or any other you may know of.—Planter, Santa Cruz.

[We have read with interest your account of growing early strawberries by a system of raised beds made with borders, etc. You seem to have a thoroughly good understanding of the principles involved, and we have no doubt you could reach satisfactory results by the method. We should think, however, you could accomplish everything at vastly less cost by simply using a system of raised beds without lumber, merely throwing up the land in ridges and using the dead furrows for paths and for irrigation ditches, as is commonly done in field culture with irrigation in this State. Covering your land with lumber not only costs much for the lumber, but requires immense work to get in place and reduces you to the use of hand labor in all processes of weeding and cultivation. Your proposition strikes us as too fine, though we have no doubt you would get elegant fruit if the plants were handled right.—Editor.]

GOVERNMENT WORK FOR CALIFORNIA HORTICULTURE.

California horticulture is so varied and is proceeding under so many novel conditions in nature, in trade and transportation that all available lines of research and experiment are welcome and able to do important work. The special undertakings of the U. S. Department of Agriculture in this State during the coming fiscal year are indicated by the financial arrangements made for them in the appropriation bill passed by Congress last month. Some items not strictly in this State but in neighboring regions are also included:

For improvement of methods of packing and shipping California oranges and deciduous fruits, $22,000; improvement of fruit storage methods, $7000; eradication of the pear blight, $10,914.33; investigation of diseases of the peach and plum, $6500; establishment of date culture and study of the life history of date palm, $5310; caprification of the fig and study of figs, $2000; establishment of pistache culture and the study of the pistache nut, $700; breeding new citrus fruits and pineapples, $4110; American hop investigations, $4,533.33; study of making industrial alcohol on the farm, $5000; lemon investigation, especially with reference to keeping qualities, $2637.50; field investigation of loco poisoning, $4266.67; laboratory investigation of loco poisoning, $1908.33; investigations of other stock poisoning plants, $4621.90; fiber investigations, California, etc., $6650.

To establish seed testing laboratory in co-operation with one of the State experiment stations on

the Pacific coast, $2250; breeding cotton for the arid Southwest, $6900; production of alkali and drought resistant sugar beets, $2500; preparation of a manual of Alaskan flora, $1120; experimental export shipments of fruits, $7000; development of phylloxera resistant grape stocks, $5000; cactus investigations, $2640; Yuma Experiment Farm, $3577; alfalfa investigations, $7500.

Plant introduction garden, Chico, $21,380; soil surveys, California, $8000; scale insect investigations, $5000; hydrocyanic acid gas investigations, $5000; Argentine ants, $4000; orange and pear thrips, $5600; biological survey of Alaska, $2400; inquiry into the relation of wild geese to the grain crop of California, $400; extermination of the English sparrow in southern California, $500; destruction of ground squirrels in California, $1000; experiment stations, Alaska, $28,000; Hawaii, $28,000; Guam, $15,000; irrigation and drainage investigations, California, $8500.

FRUIT GROWERS MEET AT NEWCASTLE.

To the Editor: A meeting of fruit growers was held at Newcastle on the 3rd inst. with a view to organization for the better protection and advancement of their interests. Although no very definite action was taken, decided preparatory good was accomplished by addresses from Mr. A. H. Sprague, former manager of the California Fruit Exchange, and William E. Gerber, president of the Earl Fruit Company, dealing with the causes why prices for Eastern shipments are still unsatisfactory and irregular. Mr. Sprague outlined the difficulties of shippers and the good already accomplished by the distributing system. Much had been done, but the system was still incomplete and often defeated by individual consignments. Of 10,000 carloads, though 8000 might be and were controlled and properly placed to suit the markets, and time of transportation, yet 2000 cars would be running wild, interfering with each other and playing havoc with their own market. He likened these irresponsible cars to Victor Hugo's description of cannon broken loose from their lashings on a vessel's deck and bumping into each other in aimless destruction.

Mr. Gerber followed and nailed the same lesson home by relating his actual experiences in New York and other markets some years ago when conditions were very much worse in the absence of any system of distribution.

He told of 28 carloads of California fruit being stalled in New York at one time, a sufficient quantity of perishable fruit to glut the market, not being like dried fruit or any produce that could be stored to bide his time. On that occasion a large Italian buyer, not being aware of Mr. Gerber's mission of enquiry, confided in him that he, the buyer, could make his own price on California fruit, as he knew of 22 more cars at that moment waiting across in Jersey City.

Mr. Gerber recited other instances coming within his own observation showing the paramount necessity of equalized distribution and the decided benefit already effected by the distributing system. He further alluded to the dishonesty of some consignees who demanded large deductions for alleged imperfect fruit that was actually sound and marketable. All these things showed the necessity of business agents at both ends. California is becoming the nation's orchard, but there are others. Georgia and Texas grow peaches and Florida has oranges, and we are a long way from market.

Another meeting of growers is to be held at an early date, when determinate action will be taken. The question of more perfect standardizing will also be dealt with. A. J. L.

THE GOVERNMENT DISTRIBUTION OF FIG INSECTS.

To the Editor: Permit me to say to the fig growers who applied to Dr. Walter T. Swingle of the U. S. Department of Agriculture, for caprifigs, that the mamme will be mailed just as soon as the first insects make their appearance at the Maslin orchard at Loomis. Some of those who have been promised figs containing the blastophaga are becoming impatient. To them we wish to say that it would be a useless waste to send out figs before they are ready. In fact, the Profichi crop in many places is not yet far enough advanced to receive the insects. A few days more of warm weather will cause them to issue.

It may be of interest to fig growers to know that the distribution of cuttings and seedling figs by Dr. Swingle closed a week ago, because the remaining cuttings had begun to leaf out, and to save them it was necessary to heel them in at the U. S. Plant Introduction Garden at Chico. These, as rooted plants, will be available with others next season. Up to the close about 300 applicants had been supplied with about 10,000 cuttings and rooted plants.

Three applicants neglected to sign their names, and one gave no postoffice. These of course could not be supplied, and will probably think they have been neglected. G. P. RIXFORD.

Special Agent Bureau of Plant Industry.
1813 Pierce St., San Francisco.

Citrus Fruits.

ORANGES FROM SECOND BLOOMING.

Written for the PACIFIC RURAL PRESS
By Mr. THOMAS C. WALLACE.

There was one cold night in the southern orange belt during March just past, during which the temperature fell to the danger point, where it stayed long enough to do some damage, though not to the fruit on the trees. Some groves were affected so that the blossom buds were cut and have fallen. As far as the blossoming is concerned, this will be remedied by a second blooming. The fruit of the second bloom is inferior, and only under particularly favorable market conditions can a price be obtained for it to pay for handling. The damage is not by any means widespread, in the sense of affecting many groves, yet it is not confined to any section or "cold streak." The quality of fruit of the second blossom depends somewhat on the lateness of the setting. In case of an abnormally early blossom being destroyed, the fruit from the following blossom, if it comes propmptly in season and not too late, develops quite normally and is usually fair to good. But if the second blossom is late, the fruit which sets from it is mostly coarse, woody, thick-skinned and wanting in juice. The cause of this condition is explained by the habits of the tree, which prepares and stores the energy or condition of sap to feed the blossom and young fruit while the vegetation is practically dormant. An exhibition of this is observed in the breaking into blossom of a tree which has been allowed to gradually go dry, or nearly so, and then supplied with water. The growing or vegetative period of the tree comes later, when the soil warms up and the new rootlet system is thrown out. This growth seems to come directly from the food taken up by the rootlets, the set fruit still receiving its substance from the mature wood and leaves. If there is a setting of fruit synonymous with the setting or vegetative period of the tree, the oranges apparently take on the unrefined wood-making food and grow accordingly. Thus, instead of fine oranges rich in essentials, coarse-grained, woody fruit, synonymous with new or sucker growth, results. In a modified form a similar result occurs in the fruit of young trees which are yet in their vegetative period. Another illustration is seen in the occasional orange developed on the end of a fresh or sucker growth, and which is even coarser and more woody than a summer bloom orange.

It is interesting to observe that among groves side by side, on same elevation and apparently without any difference in protection, some have been affected and others unhurt. A study of some of these groves reveals some facts that may be valuable. Excepting some that are on very low ground or subject to a "cold draw," the groves examined which showed blossom cut from cold have little to practically no lime in the soil loam, though some of them showed considerable lime much deeper, and in hardpan. Some of the orchards hurt had rich organic loam, while others were poor in this respect. All seemed sufficiently supplied with water. Of the groves apparently uninjured all examined but one had fair supplies of lime, or had been limed, in the loam, which was in good heart, the loam having been organized by the application of stable manure or cover crop. From what we know of the office of nitrogen we look for toughened fibre as the mature result of a generous supply, but the lesson before us evidently is that lime has an important influence in protecting the fibre as well as steadying the processes of production. This is surely worthy of thought and further study.

Restoring Orchards That Have Deteriorated.

While traveling recently with a grower of experience, who has spent the past thirty-odd years in Riverside and was among the pioneers in orange growing, I received my inspiration to write this article. Of my own knowledge I know that this grower produced very high grade fruit nine years ago, and I observed the decline both in quantity and quality of his yield. Some three of four years since he awakened to the fact that the decline of his orchard was not simply due to "off seasons" and "unfavorable seasons". So, to use the vernacular of the busy world, he "got busy". Today his orchard soil is like a garden loam, his trees are pleasing to the eye, his Navels hang plentifully and firmly on the trees, and the fruit is firm, smooth, and slated for the fancy bin.

How did he do it?

Before answering this question I crave the liberty of saying that the complaint is quite common that most mature groves have deteriorated in the quality of their fruit, and growers are constantly asking the reason for it. A prominent officer in the Exchange told me only a few days since that it was undoubtedly true that the older groves do not produce as good quality of fruit as when they were in their prime. Grading becomes more and more severe at the packing houses, and there are those among the heavier growers who view the going off in quality with alarm.

To get back to our question as to how our friend recovered his grove so that it is now again his pride, for he certainly is proud of his grove, and neglect is not his besetting sin. He had a heavy soil with considerable clay and a general condition of stiffness. Into this soil he worked over one ton per acre of gypsum and gave it a light dressing of manure. He was a little afraid of manure. He sowed vetches with steam bone meal in the late summer and plowed or disced them under in the winter, January or February, as occasion allowed. He formerly used the plow, but now uses the disc only for such work. He cut his irrigation furrows fully six inches deep and ran three or four furrows between the tree rows, instead of five and six as he had been used to. He did this because he was shown that his soil was too dense to irrigate properly with furrows so near together as five and six brought them. He fed the soil with rich ammoniate animal fertilizer materials in the early spring as occasion allowed. He cleaned up the weed growth under his trees and loosened the soil about them with a grub hoe for about four inches deep right up to the tree trunks. He not only cleaned the dead wood from his trees, but he let light and air into them. These operations freed the bound up condition of the soil and trees, soaked out the artificial hardpan, organized the loam, gave back life to the soil, renewed the lime, the humus, the steady moisture and the air circulation, while at the same time the trees were fed with the great essentials of nitrogen and phosphorus and the rich wealth of soil potash available. But all this was predicted in advance, and the grower, recognizing that he had destroyed his inheritance and failed to make good, took advice and followed it until he points with pride to his grove, producing both quality and quantity as it did in its prime.

But we hear the question, will this do for all cases?

No; there are soils and soils, and while the principles to be observed are the same throughout, there are such differing conditions to meet that we cannot lay down general rules. There are soils so constituted that their power of production in quantity and quality is far more enduring than the average, and will even stand more abuse without failing. Again, there are soils which are easily spoiled and succumb early to imperfect cultural operations. There are even virgin soils which never do well until intelligence or chance finds their weak point and corrects it with methods or materials. I know the grower dislikes to take advice which he cannot fully comprehend the reason for, but he must either do it or suffer the loss until he finds the trail for himself.

AGRICULTURAL REVIEW.

With the Fruit Growers.

Prospects for a good apple crop in the Pajaro valley are fine. So far the indication for trouble from tree pests are less than usual for the season.

The San Fernando nursery company is planting three bushels of orange seed, from which they expect to grow 20,000 trees. The company will also plant 15,000 palms.

All of the stock for the establishment of the new winery at Lodi has been sold. The stock can be held by growers only, and one share represents one acre of vineyard.

The winery belonging to Mrs. E. Gaddini, located three miles north of Healdsburg, was destroyed by fire last week, and 300,000 gallons of wine stored there was also a total loss.

During last week the Santa Fe railway company hauled 1000 carloads of oranges out of southern California. This broke all records in shipping, and the returns from the thousand cars ought to be about $1,000,000.

The Tulare county horticultural commission is at work trying to get citrus growers to fumigate their trees for black scale. It was thought for a long time that the scale would not bother there, but it is now found necessary to fight the pest.

A dispatch from New York states that a combine has been effected of the 75 fertilizer companies, mostly of the South, now outside the old combination. The new corporation is capitalized at $50,000,000, and it is to be financed by J. P. Morgan & Co.

The first case of stawberries was shipped from Newcastle, Placer county, on April 10. They were the Dollar variety, which holds the lead in Placer county as a good firm berry and an early shipper. These grew on the Silva-Bergtholdt ranch and were shipped by that firm.

A meeting of fruit growers was held at Fruitvale, Placer county, last week, to discuss better marketing methods. At the close of the meeting resolutions were adopted favoring fruit shipments through the fruit distributors' agency, that markets would not be glutted at one time and left bare at others.

The recent ordinance passed by the commissioners of Merced county barring out citrus nursery stock from the counties of Fresno and Tulare has been repealed. After passing the ordinance the commissioners thought the measure unwise, and that it would cause retaliatory measures inimical to Merced county.

K. P. Ponce of Mayfield has recently discovered a valuable fertilizer on his place. An ancient Indian mound eight feet high, covering about two acres, has been found to be very rich in phosphates, and the owner finds that it is valuable as a fertilizer. The earth is finely pulverized and full of animal matter, as well as other substances, all highly decomposed.

Walnut growers of Carpinteria have decided to build a large and up-to-date warehouse and packing plant. The heavy rains have practically assured a large crop of walnuts the coming season, necessitating better conveniences for handling. One of the new features to be introduced in the new plant is a hot-air drying process, which has been demonstrated a success in preventing the nuts from becoming mouldy.

The Department of Agriculture has a new experimental car at Riverside, which is to make pre-cooling tests for fruit shipments. The car carries a pre-cooling plant and can be used to lower the temperature of any car of fruit before being iced; that one refrigeration will carry the car across the continent and keep the fruit from decaying. Experimental work will be carried on with orange shipments this spring, and later the car will be sent north to be tried out with deciduous fruit shipments; then the car will be taken through the East.

To Fight the Thrips.

Orange growers of Porterville have raised a considerable sum of money to defray the expenses of a government entomologist to visit that section for an investigation of the ravages of the thrip fly in the citrus fruits. This pest has become troublesome within the past three or four years, and some of the growers took up the matter of government aid. Word was received from the Agricultural Department at Washington that there were no funds available for this sort of investigation at this time, but that the Department would give the services of a man if the expenses of the work would be taken care of. With the money that has been raised by the growers, and with the addition of $200 which was donated by the county, the expert will be secured and it is expected that he will start upon his work at Porterville about July 1.

Demonstration Train Dates.

The agricultural and horticultural demonstration train will tour Los Angeles, Orange, Ventura and Santa Barbara counties during the next eight days, on the following schedule: Leaving Los Angeles in the morning of April 19, the train will arrive at Compton, Downey, and Whittier, April 19; Norwalk, Buena Park, Anaheim, Santa Ana, April 20; Smeltzer, Los Alamitos, Fernando, April 21; Burbank, Lankershim, Simi, Moorpark, Somis, Camarillo, Oxnard, April 22; Montalvo, Saticoy, Santa Paula, April 23; Fillmore, Piru, Ventura, Santa Barbara, April 24; Ventura, Nordhoff, Carpinteria, April 26.

Pacific Coast Entomological Conference.

With the hope of oragnizing the Western entomologists into an association, a conference has been called, to meet at the University of California, from May 20 to 23. A very "buggy" program has been announced, and if the various persons assigned papers attend, the conference will be of great practical value.

Agricultural Notes.

More alfalfa has been sown around Corning this season than for several years.

The work of closing the break in the Sherman island levee is to be done by the owners, under the direction of the State Engineer. It is found, now that the water has subsided, that the break will not cost as much to repair as was at first estimated.

Shipments of cabbage from Orange county will soon be commenced, and as the price at present is high, the growers will doubtless net good prices. The acreage around La Hebra and Fullerton totals about 1800 acres, and while not as large as last season, yet the shipments will amount to 1000 cars.

The California Eucalyptus Co., which has a nursery of five million eucalypts at Tulare, is planting trees at the rate of one a second on its land near there. Already this season the company has set out several hundred acres, and will complete the work of planting 1500 acres before stopping this summer.

It is stated that quite a market for California rhubarb has been developed in Seattle and the Northwest, netting the growers from 2½ to 7 cents per pound. The vegetable is packed in 40-pound boxes

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and carefully graded, and with care the trade is being built up, and in time ought to take a large output of California winter pieplant.

Wheat for the Desert.

A recent dispatch from Paris states that the first prototype of wheat has been discovered, and that experiments with it prove it to be a most valuable find. It is claimed that the new-old wheat will grow under the most unfavorable conditions. It springs up in rocky soil, where other vegetation is scant, it seems to be climate proof, as it grows in depressions below the sea level and then again is found at 4000 feet elevation.

Whether this will prove to be another Alaska wheat story or not, time will tell. The dispatch further states that experiments are now under way in Germany and the United States in selection and grafting on modern varieties, to adapt it to cultivated conditions.

Farmers Organize California Union.

Delegates from local Farmers' Co-operative and Educational Unions met at Fresno this week and organized the Farmers' Union of California, a State organization, which will be capitalized at $250,000. At present the local organizations of the Union have a membership of about 5000, and rapidly growing.

The State organization is designed to handle the business of the locals, and its headquarters will be at Fresno. The following directors were appointed: A. Sorensen, chairman, Fresno; J. H. Dawson, Hanford; O. W. Updyke, Dinuba; Scott Manlove, Selma; J. M. Kneeland, Kingsburg.

Live Stock Notes.

Kings county will make an appropriation of $200 toward the maintenance of sheep dipping plants in that county.

The Visalia Board of Trade is trying to have a co-operative creamery association started there, for the benefit of local dairymen.

Riverside county has granted a total of $785 for bee inspection. It is stated that there are 22,000 colonies of bees there to be inspected.

Several flocks of sheep have been placed in quarantine in the Buttes, near Yuba City, on account of scabies, and will be held till dipped.

Two entire dairy herds belonging to N. C. Burbank and Daniel Durkee, of Prado, Riverside county, are to be sent to the Imperial country.

Six thousand gallons of milk are being shipped daily from Cordelia, Solano county, to San Francisco. Besides milk shipments, large quantities of cream and butter are being sent to market.

The Southern California Egg Ranchers' Association has been organized, with headquarters at Los Angeles. All eggs are to be stamped with the ranchman's name and date, and when they reach the warehouses of the association, will be candled and re-stamped with the trade mark of the association. Eggs sent in each week will be pooled, and every ranchman will receive an average price for all eggs of one grade. The association will also provide a market for poultry. C. H. Kline of Burbank is president and C. M. Waldon of Glendale secretary.

Large Beet Pulp Contract.

According to the Corcoran Journal, the Pacific Sugar Corporation at that place has sold its output of beet pulp for 15 years to the Farmers' Cattle Co., a new company organized for the purpose of utilizing this by-product in the fattening of cattle. The new company is headed by Geo. A. Smith of Corcoran and backed by Pasadena men. They propose to build a large silo to store the pulp, on lands leased near the sugar factory, where they will also have large corrals, sheds, etc., sufficient to accommodate 3000 head of stock. Beet pulp, when properly cared for, and fed to stock in right proportions, has been demonstrated to be a valuable food, and the saving of the pulp which at most factories is thrown away, ought to prove a money-making proposition to the company taking hold of it.

Dipping Cattle in Tulare County.

The work of dipping cattle to eradicate the Texas tick is now in progress in Tulare county, and it is expected that fully 4000 head will be dipped this spring. The dipping vat is 54 feet long, and the animals are dumped off the spring board at one end and made to swim the entire length of the tank, so that they will be thoroughly soaked with the fluid. For dairy cattle there is a special tank, where one cow at a time is driven into a cage and then lowered into the tank till entirely submerged.

A Trainload of Mules.

California seems to be short on mules, according to the following item taken from the Kansas City Star:

It is not unusual to sell one carload of mules to one man at the stock yards, but a whole trainload to one buyer is out of the ordinary. John W. Snowden of Los Angeles was at the stock yards this morning to buy 15 carloads of mules. They are to be used in the work on a new aqueduct to carry water 300 miles, from the mountains to the city of Los Angeles. With Mr. Snowden is Alderman H. H. Yonkin of Los Angeles.

"Our council voted that we should come to Kansas City to buy the mules," said Alderman Yonkin. "We have bought all the mules available in California. Mules are so scarce in California now that we are paying $20 a month rent for some pairs of the mules we are now using. It will require five years to finish the aqueduct. The city voted $23,000,000 in bonds for the work. We expect to use 1000 mules.

At the stock yards it is said this is the largest Western order for mules ever filled here.

Sheep Men Are Prosperous.

This year promises to be one of the best that sheep owners have enjoyed for some time. Not only in California but from all parts of the country the same general feeling is apparent. At this time shearing is in progress all over the State and wool buyers are in the field buying and contracting for wool. The price in California seems to be from 13 to 16 cents per pound. In the central Eastern States the asking price is 25 to 26 cents for unwashed wool. In Montana and Dakota it is from 21 to 22 cents. In Idaho and Oregon great wool sales are being arranged for special dates in May and June. The continued firmness of the market is attributable to a number of causes, among them being the assured quality of the new shearings, the cleaned-up condition of Eastern marketable stocks and consequent lively demand on the part of dealers for new receipts at an early date, undiminished competition for promising clips at primary points, and a fair amount of orders for goods received and in prospect for the manufacturers.

A news item from Red Bluff states that the sheep men report saving 90% of their lambs this season. According to a local wool buyer, there are 240,000 sheep in Tehama county.

The wool men of Yuba and Sutter counties held a meeting at Marysville last Saturday to fix a date for a wool sale.

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Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Cirtus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.

SAN DIMAS CITRUS NURSERIES
SAN DIMAS, CAL.

EUCALYPTUS
GROWN IN SUNSHINE

with roots balled while growing in flats. Saves all roots; make sure success when removed to the field and good growth the first season.
Sample lots at wholesale rates. Can take from flats and send in tight packages to save cost, risk and time.

HENRY SHAW,
320 River St., - - - - Santa Cruz, Cal.

MR. HEBRON WANTS A TARIFF ON HIDES.

Hon. J. R. Hebbron, president of the California Cattlemen's Association, is taking an interest in the Payne bill, now before Congress and having hides on the free list. He protests against that item, and makes an interesting comparison between the quick action the shoe manufacturer gets on his money and the slow process the stockman follows in growing the raw material for boots and shoes. Mr. Hebbron has sent the folowing letter to a large number of Congressmen:

Dear Sir: Permit me to call your attention to one phase of the tariff bill now before Congress, which proposes to remove or reduce the duty on hides (and I refer to cattle) that may have escaped your notice. At least I have seen no reference to it in any of the reports of the discussions on the subject; viz.:

It takes about four years to raise a three-year-old steer and fit him for the market, and the value of the hide is quite an item in determining the value of the steer. When he is fit for market and the grass is getting short or the corn in the crib is getting low, he has to be sold for what he will bring.

Now, during the four years there is to be considered the interest on the investment in land (and it takes from 8 to 10 acres of the ordinary range to carry a grown animal through the year), houses, wagons, buildings, fencing, and other improvements, besides the cost of feeding stock cattle, to which is to be added the yearly taxes, and it is a class of property that cannot be hidden. The assessor never misses it, and there is no rebate for losses that may occur from drought, fire, blizzard, or the ordinary casualties, to say nothing of the risks of loss from black leg, anthrax, Texas fever or tuberculosis. Again, if at weaning time there is an increase of 75%, it is above the average, and the barren cows have to be carried over to another year.

I saw a statement in one of the Eastern papers lately that it took just four minutes to make a pair of boots by machinery, and the labor cost was about 35 cents. I don't know how many pairs of boots or shoes can be made from one hide, but, if the above statement be true, I think it is perfectly safe to say that the manufacturer who fixes his percentage makes more clear profit from one hide in 24 hours than the man who produces it does in 48 months. Yours respectfully,

Salinas, Cal. JAMES R. HEBBRON.

REMEDIES FOR RED SPIDER.

DRY SULPHUR TREATMENT.—The red spider on almonds and prunes is usually controlled by the thorough application of dry sulphur on the foliage.

Almond trees should be treated as soon as the leaves appear in March. A second application is advised from the 1st to the 10th of April. A third application should be made from the 1st to the 10th of May.

Prune growers should watch their trees for the appearance of red spider and apply the sulphur as soon as the pest is seen. During past seasons the appearance of red spider has been noted from the 1st to the 10th of July.

When the thorough application of dry sulphur to the foliage will not control the red spider on almond trees (the cases are rare), use the sulphur spray—sulphide of potash stock solution: Granulated or powdered concentrated lye, 15 pounds; sublimed sulphur, 18 pounds; water to make 20 gallons.

Stir the sulphur and lye together in a vessel which will allow plenty of room for boiling. When well mixed add about a pint of water, placing it in a slight hollow in the mixture, and stir slowly. The mixture will soon begin to melt and boil, forming a red fluid; stir until the boiling ceases and then add water to make 20 gallons. This stock solution will keep for a while, or indefinitely when thoroughly protected from the air.

Make a flour paste in this way: Wheat flour, 4 pounds; water, 4 gallons. Place the flour in a box with a screen bottom (common wire window screening) and pour the water through it until all the flour has been washed into the receiving vessel. It will then be finely divided and free from lumps. The mixture should then be brought to the boiling point, being stirred constantly, thus forming a thin paste without lumps.

Then make the spray as follows: Sulphide of potash stock solution, 1 gallon; flour paste, 4 gallons; sublimed sulphur, 10 pounds; water to make 100 gallons.

Place the above ingredients in the spray tank and keep well stirred while using. A power outfit provided with a mechanical agitator is very desirable in working with this spray. Nozzles of the plug-cock type, which can be cleaned by the simple turning of a valve, are best adapted for the sulphur spray.

Every effort should be made to wet the upper and lower surface of both leaves and twigs, also the interior of the tree. The spray is cheap and material should not be spared.

Agricultural Experiment Station Bulletin No. 154 treats fully of sulphur sprays for red spider, and may be obtained by addressing the station at Berkeley, Cal.

The above spray was thoroughly tested and found satisfactory in Sutter county in 1903 by Mr. W. H. Volck of the State University, and is recommended by him for all cases of red spider not yielding readily to the dry sulphur treatment. This formula was revised by Mr. Volck March 11, 1909.

R. C. KELLS,
JAS. HAYNES,
H. P. STABLER,
Horticultural Commissioners
Sutter County.



An Easy Turning Wheel Pays Best

When you're studying ways to increase business—how to make more trips per day, or how to carry more pounds per trip—remember

MICA AXLE GREASE

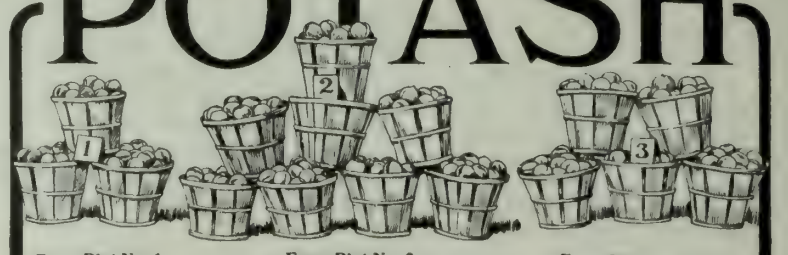
It puts good dollars into many a pocket by saving wagon-wear and horse flesh.

A little on each wagon spindle puts "go" into a whole week's business.

The best thing for *wheels* is Mica Axle Grease. Ask your dealer and try it.

STANDARD OIL CO.
(Incorporated)

POTASH



From Plot No. 1 No Fertilizer
3 Baskets per Tree. Rate, 3¾ tons per Acre.

From Plot No. 2 Nitrogen, Phosphoric Acid and POTASH
8 Baskets per Tree. Rate, 10 Tons per Acre. Increase, 6¼ Tons of Peaches per Acre.

From Plot No. 3 Nitrogen and Phosphoric Acid
5 Baskets per Tree. Rate, 6¾ Tons per Acre. Increase, 2½ Tons of Peaches per Acre.

Get Bigger and Better Crops of Peaches

with the assistance of Potash and increase your income, as one orchardist did with the results shown above. Details in regard to this fertilizer test and many others, will be sent on application.

Potash is Profit

as you will be convinced is the case, by adding enough Sulfate of Potash to your commercial fertilizer to make the Potash run 10 to 15 per cent. Every 2 lbs. Sulfate of Potash added to 100 lbs. of fertilizer increases the Potash by 1 per cent.

Write for Valuable Literature by Experts.

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We have positively demonstrated that WE CAN CURE THIS DISEASE.

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VACAVILLE, CALIFORNIA.

THE "BOSS"
TREE PROTECTOR
MADE OF YUCCA PALM.



Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES

12 in. long,	$ 9.00	per 1000
14 in long,	10.00	per 1000
16 in. long,	11.25	per 1000
18 in. long,	12.50	per 1000
24 in. long,	15.00	per 1000
30 in. long,	17.50	per 1000

Agents Wanted Everywhere.

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LAND PLASTER

(Gypsum)

Nearly every California ranch needs Gypsum. It corrects soil conditions, helps other fertilizers give better results and aid fertility in the soil. Alfalfa, grain, vegetable and fruit crops are greatly increased.

Write for booklet and prices.

PACIFIC CEMENT PLASTER CO.
AMBOY, CALIFORNIA.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing Fine soil, timber, rainfall. Box, 521, SAN LUIS OBISPO, CAL.

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Dealers in PAPER 1400 FOURTH ST., SAN FRANCISCO
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Blake McFall & Co., Portland, Oregon

Live Stock and Dairy.

DAIRY PROFIT AND PRACTICE IN EEL RIVER VALLEY.

Mr. Levi Wells, Dairy Inspector of the U. S. Department of Agriculture, recently visited Ferndale, Humboldt county, and as this unique dairy district of the Eel River valley is not as well known as it ought to be, even to California readers, we take from Hoard's Dairyman what seems to be a very acute and frank description of its dairy conditions and methods:

Nestling among the coast hills of California, at the mouth of the Eel river, on the Pacific Coast, 200 miles north of San Francisco, lies a little valley about three miles wide by five and a half miles long, that in fertility of soil, climate and other accessories, is especially adapted to dairying. It has been claimed that southern Ireland possesses more natural advantages for carrying on this industry than any other country, but the soil is not as productive as is that of California.

It is alluvial soil, several feet in depth, that was ages in accumulating from the surface wash of decayed vegetable matter from the foothills and mountains contiguous to Eel river.

Its market value is from $350 to $500 per acre. The rent paid by dairymen for the use of these lands averages $20 per acre.

One dairyman keeps 16 cows on 11 acres, feeding nothing but what he produces on the place. Feeding concentrated feed, such as grain of any kind, either grown on the ground or bought, is not practiced.

They practically have pasture the year round, though some hay is fed during the rainy season of winter. From early spring to about September first dairymen rely upon their pastures almost exclusively, but as little or no rain falls from about the middle of May until September, and notwithstanding they have a heavy fog and dew every 24 hours, equal to a good sprinkling of rain, with a natural subirrigation, and very little sunshine, yet in August the pastures show considerable shrinkage, so that peas and other soiling crops are fed to supply the shortage.

Carrots are extensively cultivated and make a wonderful growth, the tops standing two or three feet high, completely covering the ground. These are fed green, the tops and roots being alike consumed. Beets are also extensively grown for feeding purposes, but carrots make a better food for dairy cows.

The weather is too cool to successfully grow corn, though it is an ideal temperature for making butter, as no ice is required, and some creameries have no artificial refrigeration, though the better equipped ones have. The maximum temperature in May, 1908, was 55 degrees, and only 61 degrees in June. Probably the highest temperature of the season did not exceed 70 degrees, and rarely as high as that, while at night it ranged from 50 to 55 degrees.

CREAMERIES AND THEIR PRODUCT.—Five creameries—the Pioneer, Central, Grizzly Bluff, Capital and Riverside—receive the product of 7826 cows; one creamery in the territory described was not visited. Including this, and cows that are kept for family use and others, the milk from which is not sent to the creameries, would probably make a total of 8500 cows kept on an area of about 10,560 acres.

Deducting from this the village lots and other lands not used for dairy purposes, we have the remarkable showing of 8500 cows being kept on 10,000 acres; less than one and one-fourth acre to the cow; conditions that probably cannot be duplicated anywhere in the world.

One day's product of these 7826 cows, of which a correct record was obtained, was 237,160 pounds of milk, from which 10,069 pounds of butter was made, having a market value of about $2700, making over $80,000 for butter a month, to which may be added $7500 for casein manufactured monthly. This data was gathered in June, about the best of the season for quantity, but not for price.

Do the creameries here make a good profit? They most certainly do. In the first place, they pay the ranchman what they please for butter-fat, none of them knowing until the 15th of each month, when they receive their checks, what they are to receive for the previous month's delivery. The price, however, is based on the San Francisco market, and owing to competition among the creameries, it is fairly remunerative, yet as the creamery managers fix their own prices, they are sure to leave a good markin of profit for themselves.

One creamery the present season put up for the United States Navy in three pound cans 468,000 pounds of butter in four months, for which it received $173,340 on a San Francisco market averaging less than 25 cents, which gave a large profit. The quality, however, was above "extra," scoring 95, with water content not to exceed 13 per cent. Every churning was analyzed, at the expense of the contractor.

COST AND PRODUCT.—Does the dairyman paying $20 an acre make a profit? They claim so, and as everything they feed is produced on the land, they probably do make a good profit. I secured a statement of last year's operations of a ranchman who kept 74 cows on two separate tracts, 37 on each. One lot was kept on reclaimed marsh land, which is not as valuable as the river bottoms where the others were kept.

The total cash receipts for milk from those on the marsh land for the year were $2332.88, being an average of $63.05 per cow. The largest amount received for one month (July) was $307.77. The lightest receipts for one month (February) were $59.46. The total amount of milk produced during the year on the marsh land was 187,715 pounds, containing 7212 pounds of butter-fat, equivalent (allowing 20 per cent overrun, which is about the average the creameries make) to 8654 pounds of butter, being an average of 234 pounds per cow.

The total receipts in cash from the 37 cows kept on the bottom land, not including the skim-milk, which was fed to the calves and hogs, was $2721.00, an average of $73.56 per cow. In this bunch, the largest amount received for one month (October) was $325.15, and smallest, as in the other bunch, was for February, $158.43.

Deducting $20 a cow for the use of the reclaimed marsh land, and $25 per cow for the river bottom, amounting to $1665, we have left $3388.88 for labor and profit. As there is little to do on these dairy ranches aside from feeding and milking the cows, the margin of profit to the dairyman is very good, so that it is a paying proposition all around.

NOT COMMENDABLE.—Comparatively few milk in barns, some because they have none suitable, and others from choice. This in dry weather is not particularly objectionable, but during the rainy season (owing to the nature of the soil and almost continual rains) it is most decidedly so. Under such conditions, where cattle are continually walking about, a soft mire is formed to the depth of a cow's knees or more, and one can readily imagine the filthiness and unsanitary condition of milk obtained under such circumstances.

It is exceedingly unfortunate that, where nature has done so much, man has

Keen Sportsmen Never Waste Ammunition on "DEAD DUCKS"

The DeLaval Separator Company in their advertisement beg to be excused for devoting so much space to the United States Separator, which they consider a **"dead duck competitively."** This is a sweeping admission on their part that the United States Separator is not dead but is the most vigorous duck in the whole flock.

Keen sportsmen never waste ammunition on "dead ducks."

The facts showing who was the original Inventor of the first practical continuous flow Centrifugal Cream Separator, as disclosed by the records in the Patent Office at Washington, make it plain that Dr. DeLaval was not the original inventor.

These records show that DeLaval, beaten in his claim of priority by other applicants, bought up the Houston & Thompson application (which ante-dated his own), in which he filed a substitute application and added the identical claims that he was beaten on, in the interference with the other applicants.

The Patent Office then allowed these claims to Houston & Thompson and the Patent went to issue.

The United States Circuit Court of Appeals afterward decided in effect that Houston & Thompson were not entitled to the broad claims, and Dr. DeLaval "was not in it."

DeLaval bought the Houston & Thompson application to deprive the rightful Inventors of their invention and then DeLaval got beaten at his own game in the Courts.

The DeLaval in their advertisements accuse the United States of utilizing in their Separator an invention which they purchased.

This is not true, as an examination of the DeLaval patent referred to and the United States Separator patents will readily disclose the falsity of the DeLaval claim. This is another "word claim" of theirs.

The 1909 Model United States Separator is covered by patents (720,154; 726,438; 732,750; 806,346; and 859,185) owned by the U. S. and which cover its scientific features which make the United States Separator so much superior to the DeLaval and every other Separator on the market. These are but a few of the nearly 40 patents owned by the United States.

Another thing, they accuse the United States of being responsible for the nullification by the Courts of a patent purchased by the DeLaval in their efforts to "squelch" the United States Separator, which patent they admit they never used but which they bought and paid $20,000.00 for, according to the Court records, in the hope that it would "squelch" the United States Separator that was beating them so vigorously in the market.

It is true the Court decided that they had spent their $20,000.00 in vain. The United States Separator accomplished better results with a bowl of half the diameter and with less than one-third as many parts as the DeLaval had.

The DeLaval whine because the United States holds the World's record in a test with the DeLaval, of 50 consecutive runs on 10 different breeds of cows.

If this record is so ancient and so non-progressive, what is the reason they have not been able to beat it in all these eight years they have been attempting to do so. Let them show a more progressive record in this Country or any other, if they can do so.

The U. S. is still eight years ahead of the DeLaval.

The DeLaval Company claim that the LaGrange Creamery is a little Creamery and admit that it is near Poughkeepsie.

If it is so small and of so little consequence, why did they spend so much money at the Dutchess County Fair, Poughkeepsie, N. Y., in the Fall of 1899 and get the President of that Fair to offer a money premium for a test at the Fair between the DeLaval and the United States Separators? **Why if it was so inconsequential did they stop their Factory and turn out all their men without loss of pay to "whoop it up" on the day of this great test?"**

It was apparent to the public that the DeLaval Co. felt satisfied that they had things fixed to win the contest, but the test of the cream showed that the United States had **secured more butter fat** from the quantity of milk than had the DeLaval.

Again, if it is so inconsequential why did they have eight of their best canvassers immediately thereafter in that one locality to solicit orders and to prevent, if possible, the farmers from buying the United States Separator? Yet when the canvass was closed there were three times as many farmers who had taken the United States, as there were who had taken the DeLaval.

The DeLaval accuse us of changing from year to year the date of President Hoyt's letter. This is a falsehood. We do not find it necessary to falsify records and thus deceive the people. **The facts remain true as Mr. Hoyt states them, that there are three United States Separators to every one of the DeLaval.**

The DeLaval Company advertise that they make more trade allowances for old United States Separators than for any other make of Separator.

We guess that is true, for there are more United States Separators in use and we have been repeatedly informed by users of United States Separators that the DeLaval agents have bored them to death to exchange and before giving up their persistence, have offered to give a new DeLaval in even exchange for an old United States.

Quite a number of former traveling salesmen of the DeLaval Company have informed us that they have been instructed from Headquarters to give a new DeLaval Separator for an old United States Separator, if they could not make any better trade and that their instructions have been from the DeLaval Headquarters, that the repairs on the DeLaval in a short time would make a good handsome profit on this kind of an exchange.

The DeLaval Company refer to their farm sizes of Separators as the "Baby" type.

The United States Spanked the "Baby" so hard in days gone by that they seemed for awhile to try to tell the truth and not make such extravagant claims, but they have got into their old tricks again, making extravagant, false statements and "word claims."

The above, we think, is sufficient for this time; to be continued later on, but in the meantime send for Catalogue No. 148.

Vermont Farm Machine Company

Bellows Falls, Vermont.

Warehouses in every dairy section of the United States and Canada.

done so little toward providing suitable conveniences for carrying on dairying in a sanitary manner. I did not see one properly constructed milking stable in that locality, or one that can be kept in a sanitary condition.

I did see some corrals that were planked, but these were in a very filthy condition, evidently not having been cleaned for weeks, or maybe months. Better conditions prevail where the one in possession is the owner of the premises, and very naturally so, for the tenant can not afford to put up suitable buildings on other men's land, and the owner, if he can get his $20 an acre annual rent, is not disposed to incur the expense. Then, besides, they are all making money and are used to their way of doing, and even if one creamery that is trying to turn out fine goods refuses to receive milk on account of its bad flavor, some other one, near by and less particular, is only too glad to take it and add other patrons to his list.

Tuberculosis also exists to an alarming extent among the herds, and is rapidly increasing through feeding tuberculous milk to calves and selling them to stockmen on the ranges, and in two or three years buying them back, to replace those that from age or disease have become unprofitable. The United States Inspector at San Francisco has told me that beef cattle from the ranges were many of them tuberculous, and that there had been an increase of 10 per cent during the years that he had been located at that station.

California has stringent laws governing many of these abuses, and if they had one requiring milk from the creameries to be sterilized before being fed to the animals, a great check would be placed on the spread of tuberculosis.

California has so many natural advantages for profitable dairying, both in climate and cheap production of feed, that it is likley in the near future to become one of the leading dairy States. This article only describes conditions in one locality, where there are vast areas of alfalfa lands, that by irrigation are made wonderfully productive, where profitable dairying is being extensively carried on, and the industry is rapidly increasing.

CALIFORNIA DAIRY FEEDING AND CARE.

Mr. S. E. Watson, who prepared for the Pacific Rural Press several months ago interesting sketches of California dairy practices, has recently written for Hoard's Dairyman on other matters of local practice, from which we take a few paragraphs, with a view to giving other California readers knowledge of what some of them are doing.

Alfalfa Meal.—It is now common to find alfalfa meal a part of the ration in milk dairies around the bay. It is usually fed dry, and sometimes as a slop, an unnecessary practice, for debatable reasons. If it is not advisable to wet up bran before feeding it, it is absurd to make a paste of alfalfa meal. The theory that saliva and the gastric juices should not be diluted with water in the feed applies with special force to alfalfa in any form. Its plant structure is so fine, from its rapid growth, that fluids dissolve it easily, and water alone takes 40 to 50 per cent in solution.

Between San Francisco and Sacramento, near Dixon, in sight of the Southern Pacific Overland line, is the newest and most up-to-date dairy barn in the State—that of H. W. Timms. Including two 100-ton silos, the cost of this is $6000, the silos amounting to $900 and over. Electric power from the Bay Counties Power Co., with a station on the headwaters of the American river in the Sierras, follows the railroad, and this is connected with the dairy farm. A motor and an Ohio silage cutter grinds alfalfa hay from the field and blows the meal into the large storage room. In July this alfalfa was rated at $7 a ton in the vicinity, cocked in the field. And this barn full of $10 alfalfa meal, after cutting, is a rather good investment. At the other end the silos have been filled with the last crops of alfalfa, and between this meal and silage there is room for 120 cows, in stanchions, upon a solid concrete floor with the usual gutters and feeding arrangements.

A model alfalfa farm of 80 acres, checked, ditched and thoroughly drained, surrounds the barn, near which is a sheltered corral. From this corral, under the cow barn and model hog house a drain runs to a cistern, into which every ounce of droppings is washed by flushing the cement floors after each milking. A bucket of water spilled at any point will gravitate to the drain. At intervals while irrigating, this cistern is emptied into the main distributing ditch by a pump and motor, the accumulated richness in solution covering the 80 acres of alfalfa. This enterprising young dairyman proposes to supply certified milk to San Francisco, 70 miles distant. From a well 100 feet deep an 8-inch rotary pump, operated by a motor running almost continuously without attention during the irrigating periods, supplies an abundance of water at an expense of about $3 an acre annually for power.

In other localities the meal is largely used. On a dairy at San Lorenzo, with 125 Holstein and Short-horn grades, it is the main hay feed, supplemented now by pumpkins, fresh brewers' grains, and later a 300-ton corn silo will follow pasture. Beets and about 20 acres of alfalfa, with corn and pumpkins grown on the place, keep up the milk flow to an even supply for a jobbing milk trade. Incidentally, it may be stated that the 3.5 per cent will be increased to 4 by adding a string of Jerseys. Mr. H. W. Meek, the owner, has learned that cross-breeding is not desirable, and that for the demands of his business straight Holsteins and Jerseys are proper. As to alfalfa grown on the place, it is entirely used by mowing, and fed as a soiling crop, stock only being turned on to clean up the waste.

Beet Pulp.—A few miles beyond is the Alvarado Sugar Works, where the first beet sugar in the United States was produced. For a dozen years a large dairy has adjoined the factory, and for 25 years Mr. A. Wegmann has fed beet pulp, first to beef stock successfully, and, as a member of Poorman & Wegmann, to dairy cows, chiefly, for several years, with eminent success. Where Italian rye grass now volunteers, alfalfa will be tried without irrigation, an alfalfa boom having started along the San Francisco bay shore in Alameda county.

Through many years' experience the following practical ration has been adopted: A scoopful of old pulp, 35 lbs., twice daily; Italian rye grass, 3 lbs.; chop mill feed, 2 lbs.; bran, 1 lb., all divided into two feedings. Between feeds the mixed herd runs on 700 acres of bottom feed. Ray grass (or rye grass) must be cut in the dough stage for hay. Later it is not palatable. It is not injured by rain in curing, its structure being more waterproof than alfalfa, and more difficut to assimilate by the animal.

Molasses from the factory waste has been fully tried with pulp. It is fattening and proper for beef stock, also fed at the factory, but not suitable as dairy food.

There is an eager demand for any surplus pulp, and while the sugar making run is on it is delivered into cars and wagons from the carriers at 50 cents per ton. Outside of a short season, ending last year the middle of November, it is not feasible to sell or deliver, and the main supply is required at the dairy.

The pulp is held in a heavily planked flaring receptacle on the ground, 100 by 500 feet, approximately, with drainage for leakage during the year. It becomes a solid mass of palatable food, slightly acid, and well liked by all stock. As it is fed it contains about 70 per cent of water, and supplies the animal needs for drink, and is an ideal succulent food stuff.

Alfalfa Pasture and Hay.—Go down one side of the San Joaquin valley to Tulare lake, and up the other to where it meets the Sacramento, and you will find an exclusive alfalfa diet for all stock. The horses stand up to hard work under this

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
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BRUTUS NO. 12007
Registered in the National French Draft Horse Association, Fairfield, Ill. Weight 1800, color black, active and good foal getter. Address
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Jacks and Jennets For Sale.
We breed the Best. Don't write—come and See We can show you.
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JOHN LYNCH, breeder of Registered Short horns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

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GEO. C. ROEDING, Fresno, California. Breeder of Thoroughbred Berkshire Boars and Sows.

P. H. MURPHY, Perkins, Sac. Co., Cal. Breeder of Shorthorn Cattle and Poland-China Hogs.

BERKSHIRE AND POLAND-CHINA HOGS C. A. STOWE, Stockton, Cal.

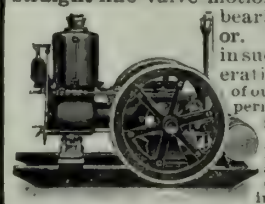
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A SAFE-GUARD IN YOUR HOUSEHOLD
FOR SORE-THROAT, RHEUMATISM, ACHES, PAINS, SPRAINS, POISONOUS BITES, SWELLINGS, NEURALGIA, CUTS, OLD SORES, LAMENESS, STIFF JOINTS & MUSCLES, ETC.
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FOR TREATMENT & CURE OF THE MANY AFFLICTIONS OF HORSES AND OTHER DOMESTIC ANIMALS.
MORE THAN 40 YEARS OF TEST HAS PROVEN IT BEST.
50¢ & $1 Bottles - Sold Everywhere
IT DOES THE WORK
H.H. Moore & Sons, Mfrs. and Proprietors, Stockton, Cal.

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are given the preference by 80 per cent of California stockmen because they give better results than others do.
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Pure Bred Holsteins
At present we are offering a fine lot of **Young Bulls and Heifers** at very attractive prices. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co. now owned by the
OAKWOOD STOCK FARM
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FOR SALE
Registered Polled Angus Bulls, all ages.
My herd is headed by the Imported bull Inkerman of Cullen, No. 62268, assisted by the Blackbird bull Brechin, No. 64119. Both are splendid types of the breed. My cows comprise the Queen Mother, Princess, and Heroine families. Look up the record of this breed at the International Exhibition at Chicago, where all breeds compete. Here they have topped the beef breeds for fifteen successive years. Prices reasonable and correspondence solicited.
ABERLOUR, Bishop, Calif.
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100 pages, illustrated. Tells about symptoms and treatment of all common ailments. Also explains how and why
Tuttle's Elixir
cures Spavin Lameness, Curb, Splint Sprains, etc. Also Colic and Founder. Years of use by many thousands have proved its worth. Send for proofs and valuable book. Dealers sell Tuttle's Remedies.
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WE HAVE FOR SALE
75 Head of Pure Bred Hereford Bulls, Yearlings and Two-Year-Olds.
These bulls have all been raised especially for range conditions. Constitution perfect. Price right. For further particulars apply
DAVID JACKS CORPORATION, Monterey, Cal.

system, beef is prime in appearance, and dairy stock looks fine. Consistent with alfalfa elements of nutrition, surplus flesh loads down the frame of these animals. It is easily and profitably grown, with abundant irrigation, on highly productive land. Sorghum, Egyptian and Indian corn, pumpkins, beets, stock melons and forests of weeds and wild pasture cover the country, but easy dairying customs rely on alfalfa nine times out of ten. Keen working farmers and farm laborers succeed, sometimes by renting alfalfa and getting cows on the creamery check payment basis, sometimes with money or credit. Alfalfa and the cows buy the land, and then more than half of these farmers go into raisins, and finally buy autos. It is a most wonderful country, outside of alkali regions, where a man may be ruined in hasty investment. This description about covers the style of dairying, though there is an occasional exception, one of which is so exceptional that it will be here illustrated:

Mr. Geo. A. Smith, at Corcoran, Tulare county, is feeding alfalfa, and concrete silos are to be built for next season's corn to be grown on the farm, and this will make it the pioneer in silage for the Tulare Lake region.

BEEF AND MILK SHORT-HORNS.

We are frequently asked, says the Denver Field and Farm, how to distinguish between milk and beef strain Short-horn pedigrees, so that cattle with dairy bred or beef bred ancestors may be intelligently chosen. There is no definite method by which a breeder can distinguish these strains by the study of a pedigree alone. It is a common opinion that the Bates bred cattle or the old-fashioned families produce more milkers than do the Scotch or more modern families. This is only relatively true, because excellent milkers can be found in both lines of breeding, but the milkers appear most frequently where the cattle have been handled in a natural way and the cows milked by hand. We would designate a Short-horn as of a milking strain if she and her immediate female ancestors were good milkers, and we would lay more stress on this than we would on the milking strain pedigree. Scotch cattle are those which have been imported from Scotland or trace directly to cattle which have been imported from Scotland without admixture of American bred blood. Some of the Scotch families are Duchess of Gloster, Orange Blossom, Secret, Brawith Bud, Mary Anne of Lancaster, and others. Some of the most popular Scotch families are those originated by Amos Cruickshank. Some of the Bates families are the Duchess, Wild Eyes, Kirklevington and others tracing back to families originated by Thomas Bates. The American families, so-called, are those brought over to America in early days and traced to such imported cows as Young Mary, Rose of Sharon, Dulcibella, Young Phyllis, White Rose, Amelia and many others. There are also the Teaswater, Mrs. Motts and a few others which belong to the cattle imported in 1817 and are known as the 17's, and which are held in some disrepute among Short-horn breeders, although they are as a rule exceedingly useful cattle. A Short-horn pedigree is spoken of as Scotch-topped when the first sire appearing in the pedigree is straight Scotch and the remainder are of Bates or American breeding. A pedigree is designated as Bates-topped when the first sire or two are of Bates breeding. These are but a few of the many points to observe in studying Short-horn cattle pedigrees. The man who wants milking qualities in his Short-horns should manage them like dairy stock. The milking function is brought about by the development of the maternal instinct. If the cows are fed for milk supply and milked by hand, a tendency to increase the milk supply will be set up with the lengthening of the lactation period.

ALFALFA GRINDING.

According to the Denver Field and Farm, the alfalfa grinders have made such a hole in the feed trade of the Central and Eastern States that they now propose to come through with a uniform series of grades by which their goods must be classified and recognized. Some of the dealers contended that the meal must be bright green color in order to be of the best quality, but, as is known to our alfalfa growers, a large proportion of the richest alfalfa produced cures a rich brown and of delightful fragrance which is particularly appetizing to sock. Meal from this hay is equally valuable. The grades of meal as established are: Choice alfalfa meal must be milled from leafy alfalfa of natural green color, properly cured, free from foreign grasses, sound and sweet with pronounced alfalfa fragrance; must contain at least 14% protein and 1½% fat. Prime alfalfa meal must be milled from leafy alfalfa of fair color, sound and sweet, having reasonable alfalfa fragrance, shall be free from foreign grasses, and shall contain 14% protein and 1½% fat. Standard alfalfa meal shall be milled from alfalfa, sound and sweet, but not of sufficient fragrance and color to grade prime, may contain 15% of foreign grasses, and may contain only 11% protein and 1% fat. No grade alfalfa meal includes that which does not come up to standard.

THE CATTLE TROUBLE IN SHASTA REGION.

Much has been written lately about wild horses infesting certain mountain ranges of the West and menacing the interests of stockmen. Now comes a report from a district in the Shasta National Forest of California that wild cattle have become a nuisance.

The animals are the descendants of domestic cattle, but having run without restraint for several generations have become as wild as a deer. Stockmen will not apply for ranges infested by these cattle since tame cattle soon adopt the habits of their wild relatives and become equally as unmanageable. It is impossible to gather young stock in the fall which have run with these animals even for a season.

The majority of the stockmen desire to shoot them but certain mountain dwellers claim them and shoot an occasional one for winter beef. The forest officers will in conjunction with the stockmen interested investigate the matter this summer and decide upon some plan of ridding the ranges of this pest.

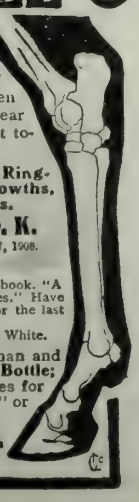
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Cures Spavin, Curb, Splint, Ringbone, all abnormal Bone Growths, Sprains, Swellings, Lameness.

USED 20 YEARS—O. K.

Stevenson, Minn., Jan. 27, 1908.

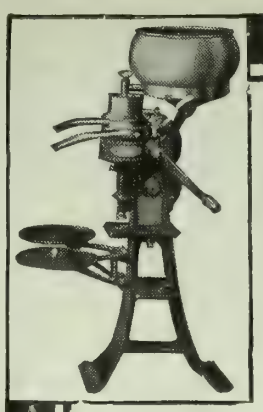
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Enosburg Falls, Vt.,

Dear Sirs:—Please send me your book. "A Treatise on the Horse and his Diseases." Have been using Kendall's Spavin Cure for the last 20 years and find it O. K.

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We cannot believe there is a sensible man living who would put his money into the purchase of any other than a De LAVAL cream separator, for his own use if he would but first avail of the opportunity open to everyone to see and try an improved DE LAVAL machine before buying any other.

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(or Stock Food). The best Condition Powder made. A vegetable compound, very strong and effective, but perfectly harmless. It will make young stock grow and develop in a rapid yet natural way. It purifies the blood, tones up the system, acts on the digestive organs, enabling the animal to assimilate all of its food and convert the same into blood, bone, fat, sinew, and muscle. Hence it is a great feed saver. It has been a standard preparation on this West Coast for many years. Send for our free Booklet, with many testimonials.

25 lb. pail, $3.00; 50 lb. sack, $5.50; 100 lb. sack, $10.50. If not sold by your dealer we will prepay the freight to any point west of the Rockies. Guaranteed as represented; money back if not fully satisfied.

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Successors of the WEST COAST STOCK FOOD CO.

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LIME AND SULPHUR SOLUTION FOR DIPPING SHEEP AND CATTLE

This famous preparation has now been used over a decade in the United States for dipping sheep, cattle, and hogs. It bears the endorsement of the Bureau of Animal Industry at Washington, D. C. It will not discolor the wool; will not injure the eyes of the sheep; positively prevents scab, and does not in any way set back the stock when dipped.

Ask your nearest dealer or write for particulars to:

CALIFORNIA REX SPRAY COMPANY
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DISTEMPER NOW CURABLE.

CRAFT'S DISTEMPER CURE is a scientific preparation for the cure of distemper in horses, sheep and dogs. Stops the cough and destroys the germs that cause the disease. This remarkable medicine has cured more bad cases of distemper, pinkeye, etc., than all other remedies combined. A liquid given on the tongue. Safe for all ages and conditions 50 cents and $1.00 at druggists or prepaid by D. E. NEWELL, 56 Bayo Vista Ave., Oakland, Cal., Pacific Coast Agent.

The Home Circle.

Just for Today.

Lord, for tomorrow and its needs,
I do not pray;
Keep me from stain of sin
Just for today.

Let me both diligently work
And duly pray;
Let me be kind in word and deed
Just for today.

Let me be slow to do thy will—
Prompt to obey;
Help me to sacrifice myself
Just for today.

Let me no wrong nor idle word
Unthinking say;
Set Thou a seal upon my lips
Just for today.

So, for tomorrow and its needs
I do not pray;
But keep me, guide me, hold me, Lord,
Just for today.

City Life vs. Country Life.

His spirits broken by his inability to get work, William Rapp, 54 years old, machinist, committed suicide yesterday at his home, 533 West Fiftieth street, in a room adjoining the one in which his wife and children were seated at a meal they had bought with the last savings of a lifetime. Rapp came here from Germany 35 years ago, and until May, 1907, had steady employment. He had laid by at the time of the panic about $1800.—N. Y. Sun.

The above is an undertone from the life of the city. This man was not an idler; he was not a spendthrift; he was a skilled workman, a home-loving German. For 35 years he had worked steadily and saved what he could—to own a home is impossible for the working class in a great city. In the city's fierce competition he was crowded out by younger men, and while still in the prime of life came to consider himself a derelict. The pathetic note left for his wife tells the story:

"Forgive me for what I am doing. The means of subsistence are gone and I do not want any one to keep me. Were it not for this cruel American system of ostracising elderly people by which an existence is absolutely denied to a man in the fifties, I would never think of being tired of life. I would not utter a word of complaint if I were an invalid and unable to work, but as it is I am as strong and able to work as I was fifteen years ago. That is what breaks my heart. Your husband, WM. RAPP."

And so "he put a bullet through his brain and died instantly," the chronicler says, that he might not become a burden upon his family and that they might realize upon his small life insurance.

Had this man put 35 years of such steady intelligent work upon a farm how differently his life story would have ended. True, he would have missed the "thrill" of city life and amusements; he would have had much hard monotonous work and long hours, and, at first, privations and self-denials; but each year his toil would have become more congenial and remunerative; each year his comforts and opportunities for pleasure would have increased—he would have secured that best thing which a man can possess in this world—a Home! Sheltered by his "own vine and fig tree" in the autumn and winter of life he could have enjoyed the full fruition of his labors and have said with the poet—

"Let the wide world wag as it will,
We'll be safe and happy still."

Helps and Hints for the Home.

(This department is open to questions and suggestions.)

SOME INEXPENSIVE GIFTS AND FAVORS.—Many original ideas in making these out of eggshells are illustrated in the New York Sun. They are so simple and easily done, and so pretty withal, that the children as well as the grown-ups will be delighted to make them. We give a few examples, and when one gets at the work other quaint and dainty things will suggest themselves. The materials required are a stick of sealing wax, a bottle of paste, some stiff cardboard and bits of bright colored tissue paper, with a little dainty baby ribbon, together with plenty of eggshells.

FLOWER VASE.—Trim about an inch smoothly off one end of a whole eggshell; have a square or circle of stiff cardboard some two inches across; with a bit of hot sealing wax set the shell on end in the center. These dainty vases may be made in clusters of three or more by setting them, so that the sides touch, on a larger piece of cardboard. The cardboard should be covered with satin paper and the edges may be bordered with fluted baby ribbon or tissue paper put on with paste. These vases hold water, and when filled with forget-me-nots, violets, pansies or pink baby roses make a charming favor or offering to place by a friend's plate on the breakfast table.

CUP FOR BONBONS, ETC.—Take two-thirds of the eggshell for the cup and one-third for the bottom; make a small hole in the end of the bottom piece and put hot wax about the edges of the hole; set the end of top part in this; now glue the cup to a piece of cardboard. Trim with baby ribbon to suit the fancy. These cups may be filled with delicate candies and nuts, and covered with a bit of fringed tissue paper tied down with baby ribbon.

CLOWN'S HEAD.—Make a small hole in each end of an egg and blow out the egg; paint a laughing face on one side of the sheH; paste a pointed cap made of bright colored tissue paper on the head; glue a bit of slender stick in the lower hole, and paste a full frill of bright tissue paper around the neck, and you will have a laughing clown.

EGGSHELL HEAD.—Get the brownest egg from the Plymouth Rock's nest; cut off a bit of the small end and empty out the egg; with hot wax glue some shot exactly in the center of the other end inside. The weight of the shot will make the shell stand upright. Now take half of a white eggshell and paste on the upper end for a hat; form eyes, nose and mouth by sticking in place bits of white shell, and fasten longish bits on each side of the head for hair; top it off with a plume of white shell sticking straight up from the apex of the head. You will now have a wise looking head that will wag knowingly when you give it a little touch.

LABOR-SAVING SUGGESTIONS.—Carefully folding the clothes when taking them from the line makes the ironing easier. The knit underwear and stockings, together with the sheets, towels and the like which are in every-day use, will need no ironing if folded smoothly as taken from the line and placed in a pile under pressure. Where the housekeeper has a clothes wringer, to fold such things lengthwise and run them through the dry machine is a very fair substitute for ironing unstarched clothes.

TO SAVE FLOOR CLEANING.—Spread strips of burlap down by the stove or range and in front of the table, sink and wherever there is much standing or work done. This not only saves much cleaning but it protects the linoleum, carpet or floor from much wear. When the work is done, the burlap may be taken up, shook and folded till needed again. A very little pains will transform the burlap into quite attractive mats. Select the better grade of sacks, with the burlap firmly and evenly woven; turn up a wide hem on all four sides and fasten it down by bright colored yarn in chain-stitch. The wide hem keeps the mat straight. A handsome border in several bright colors may be had with a little more time, as the burlap is very easily worked in any simple pattern.

Even heavy wrapping paper or common newspaper may be spread down while cooking and afterward rolled up and burned. It is surprising how much grease and dirt can be kept from the floor by this simple means.

Style That Couldn't Be Copied.

A Belgrade woman sent her last year's hat to Vienna to be remodelled and received back a wierd shaped, strange hued creation that baffled all the envious efforts of the local milliner at imitation.

The secret of this success of fashion is now revealed by official documents showing that the police at the Vienna railway station mistook the parcel for a Servian bomb, and after subjecting it to various tests, including immersion in water, returned it unopened.—London Standard.

Lucky for the Vicar.

During one of the banquets of the Church Congress in London a certain bishop had as his left companion a clergyman who was completely bald.

During the dessert the bald headed vicar dropped his napkin and stooped to pick it up. At this moment the bishop, who was talking to his right-hand neighbor, felt a slight touch on his left arm.

He turned, and beholding the vicar's pate on a level with his elbow, said, "No, thank you; no melon."—Success.

"What's Johnny been doing?" asked the patient father.

"He had an altercation with the neighbors' children, was warned by the police, broke the cellar window, tried to put a cartridge in the furnace, and—that's all I can think of just now."

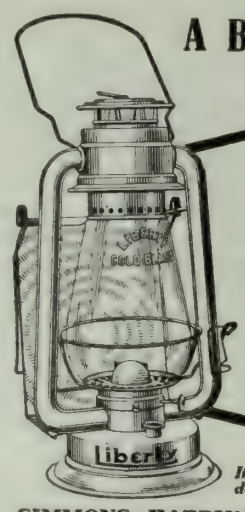
"It's absolutely marvellous, isn't it?"

"What is?"

"That anybody should have the nerve to kidnap a small boy!"—Washington Star.

Knicker—So Jones has a great revenue making scheme?

Bocker—Yes, tax every aspirant for office.



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Every detail of every Liberty Lantern is the best. Best material. Best workmanship. Best design.

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give the biggest, clearest light. The burners are supplied with just the right amount of air. The globes are of the finest lead flint glass. They are tight and compact. Never rattle. Never blow out or jar out. Bail stays where you put it. The simple globe lifting device makes lighting easy.

If not at your dealer's write us.

60 cents to $3.50

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(Inc.) Capital Stock - - - - $100,000.00

The Great Business Training School of the West.
Over 1000 students attending this year.
Finest Building and Equipment in U. S.
National reputation for high grade work.
Indorsed by Oakland Chamber of Commerce and leading educators throughout the West.
Home influences. Ideal climate. Terms reasonable. School in session entire year.

Complete courses in business training, shorthand, typewriting, banking, Morse telegraphy, also civil, electrical, mining and mechanical engineering. Free Catalogue.

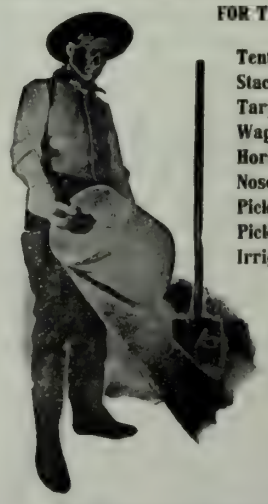
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YOUNG MEN WANTED

We wish to confer individually with a large number of young men who have a common school education and who are physically fit; only those desiring to enter the **Railroad Telegraph Service** need apply. Address School of Telegraphy, Hibernia Building, San Francisco, Market and Jones Street.

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Tents, Awnings
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Khaki Suits for Men and Women

Roll Canvas for Poultry Houses.

Tent Catalogue Free.

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138-40-42 South Main, Los Angeles.

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One Edison Amberol Record at 50c.
Equals two regular Edison Records at 35c.
We have attachments to make your Phonograph play Amberol Records.
$10.00 retail orders delivered free.

Peter Bacigalupi & Sons,
941 Market St., S. F.

The Poultry Yard.

SUMMER DISEASES OF POULTRY AND THEIR REMEDIES.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

CHICKEN POX.—This disease is prevalent in hot climates and in hot weather of cooler climates. All poultry, pigeons, and sometimes even geese, are liable to it. It is caused by a parasite of the fungus order, and is highly contagious. It makes its appearance in small yellow or brownish sores on the comb, face and head of the fowl, and spreads until the eyes are entirely closed, and the bird wastes away and dies. Some five to ten days are required for the sores to fully develop, when they give off a watery discharge, which later becomes a thick yellowish matter. In cases of recovery these sores dry up and the scabs crumble away. Sorehead is the common name in the South for this disease. In Texas, where the turkey is the fowl most affected by it, the local remedy is strong brine, or powdered salt in lard. This remedy proved effective in the writer's experience with poultry in that State. In more northern States it is usually treated by softening the scabs with soap suds and removing them, then touching the raw sore with carbolic acid. Neither the brine nor acid should be applied to the inside of the throat and mouth. When these parts are affected, dry sulphur or the paste of lard and salt may be used. Epsom salts, a half teacup in each gallon of drinking water, once a week during the warm weather, is said to be efficacious in warding off this disease. All affected fowls should be instantly removed from the flock and the poultry quarters disinfected. When the houses can be made tight, fumigating them with burning sulphur is a powerful aid to this end; afterward whitewash. For the floors and the ground about the houses, a mixture of air-slaked lime and crude carbolic acid, a cup of acid to a bucketful of lime dust, is excellent to scatter thickly over the floors and ground; this should be covered with clean sand or soil. This treatment is recommended for poultry premises in all serious diseases among poultry. As in diphtheria or any such disease, soft food should be fed, a nourishing and stimulating mash to keep up the fowl's strength.

LIMBER NECK.—This is caused by the fowl eating carrion, in which the warm weather developes a poison which partly paralyzes the muscles of the neck; hence the name. Give the affected fowl a tablespoonful of coal oil and sweet oil, half and half, every few hours till relieved. If it cannot swallow, swab the throat with the mixture. And never allow dead chickens or other animals to be thrown around in the bushes.

GAPES.—This is a chick malady which usually occurs in the first six weeks of its life. It comes from filth and infected ground. The gape worm attaches itself to the lining of the windpipe and chokes the chick. If any sign of gapes appears, remove the chicks to fresh ground if practicable; if not, sprinkle the ground thick with air-slaked lime and crude carbolic acid; spade this in well, then dust again with lime and cover the lime with fresh soil or sand; wipe the drinking vessels out with coal oil and keep them filled with clean cool water, shaded from the sun in hot weather; never let the chicks eat their food from the filth. Remove all affected chicks from the flock, and treat by dipping the end of a feather in a mixture of 1 part oil of turpentine to 4 parts sweet oil and swab out the throats. A few drops of spirits of camphor or oil of turpentine in each pint of drinking water is recommended.

CROP BOUND.—This condition in fowls becomes very troublesome where they are improperly fed, young chickens as well as old fowls being affected. It is invariably caused by the birds getting too hungry and then gorging; the thin muscular walls of the crop become so distended as the packed food swells that there is a partial paralysis, and the crop is not emptied. When fowls are very hungry, especially half-grown ones, they will choke down large pieces of food, long tough grasses, and such like. If only tough green food is come-at-able, always cut it in short lengths, and keep some kind of hard grain in litter or in light mellow soil; then the fowls will not gorge themselves, while the same amount of food will give far better returns.

When a fowl becomes crop-bound, which may be told by the hard, distended crop in the morning before feeding, remove it to a yard where there is water, but no food; pour a large spoonful of sweet oil down its throat and by gentle massage endeavor to separate the congested mass in the crop; often the crop will be emptied in the course of 24 hours. Some open the crop and remove the contents, then sew it up with silk thread; but it is not often that a fowl is worth this trouble.

EGG-BOUND.—Sometimes the egg is not expelled through some disease of the oviduct, or from the hen being over-fat and the egg large. If it remains long in the oviduct, inflammation is produced, which finally results in death. When the hen goes frequently to the nest, and is restless and uneasy, an examination should be made. Usually the egg may be felt. If taken at first, the injection of a large spoonful of warm oil or lard into the vent will generally prove effective. Sometimes the oviduct, or egg-bag, as comomnly termed, hangs down or protrudes from the vent. In this case trim away the fluff and cleanse the parts with warm water in which there is a few drops of carbolic acid, dry with a soft white cloth and apply carbolated vaseline or sweet oil and press the oviduct back into position. In this as well as the former case, put the hen by herself where there is clean soft litter to sit on, but no roosts. Feed a little wheat and plenty of tender greens and cool water.

APOPLEXY AND VERTIGO.—These are diseases of the brain which usually occur in old, fat fowls, the attack being brought on by fright, violent exertion or the hot sun. Sometimes such hens are found dead in the nest from the strain of laying. In vertigo the fowl becomes giddy, throws it head upward, staggers and circles about. In this case hold the bird's head under a stream of cold water. The preventive is to diet such fowls and give them plenty of exercise. The profitable course is not to keep fowls with a tendency to over-fatness through the second molt.

BUMBLE-FOOT.—This is stone-bruise, and is caused by high perches and hard uneven ground. The heavier fowls are the more common sufferers. Lance the swelling and allow the matter to escape, then wash the foot in warm carbolic water; apply vaseline and wrap in a cloth; put the fowl on soft litter and do not let it perch until well. Lower the perches for all the fowls; two feet above the floor is high enough for perches, and be sure to have them all on a level. Rake the stones and trash out of the poultry yards and mellow them by frequent hoeing and spading.

SCALY LEG is another filth disease, but it may also be caused by infection; thus chicks brooded by a scaly legged hen will be infected. It is caused by a little white mite working under the scales of the bird's legs and feet. Keep the perches clean and often apply coal oil to them. Have a can of salve, made with lard, carbolic acid and sulphur, always handy; rub this under the scales of the fowl's legs wherever there is roughness. If the legs are in a very bad state they will need to be first soaked in warm sal soda water and all the roughness possible removed without causing the legs to bleed.

SIGNS OF DISEASE.—When the combs of fowls are a dark or pudplish red, or the edges discolored, the fowls are out of condition, usually due to indigestion caused by improper food and lack of exercise.

When the combs are pale or yellowish in color, it means consumption or liver disease.

When the fowls are constantly picking at themselves, and restless, it means lice, and a good many of them.

ENTERING THE POULTRY MINISTRY.

A good old mother hen hatched out a brood of four sister chicks and one brother chick.

As a matter of course, the brother chick was the favorite. The sister chicks were constantly admonished to take good care of their "little brother."

When the brood had grown to chickenhood, the mother decided to go visiting one afternoon, and as she was leaving she said—for the six hundredth and sixty-eighth time:

"Now sisters, take good care of your little brother," and they all said "Sure!"

In the evening when the mother hen returned from her visit she found the sister chicks in tears, and asked, "Why sis—what's the matter? Where's your little brother?"

And a little sister chick said: "Well, that is just what we're crying for. After you went away the minister came, and the woman came out of the house and grabbed little brother by the heels, and chopped his head off and fed him to the minister."

The mother hen sat down and rested her bill on a chip, and joined the sister chicks in their weeping for a brief season; then she got up and wiped the tears off her bill on a stick of stove-wood and said:

"Well, this is sad news, indeed, but it might have been worse. I always wanted your little brother to enter the ministry, and its just as well that he has, for he never would have amounted to much as a layman anyway. You've learned how to scratch for yourselves this afternoon.

"I'm going now to lay plans for another brood."—From Agricultural Advertising.



POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

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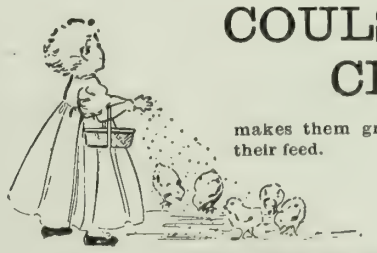
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The leading varieties of chicks every week.
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It contains the best quality of everything they require for first six weeks, **except grit.**

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THE CHICKEN BUSINESS

Now carried on by **THE SPRING VALLEY POULTRY COMPANY**, at Rocklin, on the Spring Valley Ranch; up to date and most successful, hatching out 6000 chicks this year and giving 40 dozen eggs per day. Those wishing to engage in the business come and examine, and can engage in the business on most favorable terms. Send for circulars, with full particulars, to

ROCKLIN, PLACER CO., CALIFORNIA.

THE MARKETS.

San Francisco, April 14, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The local market remains very quiet, though the California millmen are bringing in large quantities from the North. Prices have made a further advance on all grades, and holders of California Club are asking about $2.10, though buyers are so far unwilling to meet this figure. White Australian is quoted higher, but the quotation is nominal, as very little is offered and the price asked practically shuts off the demand.

California White Australian	$2.20	@2.30
California Club	2.05	@2.10
California Milling		2.15
California lower grades	1.80	@1.90
Northern Club	2.05	@2.10
Northern Bluestem	2.20	@2.30
Russian Red	2.00	@2.02½
Turkey Red	2.00	@2.20

BARLEY.

Futures are slightly higher, but the spot grain shows no further change since last week. There is no movement of shipping grain, as the season's shipments are about over, and brewing grain is quiet. Feed grades, however, are in steady demand, and numerous sales are reported at top quotation.

Brewing		$1.55
Shipping		1.55
Chevalier	$1.55	@1.70
Good to choice Feed, per ctl.	1.50	@1.52½
Common Feed	1.45	@1.47½

OATS.

While the movement is not active, little difficulty is found in moving the supplies available at appearing quotations. All the Coast markets are closely cleaned up, and white oats are considerably higher. Gray oats are also a little firmer, but reds are unchanged and blacks remain nominal.

White, per ctl.	$2.10	@2.25
Gray	2.00	@2.05
Red, choice		2.05
Common	1.87½	@2.00
Black	Nominal	

CORN.

There is barely enough California grain on hand to establish quotations, and hardly any movement of the Western grades is taking place in this market. Arrivals are small, and quotations show no change since last week.

California Small Yellow	$2.00	@2.10
Western State Yellow	1.70	@1.75
Mixed, in bulk		1.63
White, in bulk		1.66
Egyptian White		1.80

RYE.

Offers are still made at the price last quoted, but the demand is not large and buyers are holding off as much as possible.

Rye	$2.00

BEANS.

Pinks and bayos have advanced sharply during the last week. The supply of bayos is very light, and an active buying movement has started. Pinks are also in strong demand, and as most of the available stock is strongly held the advance has resulted, with a strong likelihood of still higher prices. Limas are also considerably higher, as both growers and local dealers have been holding for higher prices. Blackeyes are higher and very firm, and white beans are about as last reported.

Bayos, per ctl.	$4.00	@4.50
Blackeyes	3.25	@3.45
Cranberry Beans		3.75
Garvanzos	2.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.35	@5.50
Large Whites	4.35	@4.45
Limas	4.00	@4.10
Pea	5.25	@5.35
Pink	3.00	@3.10
Red	6.00	@6.50
Red Kidneys	3.65	@3.80

SEEDS.

Prices show little change since last report. Miscellaneous varieties are in about average demand and strongly held. The movement of alfalfa is quieting down somewhat, but there is still more or less demand and the price shows no decline.

Alfalfa, per lb.	18	@19 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.	3¾	@ 4 c
Canary		4 c
Flaxseed		4 c
Hemp		4¼c
Millet		3¾c
Timothy	6½	@ 6½c
Yellow Mustard	6	@ 6½c

FLOUR.

Some of the Eastern mills have again raised their prices, but local and Northern grades are as last quoted. While there is still a little export movement, buyers in general are unwilling to take on any large quantities.

Cal. Family Extras	$6.20	@6.80
Bakers' Extras	6.20	@6.45
Superfine	5.00	@5.30
Oregon and Washington	4.85	@5.75

HAY.

The arrivals show considerable increase this week, as many holders in the country are anxious to dispose of their stock before the new crop comes into the market. The arrivals, in fact, are considerably greater than the local market can absorb. Prices are accordingly weaker for the lower grades, and while a falling off in the shipments would restore the former firmness, it is not expected that prices will be much higher than at present. The principal arrivals consist of very poor stock from the San Joaquin, and there is some difficulty in disposing of it, as there is considerable first-class hay in the hands of local dealers.

Choice Wheat, per ton	$23.00	@26.00
Other Grades Wheat	21.00	@23.00
Wheat and Oat	20.00	@23.00
Tame Oat	20.00	@23.50
Wild Oat	19.00	@21.50
Alfalfa	14.00	@17.00
Stock	9.00	@12.00
Straw, per bale	60@	85c

MILLSTUFFS.

Quotations on feedstuffs are unchanged, and the market at present shows very little feature. While supplies of bran, shorts and middlings are said to be rather scarce in the North, this market is well supplied for all current demands. The movement is light, and prices inclined to weakness, though they have been maintained at the present level for some time. Rolled barley is firm, and other descriptions steady.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.00	@35.00
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	31.00	@32.00
Shorts	31.00	@32.00

VEGETABLES.

Onions are in about average demand, and as supplies of good stock continue light, Oregon onions are considerably higher, and very strong at the advance. Australian stock is closely held at former prices, but the movement is limited. The Texas Bermudas which arrived last week were sold off at about $2 per crate, but were rather difficult to dispose of. The market is overloaded with asparagus, and as there is little demand for cannery stock, large quantities are held over from day to day. Choice offerings sell at appearing quotations, but ordinary lots are moved at anywhere from 50 cents to $1.50 a box. Peas are much lower, with increasing receipts from around the Bay.

Onions, Oregon, per ctl.	$ 2.25	@ 2.40
Australian Onions	4.00	@ 4.25
New Green, per box	65@	85c
Garlic, per lb.	8@	10c
Green Peas, per lb.	4@	5c
Cabbage, per ctl.		2.00
Tomatoes, per crate	1.00	@ 1.25
Cauliflower, per doz.	65@	75c
Celery, doz.	40@	50c
Asparagus, per box	75c	@ 1.75
Rhubarb, per box	1.00	@ 1.40
Turnips, per sack		1.50

POULTRY.

While the week opened with an unfavorable market, most descriptions of poultry continue to bring good prices, the one exception being hens. Five cars of Eastern stock came in the first of the week, and as they consisted mostly of hens, the price has broken badly. Local arrivals, however, are still light, and roosters and fryers are in fair demand, with choice offerings commanding higher prices than last week.

Broilers	$ 6.00	@ 7.00
Small Broilers	3.50	@ 5.50
Fryers	8.00	@ 9.00
Hens, extra	7.00	@ 9.00
Hens, per doz.	6.00	@ 6.50
Small Hens	4.50	@ 5.00
Old Roosters	5.00	@ 6.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons		1.50
Squabs	3.00	@ 3.50
Ducks	7.00	@ 9.00
Geese, per pair	1.50	@ 1.75
Turkeys, live, per lb.	Nominal	
Turkeys, dressed, per lb.	Nominal	

BUTTER.

While the market has been well supplied all week, and many receivers have been carrying a surplus, prices have been pretty well maintained at last week's level, and at the moment show a slight advance. The reason is an expectation in some quarters that the overstock can be disposed of in the North. Such anticipations, however, are not enough to impart much strength to the market, as the arrivals continue considerably above the requirements of the local trade. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	23½c
Firsts	23 c
Seconds	21½c

EGGS.

Fresh extra eggs are still quoted at the former price, which has prevailed all week, surplus lots being easily disposed of for storage purposes. This grade is in fair demand for the current consumption, but the greatest demand this week has been for the lower grades. Only slight changes in values have occurred, however, first and seconds showing an advance of ½ cent. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	23½c
Firsts	22½c
Seconds	20½c
Thirds	18 c

CHEESE.

Supplies of local grades are moderate, and prices are firmly held on both local and Oregon stock, with an advance of California flat firsts. The market is not very active, however, as buyers are taking little interest. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	15 c
Firsts	14½c
New Young Americas, fancy	15 c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Cal. Flats	13½c
Storage, Oregon Flats	15½c

POTATOES.

Potatoes continue very firm, with a steady demand for choice stock. California varieties are still moving at prices last quoted, but Oregon potatoes are rather scarce, and are moving freely at a further advance. New potatoes are in moderate demand as last quoted.

River Whites, per ctl.	$ 1.25	@ 1.50
Salinas Burbanks, per ctl.		2.00
Oregon Burbanks, per ctl.	1.65	@ 1.85
Sweet Potatoes, per ctl.	1.85	@ 2.00
New Potatoes, per lb.	2	@ 3c

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Applying the spray mixture with little force cannot be effective.

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If you prefer, you may buy the engine and mounting and then connect to it any one of several makes of spraying pumps for which the pump connections are arranged. I. H. C. engines can be used with all makes of pumps.

If interested in spraying, look into the I. H. C. engine and the efficient Famous spraying outfits.

You can buy a Famous spraying outfit and use it during the spraying seasons, and during the remainder of the year your engine can be used for general farm purposes for operating many of the small machines—grinder, fanning mill, bone cutter, sheller, churn, separator, washing machine, etc. The I. H. C. line includes, besides spraying engines, many other styles and sizes, as follows.



Stationary Engines, from 2 to 25-horse-power
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Tractors, 12, 15, and 20-horse-power
Sawing and Pumping outfits.

The International local dealer will be able to supply you with catalogs and full information. Or, if you prefer, write to nearest branch house.

WESTERN BRANCH HOUSES:
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FRESH FRUITS.

Arrivals of strawberries are now fairly liberal, with steady shipments from Los Angeles and considerable stock coming in from Watsonville. While the demand is gradually increasing, it is not as large as was expected, and prices are considerably lower. Longworths are selling at 75 cents to $1.00 a drawer, and other varieties sell down to 35 cents, as most of them are not very attractive. There are still plenty of apples on hand, but the movement is quiet, with prices unchanged.

Strawberries, per crate	75c	@$1.25
Apples, fancy, per box	1.25	@ 1.75
Apples, common	60@	85c

CITRUS FRUITS.

Limes are still out of the market. Other citrus lines show little feature, as the arrivals of oranges, lemons and grape-fruit are about up to the average, and prices are unchanged. The demand for oranges has been rather light.

Choice Lemons	$2.00	@ 2.50
Fancy Lemons	2.75	@ 3.00
Standard	1.25	@ 1.50
Limes	Nominal	
Oranges—		
Fancy Navels	2.25	@ 2.50
Choice	1.85	@ 2.00
Tangerines	75c	@ 1.50
Grape Fruit	2.50	@ 2.75

DRIED FRUITS.

The movement of dried fruits last month was comparatively large, shipments from San Francisco by sea showing a marked increase over the same month last year. The principal movement was of prunes, of which the supplies on the Coast have been greatly reduced, though there has also been a fair demand for peaches, apples and apricots. The large arrivals of prunes in the East have weakened the market to some extent, but the local market continues fairly firm. While apricots are not in great demand, the scarcity is causing a firmer feeling as to prices. Some large lots of peaches have moved out of growers' hands of late, at about the top prices quoted. Quotations on other lines show little change, though the growers generally are holding less firmly than a few months ago. Eastern markets report a very weak feeling on raisins, and there is not much movement from the growers at the moment, though there is a fair local jobbing demand. Many growers are still holding for 2 cents in the sweatbox, but packers here are generally unwilling to pay this price, and more or less stock has been moved at lower prices. The quotations below are given on packed stock.

Evaporated Apples	5	@ 6¼c
Figs, black	2	@ 3 c
Figs, white	2	@ 3½c
Apricots	7½	@10 c
Peaches	3¼	@ 4½c
Prunes, 4-size basis		2¼c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

A large lot of the walnuts held by growers in southern California has been disposed of at about appearing quotations, and there is now little stock left. Local dealers are fairly well supplied, however, and prices are only fairly steady. Practically all the almonds on the market are now in the hands of dealers, and with supplies extremely scarce the prices have been advanced about 1 cent. Prices to growers are practically nominal, as no sales have been made for some time.

Almonds, Nonpareils	12 c
I X L	11½c
Ne Plus Ultra	11 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

The market is bare and featureless, with nothing of any consequence coming forward from producing districts, and none on the local market except undesirable grades, for which there is no demand. Such lots are offered at the quotations below, but little or none is sold. Under these conditions the first offerings of the new crop should bring fair prices.

Comb, lb.	Nominal.	
Water White, extracted	Nominal.	
White	Nominal.	
Light Amber	5	@ 5½c
Dark Amber	4	c

HOPS.

A good many growers, both here and in Oregon, are turning their attention to other crops. There is now a little interest in the new crop, and little old stock is left on hand. Prices are higher, the lowest being about 7 cents, while contracts for the new crop are being made at 10 cents. Contracts at 11 cents have been made in Sonoma county for next year's crop.

Hops	7	@10 c

WOOL.

Buyers are now taking considerable interest in the spring clip, and the movement from the San Joaquin and southern coast districts is fairly under way. Prices are fairly firm at last quotations. Prices have not been established on Northern clips, but better values than last year are expected.

San Joaquin, spring clip	10	@15 c
South Coast, spring clip	7	@11 c

MEAT.

Prices show comparatively little change since last week, though slight reductions have been made in several lines of both dressed and live stock. Live cattle are much easier, as plentiful supplies have been arriving of late, and the tendency generally is downward.

Beef: Steers, per lb.	8	@ 8½c
Cows	7	@ 8 c
Heifers	7	@ 8 c
Veal: Large	6½	@ 7½c
Small	8	@ 9 c
Mutton: Wethers	7½	@ 9 c
Ewes	7	@ 8 c
Lambs	9	@10 c
Spring Lamb	11	@12 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	4½	@ 4¾c
No. 2		4¼c
Cows and Heifers: No. 1		3¾c
No. 2		3¼c

Bulls and Stags	2	@	2½c
Calves: Light	5	@	5¼c
Medium	4½	@	4¾c
Heavy	3¾	@	4¼c
Sheep: Wethers			5 c
Ewes			4½c
Lambs: Yearlings			5½c
Spring Lambs	6¼	@	6½c
Hogs: Grain fed, 100 to 150 lbs.			7 c
150 to 250 lbs.	7¾	@	7½c
250 to 325 lbs.	6¾	@	7 c
Common Hogs, lb	4	@	4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., April 13.—Oranges are way up this Tuesday morning and the returns from the Monday auction sales are mighty encouraging to the shippers. The highest of the season were the prices received, $3.55 being realized for one lot of Riverside Thompson's Improved navels. Other brands sold nearly up to this mark and plenty of them realized over $3. Among them might be mentioned the Elephant, packed by the Redlands Orange Growers' Association; the Blue Banner, packed by the Sutherland Fruit Company of Riverside, and the Swastika, of L. V. W. Brown of Highgrove. This is New York, other auction cities not showing quite up to this mark. On the whole the navel market is all that could be expected and the shipper must not be disappointed if there is a slight reaction from these pleasant conditions. With the very heavy shipments going out at this time it does not seem possible that we could miss having a little temporary depression, though shippers are cheered by the thought that this can only be for a short time and that the navel season will end with the usual high figures.

The other varieties of the orange are now receiving some consideration. Seedlings are being quoted at $1.75, sweets from $1.50 to $1.75, mikes up as high as $1.90, while navels hover around the $1.70 mark. All this means "cash California" with bank guarantee and is from 10 to 15 cents lower than "usual terms" prices.

Lemons are looking up a very little, owing to the fact that jobbers are looking for their summer supply. A week ago a very good lemon could be bought for $1.50 a box cash, but now the brokers are asking $1.65 to $1.75 for the same goods.

Citrus fruit shipments have been very heavy for the past week, and compared with those of last season were as follows:

	1908.		1909.	
	Or.	Lem.	Or.	Lem.
Monday	195	7	201	18
Tuesday	140	13	242	22
Wednesday	165	6	291	17
Thursday	149	12	250	23
Friday	150	8	303	17
Sat. and Sun.	216	22	349	38
	1,015	68	1,636	135

The total citrus fruit shipments to date have been 15,191 cars of oranges and 2218 cars of lemons, as against 15,084 cars of oranges and 1968 cars of lemons to same time last season.

Sacamento Valley Irrigation Bulletin

A new pamphlet dealing with irrigation in the Sacramento valley has just been issued by the Government, which was written by Professor Foreitre. The importance of the subject to the people of the State and the Nation is pointed out by the writer in a striking manner when he states that "probably not more than one-tenth of the revenue that these lands are capable of producing is obtained." Yet the reasons why this valley has not reached a higher state of development are not difficult to find. Its very advantages in the way of fertile soil, heavy winter rainfall and favorable climate have held it back. Had the soil been of poorer quality, the rainfall less abundant in winter, or the climate too cold for winter growth of plants, it is probable that the entire valley would be irrigated now. Largely because grain and grain hay could be grown during the winter months and matured in the spring, property owners have been slow to provide water supply and fit the soil for the artificial application of water.

The valley is now in a transitional stage. Several of the large grain ranches have been sold to land and irrigation companies, which have provided, or are proceeding to provide, a water supply. As soon as this is done the land is subdivided and sold to settlers in small holdings. The new man on the small farm cannot afford to raise grain. In order to make a living he must grow alfalfa, fruit and vegetables, and as a rule these must be irrigated. This transformation from dry farming to irrigation and the proper preparation of the surface of fields will involve large outlays. Then, too, a large part of the valley is subject to overflow, and costly protective works are necessary before the flooded areas can be improved and rendered profitable.

It will thus be seen that the agricultural development of the Sacramento valley involves three operations, whose magnitude can be best understood by giving an estimate of the amount of capital required to accomplish each: 1. Protective works to control floods, $24,000,000. 2. Providing a water supply for irrigation, $50,000,000. 3. Preparing the land for irrigation, $35,000,000.

PUBLISHER'S DEPARTMENT.

THE BEST FARM PAPER IN THE WORLD.

In our judgment the PACIFIC RURAL PRESS is a mighty good agricultural paper, and we thought it was ranking with the best in the country. While not the largest, we have tried to make it authoritative, and the fact that the agricultural departments of several different governments subscribe for copies to be sent to their special agents led us to believe that those "higher up" agree with us. But the following letter from Messrs. Badasci & Sons, vineyardists and orchardists of Hanford, goes one better.

Hanford, Cal., April 7, 1909.
PACIFIC RURAL PRESS,
San Francisco, Cal.

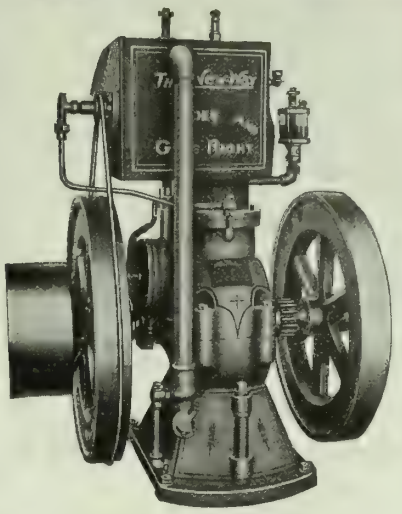
Gentlemen:—Enclosel please find check for renewal of our subscription from April, 1909, to April, 1910. We are very much pleased with the "RURAL" and wish only that it was a daily instead of a weekly.

The "RURAL" is certainly the best farm paper in these United States of America; we might say of the world, because we have had different foreign farm papers, but none were half as good.

We are only sorry that he have been getting your paper only for the last three years—we didn't know of the "RURAL" before we moved to Kings county. Yours truly,
BADASCI & SONS.

We certainly appreciate the words of praise and also the spirit of the letter, and as time goes on we trust that the old reliable PACIFIC RURAL PRESS will be found at the head of the procession of the many good farm papers of this country, and that comes pretty near meaning the world. To our friends at Hanford we take off our hat.

THE "New-Way"

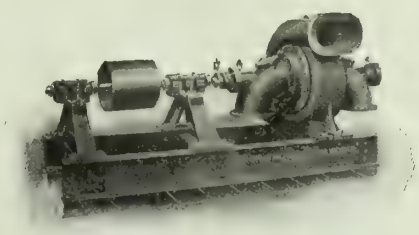


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The society maintains headquarters on the coast at San Francisco where their publications may be had.

A new daily is also being published by the society, with headquarters at Boston, which aims to give the news of the world, with the sensational part left out. To one who wants the news that is worth while, written up in a readable form, well illustrated and printed we would suggest subscribing for the "Christian Science Monitor."

Grain crops in the southern part of the State will be large this year. The owners of the Lakeview ranch, in the Perris valley, claim that they will harvest a $100,000 crop of barley from 4,000 acres of fallowed ground. The grain is waist high and headed out, and even without further rain will make a good yield. In the Imperial valley the grain is headed out and harvesting will soon be commenced. A good crop is in prospect.

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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

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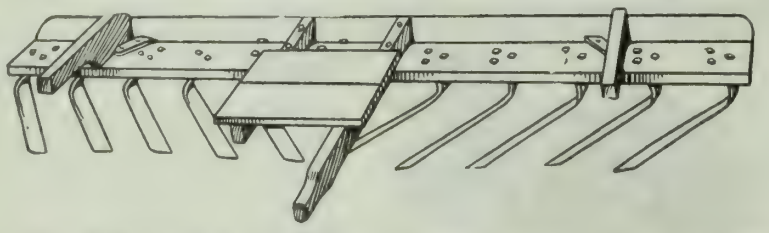
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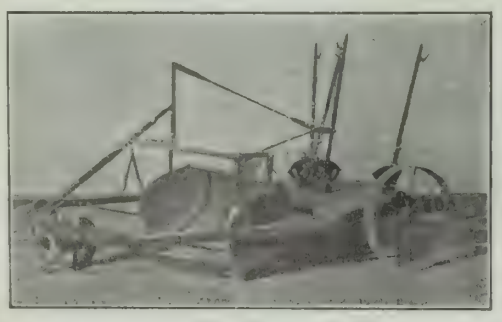
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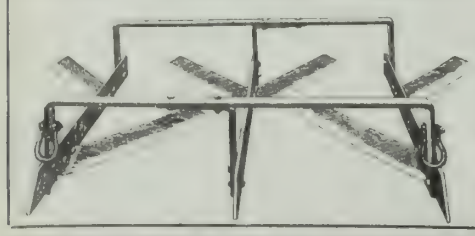
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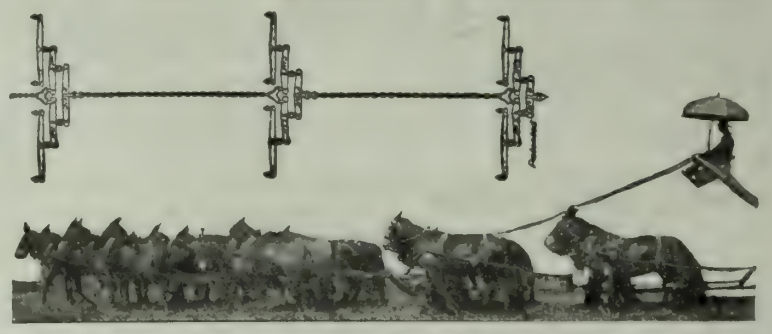
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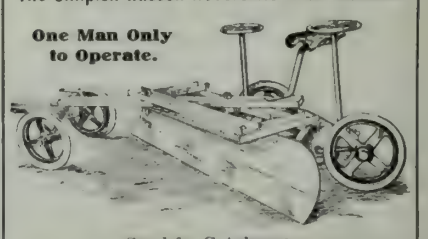
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 17. SAN FRANCISCO, SATURDAY, APRIL 24, 1909. Thirty-ninth Year.

The Raisin Industry.

It is a little difficult for a journal like the PACIFIC RURAL PRESS, which camps on the trail of our horticultural industries, to manifest a surprised awakening to the importance of the raisin product such as our Fresno friends evidently expect when they proclaim "Raisin Day, April 30" and call upon everyone to rise and shout words pertinent to the occasion. Because the raisin interest is one of perpetual regard with us, and nearly every phase of the growing, from the selection of varieties, the treatment of the cuttings, to the pruning, training and protection of the vine has been discussed in detail in special articles during the last twelve months. We mention this fact simply to demonstrate that we are constantly aware of the importance of the industry and always eager to promote its prosperity. Probably we have said less about the actual production of the fruit in its commercial form and the figures of its commercial greatness than we have of the various phases of the growth of the vine whence the product is derived. We therefore choose for this page a view of the interior of a raisin packing establishment, representative of the finishing end of a business which annually places upon the market about 60,000 tons, or 120,000,000 pounds of raisins, of which about four-fifths are made in the Fresno district. This product is apparently a little larger than the consuming demand, and the motif of the raisin interest in its present propaganda is to expand the American idea of the desirability of the raisin for food and proportionately to increase the amount of money which consumers will invest in it. The claim is that people generally in the United States have classed the raisin as a sort of luxury, and used them mostly to adorn the fruit dish at the end of a hearty meal. In other countries the raisin has enjoyed a far greater popularity, its sustaining qualities as an article of food being more generally recognized. In England, for instance, the consumption of raisins is about five times as great per capita as in this country.

There is no reason for this state of affairs, excepting that our people are not aware of the advantages of a raisin diet, both from points of view of health and economy. Dr. Josiah Oldfield of the Royal College of Surgeons and of Oxford University, England, says that the raisin is the first of all fruits, and declares that it is the best for the human system. He is but one of the many medical authorities who combine in praise of the raisin and declare that it stands high as a nutritious and wholesome fruit.



A Cosy Corner in a Raisin Packing House.

The raisin is exceedingly simple in its preparation. All kinds except those which are treated to produce a light straw color are sold just as they grow, except that a part of the water is drawn out of the juice by the heat of the sun. Raisins are made only from white grapes which have a firm flesh and carry a high percentage of sugar in their juice. It requires about three and one-half pounds of grapes to make a pound of raisins, the difference in weight being in the water that evaporates, leaving only the jelly, which is the pure sugar and flesh of the grape. The saccharine of the grapes crystallizes while the grapes are drying in the sun and gives the raisin its candy flavor.

The grapes are permitted to remain upon the vines until they are perfectly ripe. If picked before they are thoroughly ripe it takes more grapes to make a pound of raisins, and the raisins are not of as good quality. It is therefore of advantage to producers that the grapes be fully matured. As soon as the grapes are picked they are placed on wooden trays about three feet square. These trays are laid on the ground between the rows of vines, where the grapes are allowed to dry in the sun. After about ten days they turn a dark color, and are then turned over so as to allow the sun to reach all parts of the grapes, that they will be evenly cured. It requires about twenty days' exposure to the sun properly to cure them.

At the end of this time the raisins are placed in large square boxes, two by three feet in dimensions, commonly known as "sweat boxes," and hauled to the packing houses, where they are carefully packed in convenient commercial packages, all ready for consumption. The packing is usually done by women and girls, who find this employment both pleasant and remunerative. After the packing of the raisins they are shipped to all parts of the world. The picture on this page shows how neat and cleanly is the packing of raisins. One can recognize in the picture the faithfulness of the foregoing description.

The raisin is as pure as it is possible to make any food. It undergoes no artificial treatment or adulteration in curing, and consists solely of the pure meat and sugar of the grape crystallized by the sun's rays.

In this connection it is interesting to note the dietary science of the raisin as strongly supporting the popular claims of wholesomeness and deliciousness which we have already noted. It would not be a serious exaggeration to call raisins a staff of life, for that raisins as a food are equal to our most staple food product, wheat, was the statement recently made by Prof. M. E. Jaffa, director of the State Pure Food and Drug Laboratory at the University of California. The statement issued by Prof. Jaffa is in part as follows:

"In order to show the value of raisins it may be said that they contain a very large amount of sugar, very easily assimilated by the body, much more so than is starch, since before starch can be assimilated it has to be converted into sugar. The amount of sugar in the average raisin is almost identical with the amount of starch in the average wheat. In other words, the carbohydrate element in the raisin is equal to that of our most staple food product, the wheat.

"When we consider that the carbo-hydrate element in our food is or should be the source of all muscular energy we can appreciate the importance of raisins in this connection. It is true, of course, that the nitrogenous ingredient is only about one-third that in entire wheat, but at the same time about one-half that which we find in the best white flour, or bread."

But there is no contest between raisins and bread; in fact, if hitched together they pull evenly toward comfort and prosperity. Prof. Jaffa continues: "When the high nutritive value of raisins is fully appreciated and that they should not be considered as merely a luxury, the food value of raisin bread will be better understood. Such bread, when properly made, is highly nutritious and has many advantages over the ordinary bread. It is certainly one of the best means of increasing the consumption of the fruit. In order that the human system should realize the most from the raisins it would be better if they were minced before being mixed with the bread, as in that way they would reach the stomach in a much more divided state. In cases in which the raisins are too full of syrup this treatment is likely to cause the bread to become soggy, but this may be remedied by rolling them in dry flour before mixing."

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., April 20, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.00	41.82	41.35
Red Bluff	.02	30.56	22.69
Sacramento	.00	21.75	18.43
Mt. Tamalpais	T	35.52	21.24
San Francisco	T	25.57	20.88
San Jose	.00	18.26	11.93
Fresno	T	9.79	8.57
Independence	.24	8.00	8.46
San Luis Obispo	.02	31.37	18.77
Los Angeles	.00	19.07	14.87
San Diego	.02	10.23	9.36

The Week.

The writer recalls his boyhood conviction that the raisin was the most delicious thing on earth. To occupy a high chair pushed up close to the great kitchen table while the reinforced concrete of the Christmas pudding was being mixed by white-armed culinary engineers, and to be allowed to nibble the particles of pulp and sugar from the scores of pedicles which retained a little of the fruit as it was pulled from the clusters, was to occupy a throne and levy tribute upon the world. Whether this sublime delight embodied the joys of anticipation, which are proverbially greater than realization, or whether it was imparted by the distinctive and solitary grandeur of the situation beside the kitchen table, advancing years do not give wisdom to determine, but the impression is clear that no subsequent achievement along the lines of activity in which Master John Horner was supreme, ever gave us the uplift which attended possession of the raw raisin, while white hands calsomined our countenances with flour in the vain effort to recover it. It is our conviction that the baby is born with a love of the raisin.

To follow the course of childhood's appreciation of the raisin would be to undertake a treatise upon the manifestations of natural affection. We can but recall disconnected instances. The golden almonds peeping from the purple entanglement of raisin clusters above and through the crystal containers resting upon the snowy damask of the dining table recur to us as boyhood's symbols of beauty and deliciousness. We remember parental disquisitions, incidentally inculcating geography, that these delights were gifts of God to people in distant climes who were not as good as recipients of such blessings ought to be, and who, though so near to the earth's good things, were perhaps even farther from heaven than were we, and therefore would be required to travel farther on the same hard road of repentance and self sacrifice. We remember that we wickedly thought that with plenty of almonds and raisins we would not care very much how long the road might be, and even made the impious calculation that a year in Malaga might be worth a cycle in paradise. We shudder as we confess this share in Adam's original sin, and in the hope that it may be true that confession is good for the soul, we make clean breast of the whole matter. It was probably somewhat later in our career that we read Robinson Crusoe and remember the lingering longing with which we contemplated the whole boxes of raisins which he rafted from the foundered ship to his island refuge, for what boy would hesitate for a moment to sacrifice all his hard-earned spankings to be alone with unlimited raisins—alone, in the deep gloom of a desert island midnight, with a whole box of raisins!

Probably not many readers who have pride and satisfaction in living in a raisin country have attained thereto by such devious ways as we have described, but that they find the various longings which have led them hither gratified, we doubt not. Leaving aside salubrity of climate for which the raisin is an exponent, there is and should be congratulation among all Californians that the State has demonstrated the cultural, manufacturing and commercial mastery which are involved in success with a very high class product of ancient origin and traditional renown and worth between three and four million dollars a year. Not only has California in less than a quarter of a century from the commencement of large planting attained results which have changed the currents of the world's raisin traffic, but have attained this, not by imitation, but by original though and invention to such an extent that we have not only gained a product in new ways, but have taught the historic regions producing arts, and furnished them producing appliances, which they are finding it desirable to adopt. California lifted the raisin from the dust of the vineyard to the clean surface of a drying tray; California taught the world mechanical stemming and grading; California multuplied the uses of raisins by mechanical seeding—in short, California has made her immense raisin product in newer and cleaner ways and has actually given the world the product in forms which it did not know before.

One of the grandest results of this achievement lies in bringing the raisin to the kitchens of the multitude as a staple article of food and not as a luxury, as is noted on the previous page. It is common to all endeavors which are successful in reaching a great output of better material at a lessened cost, that systematic effort must be made to bring such services to the knowledge of the public. Unaided in this way, the consuming demand increases slowly, while the product, under improved conditions, advances rapidly. Find the proof of this in the space occupied in all popular journals by advertisements of new kinds of food. Discover that you need a biscuit, that you should join us in the swift chase after improved hams, that you should armor yourself against weakness by extracting strength from beef—and all that. These suggestions prepare the people to demand new gustatory pleasures. The great raisin-producing interest finds itself in just the position occupied by other large producers of foods which may be made staple and must command attention in the way they find successful. We believe that Raisin Day announcement for April 30 is simply a spectacular opening for such a campaign, which must be pursued in all promising ways until all the people all the time know how desirable is a more liberal fruit diet and how available California fruit products are to supply it. All Californians should share actively and energetically in this undertaking. It is not necessary to introduce the raisin: it stands already as a synonym of lusciousness in the minds of people from their youth up, as we have endeavored to suggest. But the wide use of the raisin in nearly all forms of baked, boiled and stewed foods, as well as eaten in its proper form for its own sake, is a thing which people generally do not understand or even know about. Hence satisfaction in living in the new home of the raisin must not be restricted to pure sentiment: it must be built upon as the basis for a distinctive and energetic industrial effort. Let everyone then begin at once to publish, propagate, promulgate, promote, push and prophesy the common use of the California raisin, and then do the same for the prune, the peach, the apricot and all the other cured fruits of the State, which people should know better and use more freely.

But while we are promoting, it is well to remember that there are blocks in the pathways of the raisin which seriously limit its approach to the consumer, and which should be swept away. The rates at which most of our retailers offer raisins to their customers are in direct enmity to the movement which producers and packers are endeavoring to advance. If we are not mistaken, such rates are about 100 per cent greater than the cost to the merchant who is selling them. Doubling the price of an article by the retailer is well night prohibitive of its popularity. It is based upon the old and erroneous idea that the raisin is a luxury and is apt to be more highly esteemed by the purchaser as he pays more for it. Something must be done to popularize retail prices, or little can be expected from glorifying a product. This will be a matter to carefully investigate and correct after public attention is widely attracted by the gallery playing which is now being done. The same problem will face the new prune organization when it gets at its systematic work. Prunes are more rationally retailed than raisins are, it is true, but there is still too much of a barrier between the producer and the consumer in the form of exorbitant retailer's profits. Staple foods must go in large quantities, and large quantities always mean narrow margins. It will take men wise in distribution and trade to bring our chief cured fruits, raisins and prunes, to the public in this way, but unless it is done only limited results can be attained by any effort to convince the people how desirable the fruits actually are.

That country women are better housekeepers than city women can hardly be called a discovery. It might be called an axiom or a chestnut, according to the disposition of the commentator. But in the nature of a re-statement comes the declaration of the lady lecturer on home economics that "women from the country take a deep interest in the study of scientific home management. The fact is due to the enthusiasm of the farmers' wife takes in his business and her desire to be a helpmate to him. This the city woman under modern conditions does not do, and consequently the farmer's wife learns more about the principles of economy as applied to the home." We do not deny it, but an easier explanation could be found in the fact that the city man furnishes his wife better appliances and surroundings in the house than the country man does, and the country wife is appealing to science to see if it cannot help her to get a move on the old man. And it will do that, sure!

There has been a sulphurous atmosphere in the fruit drying valleys ever since the report came that our wideawake friend Dr. Wiley had secured some sort of a rider on an appropriation bill declaring that he should not be interfered with in the exercise of his sweet will in regard to California fruit drying. He seems to have in the back part of his

thinker the idea that the "referee board" of President Roosevelt might be thrown out as an unconstitutional body and therefore not to be hearkened unto. Now comes a dispatch from Washington which indicates that our delegation has not been asleep at its post. The statement is that the referee board of the Department of Agriculture, the duty of which is to investigate the wholesomeness of foods and articles used in foods, is a legally constituted body, and that there was ample authority to appoint it. The decision was by Attorney-General Wickersham. The decision means that the board's work on the wholesomeness of sulphur, saccharine and copper salts will be continued, and we may therefore expect that the board will come to California to personally investigate our practices this summer, as we have fondly hoped it would do. The valley atmosphere has had more ozone in it since the news came.

Now that fruit prospects are good for a considerable crop, it is delightful that the canning situation is clearing, because prices will depend much upon the disposition of the canners. At a recent meeting in this city President Fries of the California Fruit Canners Association reported a substantial increase in the volume of foreign sales during the year ending February 28, while sales throughout the United States were below the normal in spite of low prices, due to the general conditions of the country. During the past two months there was a marked improvement in demand, and the sales for March were more than three times as large as for March of 1908, and the heaviest March business in the history of the company. With the tariff question disposed of, and small stocks held by the trade, a revival of business is assured. We hope these facts will not be forgotten at buying time.

Queries and Replies.

Fruit in a Hot Place.

To the Editor: I have a small orchard and vineyard which have been neglected. There is now alfalfa in the orchard, and the land is in a very rough condition, so that it can hardly be irrigated. They tell me here that if I leave the surface bare in the summer the trees will burn up when the temperature gets to 115 degrees. The land has to be plowed and furrowed, and as it is very sandy and considerable fall, would it be safe to let go without a green covering? How would cow peas do, or sour clover, as it grows very rank here? I am intending to cover about four feet around each tree with a covering of dry manure and straw. The grapes are in the same land. How would you treat them? Neither have been plowed but once since planting. How would you irrigate trees on sandy land which has considerable slope? The fruit trees are planted only 15 feet apart, which people have actually told me was a great mistake, as 10 or 12 feet would give them plenty of room. Many other orchards are planted in rows only 10 feet apart. Please give me any help you can, for I am a raw recruit in a new country.—Beginner, Southern Nevada.

As for the alfalfa in the orchard, what your neighbors say agrees with Arziona experience, where alfalfa is kept among the trees for the purpose of lowering the temperature and reducing the heat which would be reflected from a bare surface. If you use water enough so that the alfalfa can grow without robbing the trees, you will find it satisfactory. In Arizona they cut the alfalfa without removing it, cutting frequently and allowing the hay to remain, thus affording additional protection from the heat, and they calculate that the final breaking down adds humus to the soil and is of advantage that way.

We should want to try the cow peas before trusting them much, because they do not, as a rule, make a good growth in a very dry air, though there may be moisture enough in the ground. Sour clover, by which you probably mean melilotus, either white or yellow, is another good cover crop which has been favored in Arizona.

Mulching of the trees will certainly be of advantage, unless you get too much bright straw, which will reflect heat. Mulching of cut alfalfa would be better. You must certainly look out for bright surfaces and light colors under such high heat. We should train the grapes for shade as much as possible, not topping, but weaving the branches around and over the top, so as to make an umbrella of foliage, as far as possible.

There are various ways of irrigating trees on slopes with ditches on contour lines, terracing, basining, etc., which may not be easy with trees so near together as yours. If these are not practicable, a deep furrow on the uphill side of each row ought to distribute the water well in a free soil. In such a new place you will certainly have to try a great many things and expect a great many failures. You will have to grow your trees for a time as they are planted, and remove some of them if the growth justifies more space. It may be that your conditions depress growth in such a way that the local wiseacres may be partly right.

Stocks for the Cherry.

To the Editor: Will you kindly inform me regarding cherry stock best suited for this district, Mahaleb or Mazzard? We have discussed the matter with several nurserymen, and some claim that Mahaleb is the deep rooted variety and Mazzard the shallow, horizontal rooted variety, while others declare just the opposite, and in purchasing Mahaleb from one party and Mazzard from another we find they are both alike in general characteristics, root and leaf. Enclosed please find small leaves from which we presume you may advise what it is. I think the shallow rooted best suited to this soil, while all I have got this year and last seem vertical rooted and both last year and this they gummed a good deal.—Grower, Placer county.

The cherry stock which has been demonstrated to be most hardy under trying conditions is the Mahaleb, and upon this root nearly all cherry trees in the Eastern States are propagated. The Mazzard is a freer grower and is chiefly used in California, because the soils which we usually choose for cherries are deep, well drained and suit this root exactly. Of course the growth of a root is somewhat influenced by conditions. Shallow rooted plants will go deeper in a deep soil, and deep rooting plants will grow horizontally in a shallow soil, more or less. The general conclusion, however, seems to be clearly that for trying conditions, whether they be standing water in winter or drouth in summer, the Mahaleb is the hardy root and the Mazzard most likely to be disappointing under such circumstances.

We regret that we are unable to recognize the root from the young leaf specimens which you send. Both are European wild cherries, and we are not familiar enough with their growth to distinguish them in this stage of growth.

Lime and Peanuts.

To the Editor: Will you inform me in regard to peanut culture. I have been told that some one from this locality raised some and they did not fill; were informed that there was not lime enough in the soil. Please state how much lime is needed per acre, and also if they require much irrigation. If they will do well planted on land likely to subirrigate. If lime should be placed directly to seed or near. How many seed per acre.—New Comer, Merced county.

The reasons for the occurrence of pops or empty peanuts have never been sufficiently set forth. Probably they may occur from many conditions which are unfavorable for the perfect growth of the plant. It is commonly believed that lime has something to do with it, and that you could determine in your case by the application of some to a part of your plantation. You can use lime at the rate of half a ton to the acre safely, if it is distributed well.

Peanuts require irrigation if the plant is not thrifty without it, but they are generally grown on deep, moist land where irrigation is not needed, and are believed to be whiter and otherwise more satisfactory. There has not been much success attained by growing peanuts on the plains of the interior valley. They are best in the light, deep, alluvial soils of the river bottoms. Sub-irrigation, if present in the right degree, would probably be better than surface irrigation. You will have to make an experiment for yourself to determine how these things work in your situation.

Drill Sowing of Alfalfa.

To the Editor: Your ideas and others of your readers as to the planting of alfalfa with a press drill would be appreciated by me. Do you think this a good method to sow? How deep would you plant the seed? How would planting, say, half the seed one way and half the other do? I may add for your guidance that I will sow on land that is already inoculated and has had stands of alfalfa off and on for the past 15 years.—Stockman, Lake County.

We can only say that California has done practically nothing in this line, so far as we have heard but there are published statements from the Middle West showing that drill sowing is advocated. If it succeeds in California it will probably be for late sowing in the spring, when there is no danger of killing it by excess of cold water and little likelihood of crusting the surface to prevent the plants reaching the light. It is a matter desirable to experiment with. Who can speak from trial of the drill?

Olive Grafting.

To the Editor: I will appreciate it greatly if you will kindly tell me how late one can safely graft olives in this district.—Subscriber, Placer county.

You can graft olives at various times when you can find scions with dormant buds and so long as the sap is flowing strongly. These two things depend upon local conditions, and one cannot set a date for them. Judging by the appearance of our trees here, there might be grafting conditions continued for a month or more yet. If the sap flow is just right it is feasible to get a start with a scion carrying starting buds, and this may prolong the time a little later.

Killing Bermuda Grass.

To the Editor: Under the heading of Queries and Replies in the Pacific Rural Press a short time ago a correspondent asked how to kill or get rid of Bermuda grass. I have had a good deal of experience with it, and I admit it is a stayer, and with staying qualities I claim I can get rid of it. Do not irrigate it, or plow it under when the ground it wet, with expectation of killing it. I know only one way of killing it without losing the ground for one season. Give it a good plowing and sow oats, rye or barley in winter. Harvest this crop, and pasture if convenient, and let the ground stand until quite dry—say until there is no moisture within four to six inches of the surface. Put in the plow with a rolling coulter and turn up to the sun three or four times during hot dry weather, and if this does not do the work, repeat the following year. From my experience this will sicken Bermuda grass so it will reluctantly retire. It is almost impossible to kill this kind of grass when it gets lodged in low moist ground. This grass has no tap root, but has a mass of small fibrous roots near the surface, upon which the sun and dry air get in their deadly work. It propagates from joints and runners on surface.—Daniel Flint, Sacramento.

Horticulture.

LOOMIS FRUITS AND FLOWERS.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

So impartial an authority as the U. S. Government in its soil survey, says of the Sierra sandy loam composing the country about Loomis:

"It is splendidly adapted to the growing of berries, vines, citrus and deciduous fruits suited to the climate conditions of this area. Peaches, plums, cherries, apricots, pears, grapes, figs, oranges, strawberries, and other staple fruits of the foothill belt, are grown in great quantities."

A casual survey of the lovely region about Loomis, and on up to Newcastle, convinces one that this disintegrated granite formation makes the very king of fruit soils, being extremely friable and pervious to heat and moisture. It is preeminently the home of the peach and the plum, although for some reason, chemical or otherwise, it does not appear to be quite so congenial to their cousin, the apricot.

Loomis challenges the world for peaches, in yield, flavor, size and beauty. Miles of the country are like one continuous peach, plum and cherry orchard, and the variegated view of pink and white blossoms just now is an inspiring sight.

The season thus far is perfect and bids fair to continue so, as the frost date is about past. There have been seasons when frost, coming at a critical period, has nipped the buds in the lower lying orchards, but it is rarely as injurious as would be a late rainfall.

The handsome Early Crawford is criticized because of its tendency to bear twins and triplets, inconvenient to separate when gathering, and for this reason several growers have grafted their Crawfords to other varieties.

Mr. W. C. Pendleton, whose home is on a striking eminence, commanding a view of many counties, is giving special attention to canning varieties, such as the Levi, the Phillips and the Mother Porter, all clingstones, he having 75 acres in these varieties.

Mr. J. T. Law, an English gentleman, and an old subscriber to the PACIFIC RURAL PRESS for many years before leaving England, sent a box of his clings to the Lewis and Clark Exposition and was awarded the gold medal for California clingstones, admittedly the best in the world. Switzer Bros. the season before last netted the handsome sum of $8000 off fifty odd acres of Albertas and Triumphs. Mr. Plank, another grower north of Loomis, gathered in to the good last season $155 an acre clear profit from peaches and plums, two and a half acres yielding him $347.

There are about 80 acres in strawberries between Loomis and Penryn. The "Dollar," a firm, bright, pointed berry, has superseded all other varieties and is very successful.

The orange groves are now laden with oranges that it would be impossible to surpass in California or elsewhere. It is said that 112 acres on the J. Parker Whitney ranch, which exports oranges to Australia, has shown a return that is equivalent to 10 per cent on a capital of $160,000.

A fine object lesson of how the popular table grape, the Tokay, flourishes in this granite loam is afforded by the 30 acre vineyard of F. A. Grant. Last year the vineyard averaged 150 crates to the acre, a remarkable showing for young vines.

At Loomis all is fruit. There are eight packing concerns represented in the town, four of which are large exporters. But growers tell you that there is little leisure for reclining beneath ones vine and fig tree. Fruit growing means hard work—clearing, planting, tilling, pruning, inspecting, gathering, packing and marketing. One must love the business as well as the dollars in it, which are certainly many in the foothill belt.

Loomis is also florally distinguished. It is the carnation center. An Eastern florist discovered that the soil is ideal for this lovely flower, and there are three florists engaged almost exclusively in its propagation. The American people spent millions on the carnation last season. It is said that a single New York florist sold 167,995 in one day last January. It is claimed that Loomis is the only place in the United States west of Des Moines, Iowa, with an exclusive business of carnation growing for the trade.

Doubtless other portions of the foothill land will be found equally suitable and California will yet supply the cities with carnations.

As wealth and culture increase, the flower market grows with them. B. S. Bassett of Loomis ships carnations to Oregon and Texas, and has a regular customer who is a florist at Tampa, Florida. Mr. Bassett has also seed for 50,000 pansies to be put out in the fall. D. F. Roddan & Son, another firm of exclusive carnation growers, set out 150,000 cuttings last season.

GROWING THE EUCALYPTUS.

Written by Mr. J. L. BARKER, Santa Barbara, Cal., for the Commonwealth Club of California.

In response to a request from one of your members, Mr. E. A. Walcott, I have prepared the following statement giving my personal experience in growing the eucalyptus tree, and a few facts bearing on the question of profit from its culture.

In 1875 I planted about 15 acres, situated on the foothills overlooking the city of Santa Barbara, about 13 acres to the Eucalyptus globulus, or blue gum, and about two acres to the rostrata, or red gum. The main grove consisted of 10 acres, the other groves of about one acre each. The trees were spaced six by six feet apart. I planted in March and April, and was fortunate in obtaining a good stand. The land was mostly on a side hill and could not be cultivated except with a hoe. The weeds were kept away from the trees fairly well for the first season, and no further labor or care was given to them. As I raised the trees myself, I do not think the whole expense of establishing a grove exceeded $15 per acre. I made the first cutting in 1887, when I sold about 700 cords, mostly of four-foot wood, full cord measure, for brick-making purposes, netting me $2200. One of the small groves containing an acre was not cut. The leaves and branches which fell to the ground during the progress of growth, and also the tops of the trees when cut, were allowed to remain where they fell. Consequently in 1890, while the new sprouts retained their bluish, gummy leaves, a fire starting in the neighborhood, and fed by a high wind, completely devoured the plantation of sprouted trees, leaving nothing in sight but the charred stumps of the first growth. Only the acre of uncut trees remained unscathed. Having trimmed themselves in their natural growth, the branches were beyond the reach of the fire, and the dead leaves and branches did not afford sufficient material to feed the flame, and the fire died out at the very edge of the grove.

As to the main grove, I looked upon it as a total loss; but in a month or two sprouts appeared from most of the charred stumps, many coming from below the ground, and soon I had another small forest of trees.

In 1897 I made another cutting, and again in 1904. I estimate the annual profits from the experiment to have been about $15 per acre.

It must be borne in mind that my plantation was but two or three miles from market. I have paid but $1.50 per cord for hauling. Had the distance been greater, there would have been a corresponding diminution of profit. I was also fortunate in being able to sell in cordwood to brickmakers. I obtained $7 per cord, and the cost of cutting was $1.50 or $2, and of hauling $1.50, netting $3.50 to $4 per cord. At the same time I could get but $7 per cord for stovewood, with a slow market, as eucalyptus wood does not sell well in competition with oak, and I had to pay $3.50 for cutting and $1.50 for hauling stovewood, leaving but $2 per cord net. An acre, however, would yield one-third more in cords of stovewood than of cordwood, owing to the California system of measurement. Within a few years eucalyptus wood has advanced to $9 or $10 in Santa Barbara, on account of the scarcity of oak, and it is probable that the price will never be lower.

I have stated that two acres of my planting was in Eucalyptus rostrata. As is well known, this variety is of slower growth than the globulus, and inclined to be crooked unless confined by close spacing.

In view of the prospective commercial value of eucalyptus woods, I planted 50 acres in 1908 on the same property, and am increasing this plantation during the present season to the extent of 40 acres more. I have planted the globulus exclusively, being convinced that this variety is the most profitable for general purposes. Other varieties will tolerate a lower temperature and are more drought resistant, hence the area of successful culture of the globulus is somewhat limited. But within the range of its adaptability it deserves preference over all other varieties.

The planting of 1908 was made in March, with the expectation that the trees would receive the benefit of customary spring rains. These rains unfortunately did not materialize, and the little trees had to fight for life during the summer drought, without a drop of water after their planting. The result was that about 25% of the trees succumbed entirely, and at the present time the living trees range in height from 2 to 12 feet. The trees that died were not confined to any particular section although some parts suffered more severely than others. Last December I replanted where the trees were missing, using as large trees as practicable, so as to afford them a chance to compete with the older ones.

My land is hilly, of rich adobe soil, within the frostless belt, and for the most part free from rocks. After planting I have to depend on the hoe for cultivation, as the character of the land will not admit the use of other tools or machinery, and I confine my efforts to keeping the ground clean within a radius of two feet from the trees. This of course does not give the best results, but after the second year the shade of the trees prevents further vegetation.

While the cultivation of eucalyptus undoubtedly is destined to be an important and profitable California industry, my experience and study of the subject convinces me that the greatest care is necessary in the selection of lands, and also in the choice of variety. The available area is extremely limited. After excluding those sections unfitted by reason of temperature, aridity and barrenness, and likewise the fertile sections that are too high priced, one will be surprised to find how comparatively small an acreage will remain. Therefore there would seem to be no possible danger of overproduction.

As to the prospective profits, little heed should be given to the representations of promoters of land schemes, whose calculations are based upon generalizations from exceptional cases. As in every other industry, the range of profit will be as variable as the conditions surrounding each undertaking, including soil, location, attention and business capacity; but as a general proposition I believe it will be found that land suited for the purpose will yield far greater profits from the culture of eucalyptus than can be derived from any other use.

NOTES ON APPLE GROWING.

To the Editor: It is my purpose, as soon as I can turn my property in this State, to go back to California and engage in commercial apple growing—growing only varieties of the highest quality, like Spitzenberg, Yellow Newtown Pippin, Gravenstein, etc., as I intend to cater to the fancy trade, the trade that calls for the best of everything. I am told that along the coast, within 10 miles of the ocean, there is no codlin moth, and I have tentatively settled upon some point on the coast of Mendocino county north of Fort Bragg. I have written to different parties in that section, but their replies are unsatisfactory, from a commercial point of view. Judging from the replies to my inquiries, none of my correspondents in that section know much about commercial apple growing. What I particularly want to know is, does the fruit color up well, and is the quality good?

I was born at Henley, Siskiyou county, California, and grew to manhood there, and I think my father set out the first orchard in that neighborhood the spring of 1860. I have heard my mother say that the people laughed at him for his temerity in putting out the orchard, saying he could never make the trees grow. Yet in two years he ate fruit from it. I can even now remember his bringing out on Christmas about 25 pounds of Golden Rus-

sets. Siskiyou county is a good fruit growing section, but I would rather go onto the coast if I can grow fruit of as good quality as can be produced in Siskiyou county. I now have a small orchard which I set our four years ago in rocky soil, that is doing well, and it has changed my views about orchard sites considerably, so long as the site is favorably situated for air, drainage, and protection from raw winds the topography of the land amounts to very little.

I subscribed for the PACIFIC RURAL PRESS for the express purpose of getting information along these lines, but so far it has failed to materialize. Is the northern coast region of Mendocino a suitable location for apple growing for the fancy trade?

HENRY HAZLITT.

Dixie, Idaho.

[We presume it must be admitted that apples grown near the coast region of California are not the most beautiful. The red becomes dark and dingy, the greens and yellows are not clear, but are dull and somewhat inclined to be russety.

You cannot count upon immunity from codlin moth ten miles distant from the coast. It is possible that on coast slopes or coast flats directly open to the ocean winds, the insect may not work freely, and such condition is reported, but ten miles distance, with intervening ridges, gives conditions so different that the moth will work very freely.

Although apples are grown in the coast district of which you speak, there is no accurate and systematic growing, and no product marketed, partly because no effort has been made to produce a good article, and because these districts are rather remote from established lines of transportation. There are, however, in the district, excellent situations for the apple, and perhaps some day an industry such as you contemplate may be realized there. For beautiful apples, no coast product compares with inland, mountain fruit. We have never seen anything to equal the apples of Idaho, Eastern Washington, and Oregon. Even the very good apples of western Washington and Oregon are inferior in beauty, and the handsomest California apples come from elevated lands, like those you remember in Siskiyou county and in the mountain valleys of the Sierra Nevada, at an elevation of 3000 to 4000 feet, southward even to Tehachapi. The upland districts of the coast counties are also satisfactory; the apples of Lake county, for instance, are very handsome.

Our impression is that the best place to look for good apple ground, rendered now quite available by the construction of the Western Pacific, is in the mountain valleys of Butte, Plumas, and Sierra counties. Perhaps you know, however, that the codlin moth is more of a pest in the foothills than near the coast; consequently satisfactory effort against it lies at the very foundation of interior apple growing.—EDITOR.]

BEAN GROWING AND CALIFORNIA GEOGRAPHY.

To the Editor: I have been gathering information about bean growing in California, and submit to you the results for any use or comments you may be inclined to make:

The Small White bean is raised practically in that section of land which extends from the neighborhood of Port Harford to Los Olivos, and which lies in the vicinity of the towns of San Luis Obispo, Santa Maria, and Guadalupe. A small quantity is raised in the vicinity of Lompoc. In the Sacramento and San Joaquin valleys no Small White beans are raised.

The chief variety raised on the interior rivers is the Pink bean. Next in line comes the Lady Washington bean. Both Pink and Lady Washington beans are also raised in the Small White bean belt.

The Lima bean is often raised by irrigation. I have seen the statement that the Lima bean will not grow at all in the interior, and is restricted to the coast lands from Santa Barbara to Los Angeles county. While it is true that no Lima beans are grown at present on the lands of the Sacramento river, I wish to state that during one esason about nine years ago the writer saw a great number of small lots of Lima beans which were grown on the Sacramento and San Joaquin rivers. I saw these beans as they came in from the river boats, and bought them direct from the growers, who came with their beans on these boats; so there could be no doubt of their having been grown there. These Lima beans were, I now presume, planted as an experiment. As I said before, there were a large number of small lots; since, having presumably been the results of an experiment, the acreage was limited probably to small parcels. The quality of these beans was not so good as that of the southern California Lima bean, but it was a fair quality, and one which gave promise of improvement with continued cultivation.

After that I did not see any more Lima beans raised on the rivers until in the year 1906, when about 400 sacks were brought down from an Italian grower who had planted them on the river. He told me at that time that the yield per acre was satisfactory. These beans compared in quality with the beans raised in the earlier year, but they had been slightly rain damaged before harvest, but were in that regard no worse off than the beans in southern California, which were also damaged by rain to that extent in that season.

I mention these facts because I think the Lima bean culture could be extended under proper methods to some of the land adjacent to the Sacramento and San Joaquin rivers. The Lima bean industry being a very important one in California, the bringing about of such an object would certainly be a very creditable showing. If the growers could be impressed with the fact that the quality of the first season, and possibly the second season's crop, must not be expected to be as good as it should be eventually, and if they would use the proper methods of culivation adapted to their localities, I think favorable results would be attained.

OBSERVER.

San Francisco.

[We are glad to have the information. You are probably right about the feasibility of growing the Lima bean in other parts of the State where there is a moderate climate and sufficient moisture. However, the conditions in the latter part of the season are likely to be more favorable in the Santa Barbara or Santa Monica district than on the river lands, not only because of the likelihood of rain in the latter situation, but because of a greater danger of late soil moisture, which will keep the vines growing too late and make harvesting operations less satisfactory. However, this is a theoretical view; nothing can determine the matter but such patient trial as you suggest. As for failure of the Lima bean in interior situations where high heat and drought exist, that seems to be clearly demonstrated by the fact that they are altogether unsatisfactory in the Ojai valley, although perhaps 15 or 20 miles distant from the Santa Clara valley lands, where they do exceedingly well, as you known.—EDITOR.]

Citrus Fruits.

MR. POWELL HAS A SPECIAL CAR FOR COOLING EXPERIMENTS.

Mr. G. Harold Powell now has at Riverside a special car which was built for experimental cooling of fruits before they are started on long-distance shipments. The arrangement of the machinery in this car was designed by L. S. Tenny, government expert on refrigeration, who is in Riverside, and in charge of this portable refrigeration plant. The plant was not only designed by Mr. Tenny, but was assembled under his direction, and is acknowledged to be a masterpiece of engineering skill by all who have inspected the plant.

One-half of the car contains the machinery, while the other half is an insulated coil-room containing about 5200 feet of 1¼-inch extra heavy continuous welded ammonia coils arranged in eight coils, each coil complete with separate ammonia expansion valves. In the other half of the car the machinery is located. There is a 35-horsepower kerosene oil engine for the source of power; this engine by various belts and counter-shafts drives a 12-ton ice machine, a 2 K. W. generator for lighting and power, a 48-inch blower for blowing the air to be cooled over the coils, a centrifugal brine pump, and a motor-driven triple pump.

This room also contains a 42-pipe double pipe ammonia condenser, two large liquid ammonia receivers, an oil intercepter for the ammonia, water storage tanks, speed changing counter-shaft, and the complete piping and fittings for the kerosene, water, ammonia and oil lines.

This plant is installed in a space practically 20 feet long by 7 feet wide and 6 feet 6 inches high, so it can be readily understood the difficulties to be encountered in undertaking to place such a large amount of apparatus in such a small space.

A temperature of 15 degrees below zero is easily obtained in the air in the coil room.

This refrigeration car has been designed for the purpose of making it possible to carry the government's experiments and demonstrations into places where it would be impossible to assemble the equipment necessary for an exact scientific investigation of refrigerating conditions. It is the policy of the Department of Agriculture to give every section and every industry the benefit of the government's work, and this refrigerating car has been constructed at great expense with this in view.

It has been the policy of the Department of Agriculture to thoroughly instill into the minds of fruit growers the basis fact that the matter of greatest importance in the successful shipment and marketing of fruit is to have fruit that has been uninjured in the handling. In other words, before it is proper to take up such questions as pre-cooling and refrigeration it is necessary to make sure that the fruit has been rightly treated up to the time that it has arrived at the refrigeration stage.

Mr. G. Harold Powell, in charge of this work for the government, in discussing pre-cooling methods, says:

"The principal object of cooling fruit before shipment is to quickly retard the ripening processes and the development of decay and to equalize the temperature in the car during the trip. In ordinary iced shipments the fruit is loaded in a car in a warm condition. It requires several days after the fruit is loaded before the temperature of the fruit is reduced to a degree of cold that retards the ripening and the decay. The ripening springs forward with unusual rapidity as soon as a fruit is picked, and as the air of the car is moist from the transpiration of the fruit the conditions are favorable to the rapid development of decay. In a refrigerator car the fruit is cooled by a slow gravity circulation of air from the ice bunkers. The temperature of the air as it leaves the bunkers may fall as low as 34 degrees F. It is warmed by contact with the fruit and grows warmer as it ascends and re-enters the ice bunkers of the car. The temperature of the top of the car is several degrees warmer than in the bottom during the first part of the trip, but this difference gradually grows less as the fruit becomes cold.

These are the fundamental difficulties in the present methods of handling perishable fruits. They limit the distribution of fruit to the area over which the top tiers of packages can be safely shipped, thereby preventing the development of the most distant domestic and foreign markets. They make it necessary to harvest the summer fruits prematurely to provide against the ripening that takes place in transit, thereby placing large quantities of insipid, flavorless peaches, plums and other fruits before the consumers."

The pre-cooling process reduces the temperature of the fruit quickly to a degree which effectually stops ripening and decay, and if the car is then iced, losses from decay in transit are effectually stopped. However, Mr. Powell emphasizes in the strongest terms that no pre-cooling or refrigeration system can take the place of the care in handling necessary to start the fruit on its way to market in perfect condition.

A PLACER COUNTY PROPERTY.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

A short story about the Silva-Bergtholdt Company will afford one notable example of what California is doing with her fruit, and what her fruit is doing for California, as well as the progress accomplished by one business concern through concentration of purpose and breadth of aim.

The Silva-Bergtholdt Company is the outward and visible sign of a successful combination of the nursery with the fruit shipping business, which dovetail very naturally and obviously, although the individual aptitude for the one differs from that which is needful for success in the other. Both are here complete in the active members. Mr. J. E. Bergtholdt has been engaged in the fruit business from boyhood, and is a dynamo of energy and resourcefulness, while Mr. J. F. Dudley is an experienced nursery man and an all-round hustler. Yet a third branch of the business grows out of the two before named, the company supplying besides nursery stock, implements, spraying materials and every requirement necessary to the grower—even knowledge and enthusiasm being imparted by contact and absorption with live business methods.

Their shipping system is three-fold. There are four branches in Nevada—at Reno, Tonopah, Goldfield and Ely, where car lots are sent from Newcastle for distribution. Then there are express shipments direct to all points in the middle and Pacific coast States, from New Mexico and Arizona to Oregon and Washington, while for the handling of their Eastern shipments the services of the California Fruit Distributors are utilized, the Silva-Bergtholdt being affiliated with the Distributors.

The Pioneers' Fruit Co., which is affiliated with the Silva-Bergtholdt, are the only shippers who now surpass the younger company in actual volume of business.

The Silva-Bergtholdt Co. has two nurseries set out this season, each of 320 acres, or comprising together an area of a mile square. One of these nurseries is about two miles from the old mining town of Ophir, and near Virginiatown and Gold Hill, names that conjure the days of '49, even to many persons who have never seen California. Here the old road from Marysville, then the State capital, ran to Gold Hill and Ophir, and was thronged with teams loaded with mine supplies. Gray-haired miners yet recall the lively town of Ophir, with its music and revelry and roulette and faro, when fortunes were made by day and spent by night. Seven hundred voters registered at Gold Hill in the year 1850, and the entire population numbered thousands. Scarce a trace of human habitation remains, the very diggings are resuming the natural level and peaceful orchards surround the scenes of the struggling, seething life of the golden time.

The second nursery, four miles from the busy town of Lincoln, is also a landmark in the State's history. It was in early days the horse ranch of the United States Stage Company and later was set in vineyards. These in time disappeared and the primeval wild would soon again have asserted itself. The house of the homestead of '49 still stands in fair preservation, with its sturdy beams and planks an inch and a quarter thick that came around the Horn and were hauled here by ox teams.

Such nurseries are the means of rapidly developing successive areas of new land. This company is constantly acquiring and clearing brush to use the virgin soil for nurseries. After a season or two these are planted to orchards and more new land broken up. Not only is the soil thus reclaimed, but human energies are developed and directed, enterprise is stimulated and the country's resources improved and advanced.

At Ophir the ditch that washed out the elusive metal for the miners now causes orchards to bloom and brings forth the earth's fruits. The Lincoln nursery lies close beneath the South Yuba ditch, which passes along sheltering hills to the town of Lincoln. Here are set out at this time 120,000 peach trees, tiny but thrifty youngsters, 60,000 pears, 60,000 apples, 50,000 plums, .30,000 cherries, 25,000 almonds and 20,000 apricots. Besides the



Leading Fruit-Handling Establishment on the Overland Line at Newcastle.



Representative Foothill Orchard Near Newcastle.

Money is only one measure of success. The miners who tore up and smothered the rich earth in their hot haste for gold, as a body added something to the country's currency, but the good thus effected is not comparable to the benefit of soil cultivation and the providing of wholesome livelihood for those who come to us from other lands and from other States. The pay-roll of Silva-Bergtholdt Company, an enterprise as yet but in its sturdy infancy, already amounts to $3000 per month.

nursery this company expects to ship 5000 crates of grapes from the vineyard on this ranch.

The Silva-Bergtholdt Company has in view the best uses of the immense possibilities lying in the warm foothill belt of the Sierras, and to this end devote portions of their land to experimental purposes. In one of these experimental plantations are 263 varieties of deciduous fruits imported from France. Mr. Dudley, who has entire charge of the nurseries assisted by his capable foreman, Henry Reinicke, has now under special observation a new variety of French pear, which so far appears to be immune from blight, though it is still on probation, its excellence not to be heralded until amply demonstrated.

It follows naturally that information is frequently sought by less experienced growers, and here again is manifest the educational influence arising from horticulture pursued on a large scale with system and businesslike methods.

There are now 120,000 seedlings in the nursery at Lincoln. The method of propagation is about as follows: The seed is bedded in September and germinates the following spring, when the sprouts are planted in rows at even distances. After a season's growth they are budded during the summer, the bud remaining dormant until the next spring. Then before the sap begins to flow the top is cut off and the sap thus forced into the bud, which then sprouts, and it is the sprout thus formed that makes the tree.

It is a pleasure to the PACIFIC RURAL PRESS to chronicle so successful a horticultural enterprise in Placer county. It has not sprung up in a night like Jonah's gourd, but is the outcome of many years of persistent endeavor, during which the Silva-Bergtholdt Co., to apply an appropriate simile, has been steadily taking root. Its top growth is now as surely developing into a well spread and richly bearing tree which well deserves to flourish.

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Sample lots at wholesale rates. Can take from flats and send in tight packages to save cost, risk and time.

HENRY SHAW,

320 River St., - - - - Santa Cruz, Cal.

AGRICULTURAL REVIEW.

Fruit Outlook Good.

F. B. McKevitt, the new manager of the California Fruit Distributors, returned last week from a trip through the East, and reports the outlook for California fruit as very bright in the Eastern markets. In an interview Mr. McKevitt stated that the prospects for a good crop in this State were excellent for all fruits, with the exception of apricots, which is an off year. Regarding the Eastern markets he said: "The general Eastern conditions are good. The trade looks for a big season. In all the big cities men are going to work in the factories and shops, and money is more plentiful now than it has been for some time in the past. Business is picking up in all lines, and everybody is looking forward to a big season's trade. The distributors are looking forward to increased sales. Silva & Bergtholdt of Newcastle, and the Vacaville Fruit Co. of Vacaville, have been affiliated with the distributors. They operated independently heretofore."

The California Fruit Growers Exchange has sent out warning to the various fruit districts to see that no oranges are packed for the Texas trade that are infested with scale of any variety. The Texas authorities may put an embargo on California fruit if scale is liable to be shipped in there to infect their trees. Canada is also very strict these days in watching for fruit pests.

The Santa Fe railway is preparing to cut off a day in the time of getting California oranges to the Chicago market, by using the Belan cut-off. If put into effect in time to handle the fresh deciduous fruits, it will mean greater profits for the fruit men of the State.

A correspondent from Orange county states that the navel orange crop there is about all picked. The crop of Valencias is very heavy, and with the acreage considerably increased by young trees the output will be much heavier than previous years.

The new berry growers' association of Sebastopol has already sold over 230 shares of stock, and has about 70 members. A new warehouse is being built for them, and chests, boxes and baskets are already on hand to handle the coming crop.

The packing houses of the Earl and the Producers Fruit companies at Penryn, Placer county, were destroyed by fire last Thursday. Arrangements are already being made to rebuild them, that they will be able to handle the coming crop.

The Horticultural Commission of Santa Barbara county has adopted aggressive measures to have the lemon growers of that county clean their trees of scale, as their markets are threatened if cleaner fruit is not shipped.

The Italian Vineyard Co. of South Cucamonga is building a large stone warehouse, 400 by 180 feet, on its land. This will give the company capacity sufficient to handle all the grapes grown in that vicinity.

The prospects for a good apricot crop in the Pajaro valley seem to be better than in other portions of the State. The strawberry crop will be a good one, and shipments will commence soon.

The orange shipments from the North Ontario district are going out quite rapidly, and it is now estimated that the crop from there will be fully 300 cars heavier than last season.

Five hundred fruit growers met at San Jose last Saturday and organized a local branch of the Farmers' Co-operative & Educational Union.

The fruit growers of Placer county are joining the Farmers' Union. Three unions have already been organized there.

Last week Redlands shipped 212 cars of oranges, making a total of 2697 cars so far this season.

Several thousand fruit trees are being planted in the Klamath Basin this spring—mostly apples.

Thousands of Gravenstein apple trees have been planted around Sebastopol this season.

A. Leslie is setting out a 40-acre orange grove south of Plano, Tulare county.

Santa Rosa is to have a rose carnival Saturday, May 8.

Agricultural Notes.

The San Fernando Press says that on the big Porter ranch near that place is a splendid crop of barley. In many places the grain of the big 1800 acre field is up to the backs of the horses, standing very thick, and the owner estimates the yield will run as high as three tons to the acre in places. Harvesting commenced last week, and already 200 tons have been sold for immediate delivery at $20 f.o.b.

Governor Gillett has approved legislative bills appropriating $125,000 for the establishment of the California State Trades School for orphans, $101,314 for the University of California, $150,000 for buildings and equipment of the State Farm school at Davis, $15,000 for viticultural experiments, $20,000 for farmers' institutes.

Joseph Sizelove of Los Angeles has rented ten acres of land near Liveoak, Sutter county, which he will plant to horseradish. Hesays that if the experiment is successful his company will go into the horseradish business extensively. Some way, ten acres seems to use to be

(*Continued on Page 331.*)

THE MOST IMPORTANT FARM MACHINE

THE MANURE SPREADER

Are you Saving Money, or are you Losing it by being without One?

You believe that money spent for a mowing machine or a binder is well invested. Still you use these machines only a few days in the year.

You use the hay rake, because it saves you time and labor.

These are valuable machines. They are now counted indispensable by most farmers, even though they stand unused over eleven months in the year.

But a manure spreader is a still more valuable machine Its purpose is to keep up the fertility of the soil. It is the machine you use *all seasons*, and the one on which the real usefulness of all your other farm machines depends.

If you have not already done so, you should consider now the advisability of having an I. H. C. manure spreader on your farm.

You will have choice of three different spreaders in the I. H. C. line—the Cloverleaf, endless apron spreader, the Corn King, return apron spreader, and Kemp's 20th Century, a return apron spreader. Each of these spreaders handles the manure in all conditions perfectly and will give you long satisfactory service.

These spreaders are not ordinary. Their frames are made of air dried wood stock. They have serviceable, tractive power producing wheels, beaters that are unsurpassed for tearing the coarsest manure into the smallest pieces and applying it uniformly, aprons that deliver the manure to the beater with the least possible friction and in a uniform manner. Any one of these machines will, if given proper care, last a lifetime.

The labor of spreading manure is greatly lessened by using one of these I. H. C. spreaders. Not only is the labor lessened, but it is changed into agreeable work.

But the strongest reason for using an I. H. C. spreader is the increased value you get out of the manure. The best authorities agree that manure spread by an I. H. C. spreader has at least double the value of manure spread by hand.

The I. H. C. spreaders pulverize and make the manure fine, and spread it evenly over the ground just as thick or as thin as may be required. The manure is placed upon the ground in a condition that is at once available for plant life. All is washed by the first shower into the soil—none is wasted.

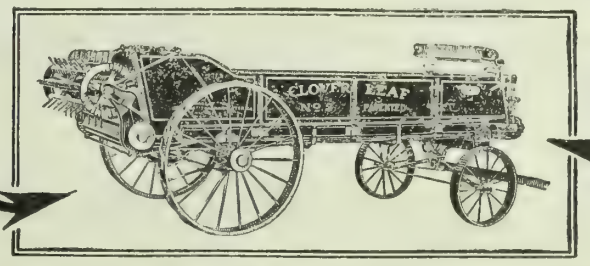
The good effects upon the crop are immediate and the permanent benefit to the land is greater than when the manure is spread by hand. There is no question but that land manured by an I. H. C. manure spreader will give an increased yield of from two to ten bushels per acre over land where manure is spread by hand.

Consider the labor saved, the more agreeable work, the better crops, the more fertile condition of the land—is not an I. H. C. manure spreader the machine you should have?

Are you not losing money instead of saving money by being without one?

Call on the International local agent and investigate one of these machines. He will supply you with catalogs and particulars, or if you prefer write nearest branch house.

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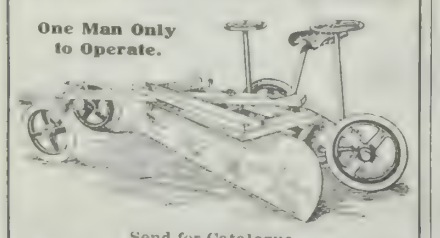
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USE OF GYPSUM ON CLOVER.

We have several times advised our readers that gypsum is not a fertilizer in the way of carrying plant food of direct use to the plant (except where it needs lime), but that it is a tonic or stimulant and may be, under certain conditions, desirable to use. A fuller statement, which may edify some of our readers, is the following, by Mr. Byron Hunter, Assistant Agriculturist, U. S. Department of Agriculture:

Land plaster, or gypsum, is composed of a form of lime, sulphuric acid and water. It increases the yield of clover and other legumes when applied in the Coast country, chiefly, it is believed, due to its indirect effect in setting free plant food already in the soil, especially potash. It is now generally used in western Oregon and western Washington. If sown early enough to be dissolved by the rains, land plaster materially increases the yield the same season, of the crops mentioned. Farmers who pasture their clover in the spring to retard its development, so that haymaking will occur after the June rains are over, almost invariably apply their plaster during March. Plaster is sometimes applied the last of April or the first of May, so that the crop will mature a little later.

The amount of plaster used varies from 30 to 100 pounds per acre. While some apply as high as 100 pounds per acre, farmers generally agree that from 50 to 60 pounds is sufficient for a hay crop, provided the plaster is evenly distributed. A heavy application causes a growth of too much straw for a seed crop of clover, and from 30 to 40 pounds is generally considered enough by seed growers.

An application of from 30 to 40 pounds of plaster to young clover is very beneficial, as the clover starts better and makes a better stand and a heavier growth in the fall. When clover is sown in the spring with oats or other spring grain, a heavy application of plaster causes the clover to grow too vigorously. Being shaded by the grain, the stems are tall and slender. Under such conditions the hot sun may burn the clover and destroy the stand when the grain is cut. Only light application of plaster should therefore be made when clover is sown with grain in the spring.

Land plaster is largely distributed by hand. It is distributed either from a sack carried by the sower or from a box or hopper in the back end of a wagon. It is very difficult to sow plaster by hand. Too much is usually applied in the middle and not enough on the margins of each strip sown. The wind blows the plaster, and it is very difficult to keep from applying it in streaks. If it is distributed evenly the growth of the crop is quite uniform over the field, but if distributed in streaks the clover also grows in streaks. Where little or no plaster falls, sorrel, grasses and other weeds often constitute the principal part of the growth.

Uniform distribution of the plaster increases the yield of the crop. It is safe to say that clover yields one-half ton more hay to the acre where the plaster is evenly distributed than where the distribution is uneven. Again, the clover comes on vigorously all over the field and holds the weeds in check much better when the plaster is evenly distributed.

Sowing plaster by hand is very disagreeable. The sower breathes large quantities of the fine dust. It gets into his eyes and all over his person. Few hired men are willing to do the work, and the farmer usually has to do it himself. In the attempt to scatter it evenly the sower usually gets on from one and one-half to two times as much as is necessary. This waste amounts to from 20 to 50 pounds per acre.

The difficulty of sowing land plaster by hand can be partly overcome by mixing it with two to four times its bulk of dry soil or ashes.

Detailed description and drawings of devices for applying land plaster are given in a circular which may be obtained from the Secretary of Agriculture, Washington, D. C.

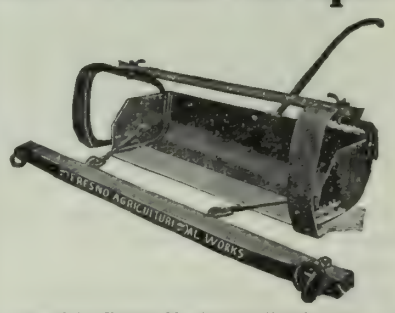
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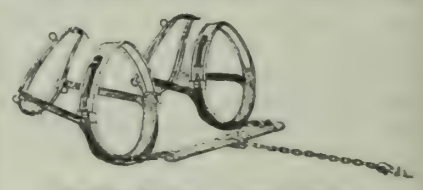
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AMBOY, CALIFORNIA.

Live Stock and Dairy.

SOILING AND THE DAIRY HERD.

Written for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

Soiling is not practiced as commonly in California as it could be with marked advantage. Particularly is this true of its use in the dairy where the pasture is limited and we desire the greatest production of milk with an economical use of the food. By "soiling" is meant the supplying of forage fresh from the fields to farm stock which are more or less confined. The advantages of soiling have been declared to be due to the saving in land, the saving of fencing, the economizing of food, the better condition and comfort of the cattle, the greater production of milk and the attainment of manure. Partial, as compared against complete, soiling is more practicable to the large majority of dairymen and dairy conditions in California. Where so many dairymen feed their herds on alfalfa pasture and alfalfa hay, we believe that good results can be obtained by soiling alfalfa. In fact a dairyman on the Sacramento who followed this partial soiling method was very well satisfied with his results. Because of the extra allowance of feed supplied during the most trying time of the year, young stock will not cease growing and dairy cows will yield their normal flow of milk. The best results are to be had from feeding in the day time and turning the cows out to pasture at night for exercise and grazing. This should be considered, particularly in regions of the State like the San Joaquin and Sacramento valleys and the southern sections where the heat during the day is often intense and very little if any shade is provided for the stock. Where flies are troublesome during the summer days it will be found advisable. The silo is a very valuable adjunct to successful soiling practice. Partial soiling rightly followed will be found a most profitable practice on most farms. By it more stock can be kept than on pastures only and more even gains will be made during the season by all stock fed.

Many who recognize the advantages of soiling are deterred from practicing it, arguing that the large amount of labor required in supplying the green feed daily more than offsets the benefits derived. It has been shown that if green fodder is gathered twice a week and spread not too thickly on the barn floor it will keep in good condition until wanted for feeding. A dairy cow will require from 60 to 100 pounds of green feed daily.

Where lands are high priced or where the dairyman desires to keep a large number of cattle upon a limited acreage soiling is the best possible means to that end. In using soiling crops it must be remembered that growing, immature plants consist largely of water, and often cattle cannot consume enough of such feed to gain the nourishment they require. For this reason, where crops are quite green, some dry feed should be supplied in addition to the green feed. Many dairymen are using the silo to advantage in this State and its use will greatly extend the practice of soiling.

CHRONIC BLOATING.

To the Editor: I have a cow that is bloated all of the time—that is, for the last 8 or 10 days. She has bloated for the last six weeks off and on. She eats about half as much as she should; bowels and water appear to be all right. It is not like alfalfa bloat. She was fresh about one week ago. We do not save the milk, but it appears good. I have not seen her chewing her cud lately. She runs on pasture, but not alfalfa pasture. I have given three or four doses of salts, but do not see any good from doing so.

DAIRYMAN.

Merced county.

A veterinary friend tells us that the chief causes of chronic bloating in cattle, such as you describe, are tuberculosis and inflammation caused by the presence of some irritating object which the animal has swallowed. If the trouble is due to tuberculosis it may be determined by the tuberculin test. Detailed information in regard to this test can be obtained by writing to the Experiment Station for Bulletin No. 199. If the animal does not react to the tuberculin test it is possible that she may eventually recover. As soon as bloating appears give six ounces of hyposulphite of soda in a quart of warm water. This will stop the trouble temporarily.

RANGE CONSIDERATIONS.

Written for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

The cause for the deterioration of the range was discussed in a previous article, and we hardly feel that the subject should be left without giving what we believe to be some ideas and means of preserving the range. If the range is to be renewed or improved, the practice of carrying the maximum number of stock or, in other words, overstocking, must be abandoned. It is now possible to permanently raise the optimum carrying capacity of a range, but not so long as heavy stocking is practiced. Success on one range, as compared with failure on an adjoining one is not due to any difference in location or other range conditions, nor to any differences in the grasses or other plants which compose the pasture; the natural conditions generally are, or have been, identical with thise of adjacent and less productive ranges. The secret of success on one's range lies in good management, and good management simply consists in carrying the optimum number of stock and allowing plenty of grass to go to seed, but as the majority of the stockmen would call it—go to waste. This has been amply proved by practical stockmen, who declare that, far from being wasted, the grass that is carried over and allowed to go to seed is equivalent to just so much capital invested in the range. The amount of grass to be left to seed and the optimum carrying capacity of a range can only be determined by actual experience. There is another thing that is gained by allowing a great deal of grass to go to seed, besides the amount of seed scattered, the formation of a seed bed of decaying leaves and stems, which encourage germination and protect the young seedlings.

The conservation of moisture in the soil and the preservation of the water supply is of importance. Many ranchers in their desire to increase the carrying capacity of their range start immediately to clear the land of timber and brush in order to get just that much more pasture. There is probably greater financial loss than profit in this method, as with the clearing away of all the brush and timber from the gulches and springs, the moisture content of the soil is diminished and the available drinking water for the stock rendered accessible. The soil on the steeper slopes washes away with greater rapidity, owing to the lack of production, thus making the gulches and canyons deeper, which facilitates the erosion of the soil from the upland slopes.

The stockman whose range capacity already is low is more interested in the possibility of restoring his range to a capacity of 8 or possibly 5 acres, from 10 or 12 acres per head. Where a range is worn

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out—and I have seen several in this State in that condition—it has been found necessary to give it complete rest for a year, or even two years, in order to give the native forage plants, a chance to attain a full growth, and to produce and scatter the largest amount of seeds possible, in order to again establish themselves. For this to be accomplished, a range must be well fenced and well maintained. If a range is worth anything at all, it is certainly worth keeping well fenced. Of course this is applicable to private ranges, as one individual alone cannot hope to improve open range. In many cases it may not be necessary or possible to give the whole range a complete rest at one and the same time. Therefore instead of doing this and thereby, perhaps, missing a season of exceptionally good prices or of more than the usual quantity of feed, a portion of the range, say one-seventh, could be fenced off and rested each year, the herd being weeded out at the same time so that it will not exceed the optimum for the remainder of the range. At the end of seven years the rotation could be repeated and the carrying capacity increased. The stockman owning his own range will realize that as long as he can make a living off his range, he cannot do better than to invest any surplus in improving the condition of both range and herd by weeding out and keeping the number down to the optimum. In seeking to improve the range question of adaptability and value of certain grasses are most important, but each range has to some extent, its own individual peculiarities, and the man who has lived on the land, through various seasonal changes, should be the one best fitted to decide. A most important point to remember is that it will be wise to have any grass seed, when it is to be used in quantity, carefully examined at the time of purchase, and only to purchase clean seed, free from seeds of injurious weeds. Some stockmen have injured their ranges almost as much as they have benefited them, by the introduction of injurious weeds along with the seed of valuable forage plants.

POINTS ON PORK PRODUCTION.

Mr. D. A. Gaumnitz gives the Minnesota Farm and Stock some economic points on pork production, which do not all exactly fit California conditions, but are all suggestive of the way in which planning and figuring should be done everywhere, if one desires to apply modern ideas to the pig.

BUILDINGS.—Among factors that must be considered in economic pork production are cheaper buildings, cheap feeds, more careful feeding, the production of crops to be harvested by hogs, less labor, more prolific sows, and the size at which it is most profitable to sell pigs.

Instead of both permanent and individual hog houses, investments should be made in only the latter kind for most farms. With pasture a main factor in pork production, movable houses are essential, and the permanent ones have to be relegated to the background. Even though they could be used, the cost for them is greater per individual sow and litter than the small A-shaped house, there being a difference in cost of about 25 cents per sow.

CHEAPER FEEDS.—It is acknowledged that grass crops are among the cheapest feeds that can possibly be secured on the

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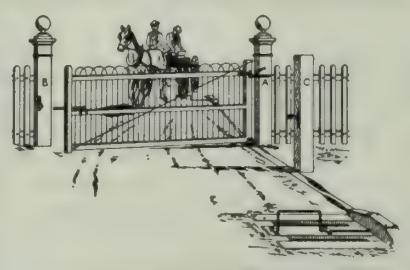
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average farm. In this class are various tame grasses, clovers, rape and cereals. In experiments where clover pasture has been substituted in the ration in place of shorts, an acre of clover has been found to be worth from 1 to 2 tons of shorts, or in cost from $15 or $20 to $30 or $40 per acre. Not alone is the nutritive value of the clover to be considered, but also the satisfactory effect it has upon the future of the hog. If clover is worth $20 per acre, it is worth more for pasture than for any other farm purpose, and an abundance of it, or a substitute, should always be provided. Permanent crops are more satisfactory than cereals, because they last throughout the season and they require less labor to grow.

By fencing in large areas the fence bill is cut down. A very satisfactory method for a man with, say, 10 brood sows, is to turn them into a 10-acre lot. About June 10 (earlier in California), a strip two rods wide is cut for hay; the sows and pigs immediately go to the cut strip, for here the growth is found to be tender. About June 20 or 25 the remainder of the field may be cut. The second growth furnishes a nice pasturage for the sows and pigs—one that is tender, palatable and in sufficient quantities to insure green feed. Such feed helps to make the first 100 pounds of pork very cheaply.

More Careful Feeding.—Today the effort seems to be to stuff the pig as hard as it will stand, the aim being to get as large gains as possible early in its life, without regard for its future. This is a proved mistake. Young pigs must be fed to develop in them capacity. Milk and clover are excellent samples of feeds that will do this; the feed must be digestible and free from crude fiber, and must contain the proper nutrients to produce growth at the proper stage and fat when the proper time arrives for it. Then, too, the feed must not be given too generously, for that produces scours and waste of feed nutrients. Attention and study in this line has reduced the feed required to produce a pound of gain materially. There is great chance yet to improve, and many can cut the cost of production due to careful feeding about one half. This has a very significant value, and alone would materially cheapen pork production.

Grow Crops Hogs Can Harvest.—It costs from one quarter to one half more to harvest a crop than to grow it. When labor is high the difference becomes still greater. There are several crops, in addition to pasture, that may be harvested by hogs, thus reducing expenses connected with growing them materially.

Beardless barley, peas and corn come under this class, and some or all of these crops may well be used after they are ripe for developing and fattening pigs. Especially is this true when pigs have been properly developed on bulky, digestible feed until they weigh 100 pounds each. Barley or peas both ripen before corn does, and may well supply the larger part of the grain ration before the pigs are turned into the cornfield. These crops should be sowed and planted with this feature in mind.

Less Labor.—The average farmer has not considered the question of labor as carefully as he might. In field work, machinery is frequently installed to do the work of man, but management of stock has received decidedly less attention. In feeding twice or three times daily, in watering, in bedding, in hauling away manure, in husking the corn, time is demanded. Plenty of pasture, fields of peas and corn into which to turn them later in the fall, teams with which to haul water, bedding and manure, convenient arrangement of field and hog houses, are all factors that have a great influence upon cutting down the expenditure for labor in growing hogs. Actual statistics from Minnesota show the labor charge for time consumed in caring for a brood sow and litter to be about three times as large as is generally supposed.

More Prolific Sows.—Many sows produce only four pigs on an average; eight is not an unusually large number, yet is more than many produce. Sows cost about $12 a year for keep. A pig from a four-pig sow would at birth cost $3, and only $1.50 from an eight-pig sow. A dollar and a half added to each pig at birth is a burden that few can shake loose. Every man who grows pigs should have the eight-pig sow, rather than the four-pig kind. In case of a man growing 60 pigs it would mean a saving of about $90, an item worthy of being considered in the cheaper production of pork.

The Size at Which to Sell.—It is recognized by hog men generally that the first 100 pounds of a pig can be made for a very small amount of feed per pound of gain; that the second 100 pounds will cost almost twice as much, and the third 100 pounds will cost between two and three times as much as the first 100 pounds. In this way the cost per pound increases as the pig grows older and heavier. Since this is so, it must be evident that, barring cost at birth, a pound in a 100-pound pig can be made for about one-third the cost of that required to produce a pound of gain in a 400-pound pig. There is more substance to an old and fat pig than a young light one, and it takes feed to make it. On the market they are all bought for the pork they will dress, consequently the difference in price per pound is not great, but the cost of producing it is, and to this the producer should give heed. That is why so many hogs today are marketed at 200 pounds and fewer at 350 and 400 pounds. This does not imply that the hogs should not be finished to carry fat, but simply that as the weight is increased the cost per pound to produce it it increased also, until a point may be reached where the gain produced will not pay for the feed consumed in producing it.

The pork producer anxious to make money can do no better than turn his attention to a consideration of these and other details that may suggest themselves and determine their application to his individual conditions.

Stock Notes.

At a meeting of the Dairymen at Imperial last week the statement was made that the dairy interests were selling products that were bringing $1000 per day into the valley.

The San Luis Cattlemen's Association will hold a meeting at Paso Robles Saturday evening, April 24. The association has determined to put a stop to cattle stealing in its district.

At a public sale near Santa Fe Springs, Los Angeles county, last week, Mr. Myers sold 38 head of grade Holstein and Jersey cows for an average of $60.50 per head. The stock was in good condition.

About twenty-five cattle owners in Tehama county are getting ready for the spring roundup. They each have stock running in large in the foothill ranges, and once each year the cattle are rounded up and branded.

The supervisors of Glenn county have appointed M. Jensen, a veterinary, as live stock inspector. One of the inspector's first acts was to kill two horses and quarantine others affected with glanders, and he now announces that he has the disease in that county under control.

At a meeting of the wool men at Marysville last week it was decided not to hold a wool sale there this season, as sufficient wool could not be had to make the sale a success. Already the wool growers have sold a large part of their clip, at prices from 14 to 17 cents per pound.

Suits Against Infringers of DE LAVAL Cream Separator Patents

Affecting the Standard Separator Co., the Iowa Dairy Separator Co., the Peerless Cream Separator Co., and all others who have or may be making, selling or using Cream Separators containing "Disc" bowl construction infringing United States Letters Patent No. 892,999.

We have previously announced the bringing of suit by THE DE LAVAL SEPARATOR COMPANY against the STANDARD SEPARATOR CO. for infringement of LETTERS PATENT NO. 892,999 in the manufacture and sale of cream separators covered by the claims of said letters patent, and the fact of infringing separators made by the STANDARD SEPARATOR CO. being sold by various other concerns under several different names.

We now beg to announce, for the information and caution of all whom it may concern, that further suits for infringement of this patent have likewise been begun in the UNITED STATES CIRCUIT COURT against the IOWA DAIRY SEPARATOR CO. and the PEERLESS CREAM SEPARATOR CO., both of Waterloo, Ia.

Separators made by one or both of said IOWA and PEERLESS Companies have been or are being sold under different names by the RACINE-SATTLEY CO. of Omaha, Neb.; the HANFORD PRODUCE CO. of Sioux City, Ia.; the L. A. WATKINS MERCHANDISE CO. of Denver, Colo., and several other concerns whose names are not mentioned either because conclusive evidence has not yet been obtained against them or because of their expressed determination to get out of the separator business.

All separators containing such infringing Disc construction sold by any of these concerns, or anyone else, equally infringe said letters patent as if actually sold by the STANDARD, IOWA or PEERLESS Companies under their own names, and all of these concerns are equally liable for such infringement.

Likewise is EVERY USER of any such infringing separator bought of any of these parties or anyone else liable to the DE LAVAL COMPANY for all income or profit derived from the use thereof.

The caution is again repeated that there are STILL OTHER CONCERNS infringing this and other DE LAVAL owned patents who will be held accountable in due course.

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The Poultry Yard.

CARE OF THE DAY-OLD CHICKS.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

The trade in day-old chicks has become a live branch of the poultry business and meets a need in poultry raising. Like all new things, it is very old, and was carried on by the Chinese and Egyptians ages ago, when the poultry public either had their eggs hatched by the big hatchery or bought their chicks therefrom. In raising poultry in a small way it is a great convenience to be able to get chicks of the desired breed and just as many as wanted, without the expense and work of properly mated breeding stock or of incubators. If bought from a reliable breeder with vigorous stock, and the chicks given proper care by the purchaser, they prove entirely satisfactory.

Many of those buying the chicks for the first time, and having had no experience with brooder chicks, are at a loss how to care for the motherless little creatures, and disaster often follows lack of experience, and especially lack of preparation for the chicks. Those buying a small number of chicks usually do not care to invest in a brooder, and if no hens are at hand in the right stage of broodiness to act as stepmothers, a simple home-made brooder may be provided as follows: Take a shallow dry goods box some three feet each way and eight inches high; change the top into a tight-fitting lid; make an opening in the lower part of the front side of the box for the chicks to run in and out; bore a line of inch holes along the upper part of the back for ventilation. Now make a hover by tacking a piece of coarse woolen blanket onto a frame a little smaller than the box; let this blanket hang over the edges to the floor on all four sides; it may be slit up a couple of inches on the front edge at a distance of an inch or so apart, that the chicks may get under more readily. Let this hover rest upon cleats nailed to the sides of the box; at first three inches from the floor, and as the chicks grow the hover should be raised higher. Place this brooder in a dry, comfortable room or shed where the sun may shine in. Put a layer of clean sand in the bottom, and over this an inch or so of chopped hay or dry alfalfa leaves for bedding. Air and sun the brooder and hover every day, and keep the box clean and the litter dry and sweet. As the chicks grow the lid of the brooder may be raised, and when some four weeks old, entirely removed and an extra thickness placed on top of the hover; thus keeping the chicks warm and giving them plenty of air.

When the chicks first arrive, have ready a shallow box in a warm room, with the bottom covered with sand and pounded shells; in one corner place a fountain of water with the chill taken off. A suitable fountain may be made by driving a hole with a nail on each side of a tomato or quart fruit can, an inch from the top edge; fill the can with water and invert into a straight-edged saucer; a small 5 cent granite pan is good. The space between the can and the edge of the saucer should be about half an inch, so that the chicks may drink but have no room to put a foot into the water. After placing the chicks in this box, scatter a handful of some good chick feed (Coulson's chick feed is excellent) over the sand and shells. When the chicks are tired and begin thier cuddling call, put them carefully into the brooder and close the entrance; leave them a couple of hours; then feed and water as before. Repeat this for the first four days, leaving them out a little longer each time, and teaching them to go into the brooder themselves, taking care that they do not remain outside and become chilled and huddle. Also watch the toes; if they get nipped and bleeding, dip the toe into pine tar or put the chick by itself. To prevent, they may be kept from it the little while they are out at first; afterward, give them a little beef heart cooked tender and cut in strips like tiny angleworms. This will make them forget-toe-hunting by furnishing the animal food which they crave. Now, cut tender grass and other greens very fine with the scissors and feed with the chickfeed. After they are a week old the latter may be alternated with wheat and cracked corn and tender leaves should be kept tied in bunches and hung just above their heads; and they should now have an outdoor run where the ground is clean and mellow.

Poultry Notes.

SUCCESSFUL EGG FARMS.—Poultry raising with good sound principles applied is a profitable business, says W. F. Doyle in Tribune Farmer. An absence of sane business principles, and it soon becomes about as fast a system for melting money as can be devised. This applies to the man who raises half a dozen hens in his back yard as well as to the man who raises 5000 on a 100-acre farm, and it has been proved times without number. The modern business plant, the White Leghorn Poultry Yards at Waterville, N. Y., were started in 1898 by a banker as an investment, and it was his idea to build up one of the finest poultry plants in the country. He built the plant all right, but in a few years about $30,000 had been lost through experimenting, high-priced managers, false theories, and crazy system. During that time, however, experience was gathered that has been of great benefit to the present owner-manager, Chas. T. Hatch. He observed the manner in which the business had been conducted under the money-losing regime, and he found out where the leaks were. He came to Waterville a typical college-bred city man, but with business sense that would develop success in almost any business venture. The outdoor life of poultryman and farmer appealed to him, and four years ago he took the management of the plant. In those years he changed the result from a big money loser to just the reverse: now he is the owner. The farm and yards now consist of about 180 acres of land, and contain besides the poultry plant, a large dairy and a hop section of ten acres. Under the system of management the dairy pays, besides its own expenses, all the help for the year on the entire farm, the hops and other crops pay all the incidentals, and here is the principal secret of success—all the feed consumed by the stock and poultry is grown on the farm. The result is that all the eggs sold—and there is a market for every egg produced—represents a clear profit. That is how from 1500 to 2000 hens are money-makers.

SPRINGTIME NOTES.

Don't overcrowd the poultry quarters. Keeping two fowls where there is but room for one cuts the profits in two instead of doubling them.

This is the growing season. Seeds and plants are sprouting and budding; chicks are hatching and hustling, and lice and mites are just as busy as the rest—and a bit more so. These pests never wait for opportunity to knock twice at their door, but always meet it more than half way; so they always get there. The poultryman might take a lesson from them to his advantage, and not wait till his poultry quarters are stocked and overflowing with vermin before taking a hand. If spring work is too pressing for the yearly whitewashing, rake out and burn the trash and nesting, then give the walls of the houses and pens, the nests and perches, a thorough dressing of cheap coal oil, and while still damp dust them with air slaked lime.

As the sun grows hotter extra care is needed with the fowls' drinking water. Cholera, diarrhea, worms and many other ailments come from slimy drinking vessels and filthy water seething in the hot sun. Keep the vessels clean and full of pure water, and have them large, so that the fowls shall not be continually getting down to the dregs. An easy way to cleanse and disinfect them is to rinse and drain them and then wipe them with a clean cloth dampened in coal oil. Never use a water fountain which cannot be opened and thoroughly cleaned and sunned. An arrangement which allows the air to circulate over the water, while protecting it from dirt and sun, is best. This is good: A frame with a solid top and slatted sides, with cleats on the inside some four inches above the open bottom for the water pan to rest upon. Give the fowls an abundance of pure cool water. This is a big point in poultry success.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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PETALUMA HATCHERY
The leading varieties of chicks every week.
L. W. CLARK,
615 Main St., Petaluma, Cal.



A harness oiled as it should be needs very few repairs.

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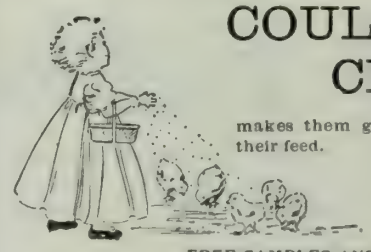
Not only preserves and blackens the leather in a harness; it also keeps *life* in the stitching. Use "Eureka" Oil and see how elastic harness thread becomes and how well it resists wear. Ask your dealer for Eureka Harness Oil.

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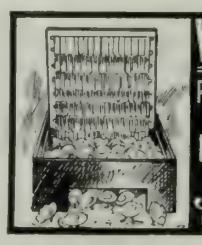


COULSON'S SPECIAL CHICK FOOD

makes them grow. Throw it in the litter and let them work for their feed.

It contains the best quality of everything they require for first six weeks, except grit.

FREE SAMPLES AND PRICES ON APPLICATION TO
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WARD'S ORIGINAL FIRELESS BROODERS
PRODUCES STRONGER, HEALTHIER CHICKS THAN ANY HEATED BROODER
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THE CHICKEN BUSINESS

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The Home Circle.

The Yesterdays.

I take your gifts, glad yesterdays,
And when I turn from work to play,
From care to rest, they'll make my joy
And give my heart its holiday.

I see the wave of summer woods,
I hear the lapse of far-off streams;
The murmur of the honeyed pines
Run sweet and low along my dreams.

And still the tender soul enfolds
The faded face, the fondest tone,
The perfume of the flowering joy
One yesterday made all its own.

I take your gifts, sad yesterdays—
The better deeds I might have done,
The tears I might have wiped away,
The higher heights I might have won.

You show, O saddest yesterdays,
How poor my life's most perfect part;
You strip the crown of pride away
And give instead the pitying heart.

We jostle in the careless crowd,
We meet, we part, we go our ways,
But each unknown bears on to God
The sum of all his yesterdays.

Raisin Day Recipes.

April the 30th is Raisin Day in California. Like Johnnie Horner, we shall all pull a plum out of our pie on that day. Every California housewife will take pride in preparing her most delicate dishes with plums in them—and the more plums the better. The children will be delighted, and everybody will enjoy helping the raisin grower by helping himself to raisins.

The well-grown and well-cured California raisin is the most delicious and healthful food that a bountiful Providence has bestowed upon mankind. It should be found upon every table daily in liberal quantities. Raisins of the sun have no adulteration. They are not processed for curing, but simply picked and laid out on trays—the sun does the rest.

Raisins may be easily seeded by pouring boiling water over them. After which they must be thoroughly dried before using for cake. When whole raisins are used for cakes and puddings, etc., they should be well scalded, and for cake, dried and floured. This prevents toughness and all danger of grit.

Fresno Raisin Pie.—One pound seeded or seedless raisins, one cup sugar, one pint water. Stew in saucepan till raisins are done. Add juice of one large or two small lemons and two beaten eggs; thicken with dry bread crumbs; bake same as lemon pie, cover with whipped cream or meringue. Finest ever.

Rice Pudding.—Boil rice until tender. One quart milk, 3 eggs beaten light, 4 tablespoons sugar, 1 teaspoon vanilla, 1½ cups cooked rice, 1 cup seeded raisins; put in dish, grate nutmeg over top and bake until brown.

Bread Pudding.—Make custard of 1 quart milk, 3 eggs and 4 tablespoons sugar; add bread in small pieces and 1 cup raisins; flavor with vanilla and nutmeg and bake.

Raisin Fudge.—Two cups sugar, 1 cup milk, butter size of an egg, ½ cup chocolate; cook, stirring continually, until bubbles break slowly; have ready ½ pound of walnuts chopped fine and 1 pound seeded raisins; add these and stir until stiff and pour into buttered pans; mark in squares when sufficiently cool.

Fruit Cheese.—One pound each of raisins, figs, dates, currants, blanched almonds and 2 pounds of walnuts; grind fine and mix well and compress tightly and let stand for two or three days, then cut into squares and roll in powdered sugar.

Raisin Chocolettes.—Select smooth seeded raisins; put ½ pound cake of vanilla sweet chocolate in a saucepan over boiling water, and when melted add 2 level tablespoons butter and 2 of boiling water; dip raisins and put on oiled paper.

Raisin Sherbet.—Put 3 pounds of raisins in a stone earthenware jar, with 4 small lemons cut into thin slices, and ½ pound of sugar; pour in six quarts of water and let it remain for three days, stirring it three or four times each day; next strain the liquor through flannel and pour it into stone bottles, but without quite filling them; cork the bottles, wiring them down tightly and keep in a cool cellar. In three weeks' time the sherbet is ready for use.

Home Made Raisin Bread.—One pint water, 1 pint sweet milk, 2 ounces sugar, 1 ounce salt, 2 ounces lard, 1½ ounces compressed yeast, 2 pounds seeded raisins, 4 pounds flour; have milk and water warm; dissolve yeast in water; mix dough thoroughly; let dough raise well, then punch down and let raise again; mold in round loaves and when raised bake in hot oven of about 450 degrees. When potato yeast is used, use one pint yeast and one pint milk or water.

California Raisin Sandwich.—Delicious for afternoon teas, picnics and children's lunches. Chop fine 1 cup of seeded raisins, together with 1 cup of nuts, preferably walnuts, mix with whipped cream or the white of an egg beaten, season with salt; spread between slices of bread cut very thin.

Fruit Cake.—Three pounds flour, 1 pound butter, 1 pound sugar, 3 pounds seeded raisins, 2 pounds figs, 1 pound dates, 1 pound walnuts, 2 pounds blanched almonds, 1 pound citron, ½ pound each of lemon and orange peel, 12 eggs, 1 tablespoon allspice, 2 tablespoons cinnamon, 1 tablespoon cloves, 2 nutmegs, 1 wine glass of wine, 1 wine glass brandy, 2 coffee cups molasses; steep spices in molasses 20 to 30 minutes, not boiling; beat eggs very light; put fruit in last, stir it gradually; add 1 tablespoon soda dissolved in 1 tablespoon water; flour fruit well and if necessary add flour after fruit is in. Bake three or four hours in evenly heated oven.

Grand Duke Cake.—Bake good white cake in long sheets, put filling in as thick as cake layer. Filling—One pound figs, 1 pound citron, 1 pound blanched almonds, 1 pound seeded raisins, 1 pound walnuts; chop all fine and mix with boiled icing made with 2 cups sugar and whites of 4 eggs; mix well with fruit and add juice of 2 lemons and 3 oranges and ½ cup brandy.





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The Pilot is made by The Acetylene Apparatus Mfg. Co., of Chicago, the largest manufacturers of Gas Machines in the world. The Pilot is "approved" by the National Board of Underwriters. It took the gold medal and highest award at the California State Fair. It now furnishes gas for three Town Lighting Plants, many Summer Resorts and large Educational Institutions, and has displaced those most dangerous of so-called illuminants (coal-oil and gasoline) in many hundreds of Hotels, Stores, and Country Residences in California. Send postal for full particulars, list of Pilot users, catalogue, etc. Have an attractive proposition for reliable Agents.

E. D. BULLARD, GENERAL AGENT, ROOMS 219-220, HANSFORD BLOCK San Francisco, Cal.

A Problem of Floriculture.

Of the 8000 or 9000 florists in this country about half are wondering how soon the skill of the grower will be able to produce chrysanthemums and dahlias with an agreeable perfume.

Each flower has a scent of its own, the chrysanthemum having something of the odor of its leaf, which to many persons is disagreeable, while the dahlia has a distinctly unpleasant smell. There are probably a hundred specialists in floriculture now spending money and time in the effort to secure the desired result, but none of them as yet has succeeded.

That they will in time cannot be doubted, for, judging from what has been done with other flowers, it is impossible not to believe that somebody will hit on the secret, and when he does he will be the luckiest man in the business, for fame and fortune are waiting for him.

Florists say that the perfumed chrysanthemum will come about the time of the blue rose, and perhaps it will, for the blue rose is just now being as much sought as the secret of the chrysanthemum's perfume, but when one considers what has already been done with the queen of the autumn, the bestowal of a perfume is a feat that may be accomplished almost any day, and when it is, the chrysanthemum will be the noblest flower in the world. One thing may be confidently expected, that when the perfumed chrysanthemum arrives, its scent will be different from any other perfume in the world.—St. Louis Globe-Democrat.

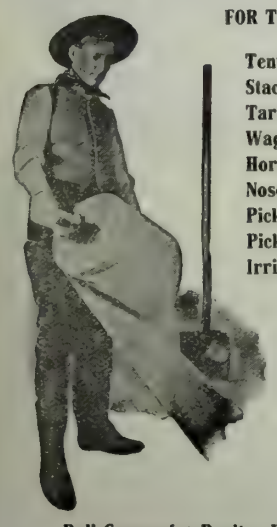
"Waiter, has this steak been cooked?"

"Yes, sir; by electricity."

"Well, take it back, and give it another shock."—Judge.

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"Send us one of your graduates that you can recommend. We prefer a boy from the country—one who has a bright mind and a strong body, and who is capable of advancement. Good pay from the start, and excellent opportunities to advance."

We receive messages like the above daily from San Francisco's leading business houses. They call on us because they know we have the right kind of young men in our school, and because they know we are giving the right kind of training. If you are interested in the opportunities offered by the new San Francisco write us for particulars.

San Francisco Business College
733 Fillmore St., San Francisco, Cal.

THE MARKETS.

San Francisco, April 21, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

This market remains very firm at the sharp advance noted last week, but there is little buying going on. The buying interests show great reluctance to meet the present quotations, and there is a marked divergence of views as to the basis of the present high prices. There is very little of the grain on the Coast, and stocks in growers' hands have been reduced to very small volume.

California White Australian	$2.20	@2.30
California Club	2.05	@2.10
California Milling		2.15
California lower grades	1.80	@1.90
Northern Club	2.05	@2.10
Northern Bluestem	2.20	@2.30
Russian Red	2.00	@2.02½
Turkey Red	2.00	@2.20

BARLEY.

Prices have been advancing all week, and many holders are now asking $1.65 for choice feed. Brewing and shipping grain are quoted at an advance of 10 cents. There is little movement of chevalier, but holders are asking the price quoted. The North Coast has apparently been oversold on this grain, and several lots have been shipped back to Seattle and Portland, leaving very little stock on this market. The outlook is accordingly for increasing firmness until the new crop is available, and futures have advanced abruptly.

Brewing		$1.65
Shipping		1.65
Chevalier		1.70
Good to Choice Feed, per ctl.	$1.60	@1.62½
Common Feed	1.52½	@1.57½

OATS.

Oats are very closely cleaned up in the North, where supplies are being obtained from Canada. No large quantity is arriving here, and while the demand is small, prices are being firmly maintained at former figures.

White, per ctl.	$2.10	@2.25
Gray	2.00	@2.05
Red, choice		2.05
Common	1.87½	@1.97½
Black	Nominal	

CORN.

Trading in corn locally is of little moment. California small round yellow and Egyptian are unchanged, but the Western grades show a slight advance.

California Small Yellow	$2.00	@2.10
Western State Yellow		1.75
Mixed, in bulk		1.64
White, in bulk		1.68
Egyptian White		1.80

RYE.

Holders of this grain are still asking the price last quoted, but very little is being sold, as there is little demand and buyers are not anticipating their requirements at this price.

Rye	$2.00

BEANS.

Prices show very little change this week, with nearly everything on the list firmly held and in fair demand. Dealers report very light stocks of most varieties, and expect to dispose of all their holdings without difficulty before the new crop is offered. Extensive buying of lime and blackeye beans has been going on in the producing districts this week, with prices very satisfactory to the growers, and these varieties are especially strong in this market.

Bayos, per ctl.	$4.00	@4.50
Blackeyes	3.25	@3.45
Cranberry Beans		3.75
Garvanzos	2.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.35	@5.50
Large Whites	4.30	@4.40
Limas	4.00	@4.10
Pea	5.25	@5.35
Pink	3.00	@3.10
Red	6.00	@6.50
Red Kidneys	3.65	@3.80

SEEDS.

Prices on all descriptions remain steady as last quoted, but the market has quieted down considerably, and there is very little movement at present.

Alfalfa, per lb	18	@19 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.	3¾	@ 4 c
Canary		4 c
Flaxseed		4 c
Hemp		4¼c
Millet		3¾c
Timothy	6¼	@ 6½c
Yellow Mustard	6	@ 6½c

FLOUR.

The shipments to the Orient from Coast points are expected to fall off somewhat, owing to the prices prevailing in domestic markets, though there is still a little foreign movement from San Francisco. Another advance of 20 cents per barrel has been made here, and northern mills have also raised their prices. The local trade, however, is still very quiet, as many of the larger consumers are carrying stocks purchased at lower figures. A number of the Coast mills have shut down.

Cal. Family Extras	$6.40	@7.00
Bakers' Extras	6.10	@ 6.65
Superfine	5.20	@5.50
Oregon and Washington	4.85	@5.75

HAY.

The arrivals have been somewhat less than last week, but prices have taken another drop. Reports on the amount left on hand indicate that prices have passed the highest point, and from now on a gradual decline will take place. It will be but a short time till new hay will be offered on this market, as some is already baled and ready for shipment. A little new alfalfa has already arrived, and a large quantity will soon be available. Stock hay is offered at extremely low prices, and is very difficult to move, as buyers are already well supplied and refuse to make further purchases.

Choice Wheat, per ton	$23.00	@ 24.00
Other Grades Wheat	21.00	@23.00
Wheat and Oat	20.00	@22.50
Tame Oat	20.00	@23.00
Wild Oat	18.00	@21.00
Alfalfa	14.00	@17.00
Stock	7.00	@11.00
Straw, per bale	60	@ 85c

MILLSTUFFS.

With feed barley 10 cents per cental higher, rolled barley has been advanced $2 per ton. Prices on other descriptions are as last quoted, but bran is receiving very little attention locally, and some weakening in price is expected. Shorts and middlings are also inclined to easiness.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.50	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		1.15
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.00	@35.00
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	33.00	@34.00
Shorts	31.00	@32.00

VEGETABLES.

Onions are rather quiet this week, but supplies are by no means large, and Oregon stock is quoted at a further advance. Some Australian onions are still on the market, but high prices are asked and the movement is slow. Asparagus is meeting with a better demand, and while there is a wide range of prices, with poor stuff selling about as last week, prices for the best lots are higher. The canneries are now taking most of the surplus. Rhubarb is plentiful and lower. The Bay crop of peas is now appearing in large quantities, causing a further reduction in prices. Cabbage is very firm.

Onions, Oregon, per ctl.	$ 2.40	@ 2.50
Australian Onions	4.00	@ 4.25
New Green, per box	50	@ 75c
Garlic, per lb.	8	@ 10c
Green Peas, per lb	3	@ 3½c
Cabbage, per ctl.	2.00	@ 2.25
Tomatoes, per crate	1.00	@ 1.25
Cauliflower, per doz.	65	@ 75c
Celery, doz.	40	@ 50c
Asparagus, per box, choice	1.00	@ 1.50
Rhubarb, per box	75	@ 1.50
Turnips, per sack		1.50

POULTRY.

Arrivals of Eastern poultry are moderate this week, only three cars being on hand at the opening, while receipts of California stock have continued very light. More or less stock was carried over from last week, however, leaving the market rather weak, and several descriptions are lower. Broilers are more plentiful, but large young hens and roosters are moving at good prices.

Broilers	$ 5.50	@ 6.50
Small Broilers	3.50	@ 5.00
Fryers	8.00	@ 9.00
Hens, extra	7.00	@ 9.00
Hens, per doz.	5.50	@ 6.50
Small Hens	4.50	@ 5.00
Old Roosters	4.00	@ 5.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons	1.25	@ 1.50
Squabs	2.00	@ 2.50
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

A firmer feeling has developed in the butter market this week, and extras are now held at 24 cents. Firsts are unchanged, but seconds are ½ cent higher. The strength of this market is due entirely to shipments to the North, which have taken up the surplus, as the arrivals have been about the same as last week. The local trade is quiet. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	24 c
Firsts	23 c
Seconds	22½c

EGGS.

Extras are firm at ½ cent advance over last quotation, and were still higher a few days ago, as some sellers were holding back. The slight advance, however, has not checked the movement into storage, and general conditions remain about the same, arrivals being largely in excess of the requirements of present trade. The lower grades, however, are higher, and firm at the advance. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	24 c
Firsts	23½c
Seconds	22 c
Thirds	21 c

CHEESE.

All the local grades of cheese are higher, and the market is in a stronger position than for some time past. Buying has been fairly liberal, and with moderate arrivals the market is well cleaned up. Oregon grades are firm and unchanged.

Fancy California Flats, per lb.	15½c
Firsts	15 c
New Young Americas, fancy	16 c
Oregon Flats	15 c
Oregon Y. A.	16½c
Storage, Oregon Flats	15½c

POTATOES.

Shipments from Oregon are moderate, and with about the usual demand all grades of old stock are higher, the advance amounting to about 15 cents per cental. Sweet potatoes and new potatoes are unchanged.

River Whites, per ctl.	$ 1.40	@ 1.65
Salinas Burbanks, per ctl.	2.00	@ 2.10
Oregon Burbanks, per ctl.	1.85	@ 2.00
Sweet Potatoes, per ctl.	1.85	@ 2.00
New Potatoes, per lb.	2	@ 3c

FRESH FRUITS.

Strawberries have been fairly plentiful most of the week, inducing a more general demand, but little is offered at the moment, and prices are strong on crated goods. Longworths are a little lower. There is a good shipping movement of storage apples, but the local trade is dull. Prices are lower.

Strawberries, per crate	$ 1.25	@ 1.75
Apples, fancy, per box	1.25	@ 1.50
Apples, common	50	@ 1.00

CITRUS FRUITS.

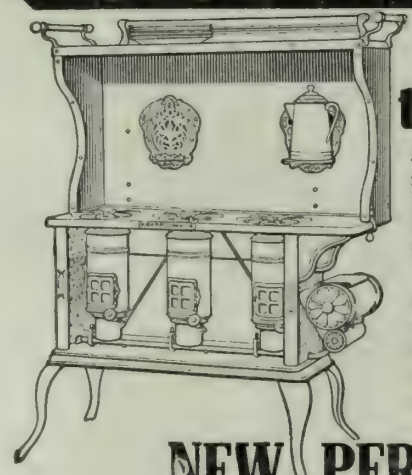
Limes are now fairly plentiful, as a large shipment was marketed the first of the week, and the prevailing prices are quoted below. Oranges are plentiful and active, with prices unchanged. Fancy lemons are firmly held, but other grades meet with little demand and are offered at lower prices.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.00
Standard	1.00	@ 1.25
Limes	5.00	@ 6.00
Oranges—		
Fancy Navels	2.25	@ 2.50
Choice	1.85	@ 2.00
Tangerines	75c	@ 1.50
Grape Fruit	2.50	@ 2.75

DRIED FRUITS.

The Eastern demand for some lines of fruits has quieted down a little in the last week or two, apricots and peaches being quiet, though the latter are firmly held. Apples, however, are in strong demand, and the large lots of prunes moved last month are being rapidly disposed of. Locally all fruits are quiet, only a few varieties being held in any quantity by the growers. Figs have again advanced, and are becoming very scarce. Prunes are a little lower in this market, as some holders are becoming anxious to sell, and a fairly active movement is going on. Local packers are offering the prices quoted below. The raisin market east of the Mississippi remains unsettled, quiet and inclined to weakness. The latest reports from New York indicate that the Raisin Day campaign has so far had little effect there. Conditions are more satisfactory through the West, however, as jobbers are scantily supplied and some demand is arising in the trade. Packers state that there is no movement from the Coast except on consignment, and they show little desire to buy at present. They quote the following prices on packed stock, and offer 1½ to 2 cents per pound for raisins in sweatbox.

Evaporated Apples	5	@ 6¼c
Figs, black	3	@ 4 c
Figs, white	3½	@ 4 c
Apricots	7½	@10 c



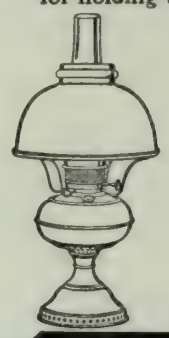
Don't Heat the Kitchen

All the necessary family cooking may be done as well on a New Perfection Wick Blue Flame Oil Cook-Stove as on the best coal or wood range.

By using the "New Perfection" Oil Stove, the annoyance of an overheated and stuffy kitchen is entirely avoided, even in midsummer. The scientific construction of the

NEW PERFECTION
Wick Blue Flame Oil Cook-Stove

ensures quick work and a cool kitchen. The "New Perfection" has a substantial CABINET TOP for warming plates and keeping food hot after it is cooked. Also drop shelves on which to set small cooking utensils—every convenience, even to bars for holding towels.



Made in three sizes. Can be had either with or without Cabinet Top. If not at your dealer's, write our nearest agency.

The **Rayo Lamp** is substantially made of brass, finely nickeled and very handsome. Gives a powerful light and burns for hours with one filling. Portable, safe, convenient—just what every home needs.
If not with your dealer, write our nearest agency.

STANDARD OIL COMPANY
(Incorporated)

WE SEED FORTY ACRES TO ALFALFA ON OUR

California Improved Farms

In the Sacramento Valley near Arbuckle, California

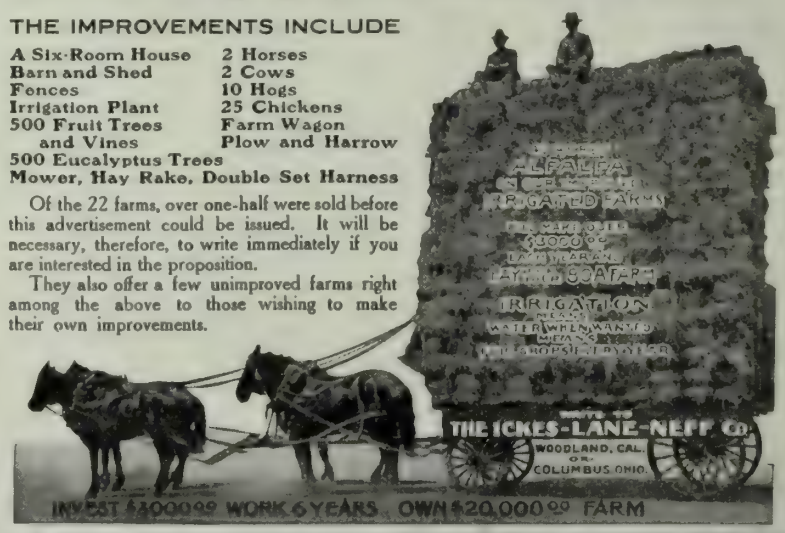
We are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. We offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land.

THE IMPROVEMENTS INCLUDE

A Six-Room House	2 Horses
Barn and Shed	2 Cows
Fences	10 Hogs
Irrigation Plant	25 Chickens
500 Fruit Trees	Farm Wagon
and Vines	Plow and Harrow
500 Eucalyptus Trees	
Mower, Hay Rake, Double Set Harness	

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



Peaches	3¼	@	4½c
Prunes, 4-size basis	2	@	2½c
Pears	3	@	5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Few almonds have been marketed by the growers for some time, and they apparently have little or nothing left. The packers report stock decidedly scarce, and with a strong demand the price has again been advanced. Walnuts are unchanged, and while the growers are carrying comparatively little, the trade seems to be well supplied.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Conditions are unchanged, as nothing from the new crop is expected for several weeks, and the old stock left on hand is hardly worth quoting. The only offerings are of very low grade, and for such stock there is little market. The new crop is expected to meet with a strong demand.

Comb, lb.	Nominal.
Water White, extracted	Nominal.
White	Nominal.
Light Amber	5 @ 5½c
Dark Amber	4 c

HOPS.

Hops remain comparatively quiet, as little of the old crop is offered, and buyers are inclined to hold off on new crop contracts. Prices are inclined to easiness. While the acreage in some districts of California will be reduced, the output is expected to be about the same as last year. Sales in Oregon have been made at low prices.

Hops	6	@	8 c

WOOL.

The Southern spring clips have been well sold up, and the Northern wool is now beginning to move, at prices very satisfactory to the growers. The market for California wool is now active and quite strong. Eastern interests have secured most of the territorial wools suitable for worsteds on contracts ahead of shearing, owing to the scarcity of those grades.

Red Bluff, choice, f.o.b. S. F.	16	@18	c
Middle Counties, free	13	@16	c
Southern, free	12	@13	c

Defective wools, 2 to 3c. lower.

MEAT.

Dressed meats are still held at about the former level, yearling lamb being lower and weak. Mutton is also inclined to easiness. Live sheep and lambs, particularly spring lambs, are plentiful and lower. Beef and veal are still fairly firm.

Beef: Steers, per lb.	8	@	8½c
Cows	7	@	8 c
Heifers	7	@	8 c
Veal: Large	6½	@	7½c
Small	8	@	9 c
Mutton: Wethers	7½	@	9 c
Ewes	7	@	8 c
Lambs	8½	@	9½c
Spring Lamb	10½	@	11½c
Hogs, dressed	9½	@	11½c

LIVESTOCK.

Steers, No. 1	4½	@	4¾c
No. 2			4¼c
Cows and Heifers: No. 1			3¾c
No. 2			3¼c
Bulls and Stags	2	@	2½c
Calves: Light	5	@	5¼c
Medium	4½	@	4¾c
Heavy	3¾	@	4¼c
Sheep: Wethers			4¾c
Ewes			4¼c
Lambs: Yearlings			5¼c
Spring Lambs	5¾	@	6 c
Hogs: Grain fed, 100 to 150 lbs.			7 c
150 to 250 lbs.			7¼c
250 to 325 lbs.	6¾	@	7 c
Common Hogs, lb.	4	@	4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Aneles, April 20.—The orange markets are not in as good shape as they were a week and two weeks ago, and are below what they were at this time last season. In the fore part of April the delivered price for orchard run navels was about $2.65, and the shippers were not icing. Now, with icing charges of 17 cents a box, the delivered price is about $2.50. In spite of this fact, the ideas of the growers and shippers are higher right now than at any time for the year, and some hold their fruit as high as $2 f.o.b. California. With freight at 83 cents and icing at 17 cents a box, the jobber who paid $2 a box in California would have to receive a delivered price of $3 a box before he could come out even, and would besides this have to stand all risks en route, and all loss caused by decay. In consequence there is very little buying for cash at this time, and what is doing is at a much less price than that quoted above.

Shipments for the past two weeks have been going out at such a rate that if early estimates of the navel crop are correct we must be nearing the end of the season. However, with a market that cannot be called very good the output continues to be about 75 cars a day in excess of what it was at this time last year, and if this is anything to go by, it would seem that there is yet more fruit in California than most people have any idea of. The great navel producing sections of Redlands and Riverside still claim a navel shortage of over 10 per cent, but as both of these sections are at least 10 per cent shy of what they shipped to this time last year, there is still the same amount of fruit on hand as there was a year ago.

Total shipments to date have been 16,556 cars of oranges and 2396 cars of lemons, as against 15,887 cars of oranges and 2024 cars of lemons to the same time last season.

AGRICULTURAL REVIEW.

(*Continued from Page 323.*)

lots of hot stuff, without going into the business "extensively".

The Ickes-Lane-Neff Co. of Columbus, Ohio, have recently purchased 2000 acres of land near Arbuckle, Butte county, presumably for colonization purposes.

Buyers from Seattle and Spokane houses are paying from $33 to $35 per ton for potatoes to the growers of the Yakima valley, Washington. As the available supply is nearly exhausted, it looks as though the buyers were trying for a corner on the remnant of last season's crop.

Cabbage shipments from the Fullerton district have been going out lively. The first shipments brought $45 per ton, but the price last week fell to $35. Growers, however, are not complaining. Last year cabbages sold for as low as $5 to $6 per ton.

The coyotes are being exterminated in Siskiyou county at a lively rate, according to the rate the county is paying bounties. At the last meeting of the supervisors $640 was paid for scalps, which means that 320 coyotes had been killed.

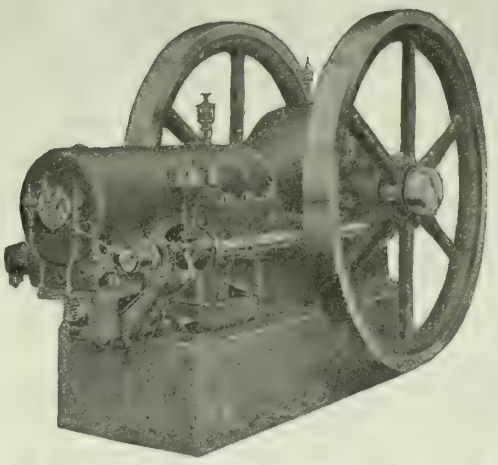
Hop growers seem to be having better prospects than for several seasons. Quite a number of contracts are reported being made by growers in Sonoma county for their crops covering the next three years, at 10 and 11 cents per pound.

C. M. Hatfield, the rain maker, has collected his fee from the farmers around Newman for his 1909 contract to produce 11 inches of rain, and will shortly go to Sherman county, Oregon, where he will operate during the summer.

It is yet a little early to predict the amount of land that will be planted to cotton in the Imperial valley this season, but the latest estimates place it at 2000 acres. The most of the planting will be done during May and June.

The Oxnard Review states that during March 75 carloads of lima beans were sold and shipped out of Ventura county, and that during April a still larger quantity will be disposed of. The price being paid to growers is now $3.75.

THE FIELD ENGINE



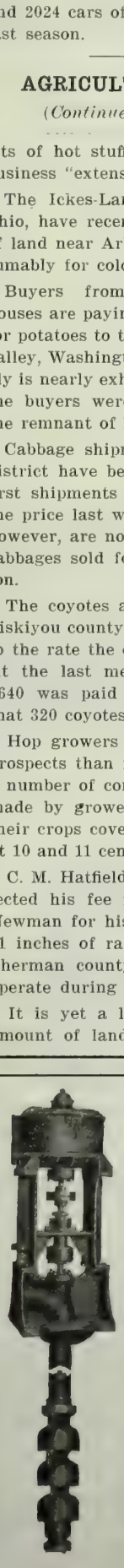
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This engine is built right—operates right—and sells at a price in reach of all.

Operates on gasoline, alcohol, distillate or gas; 4 to 30 H. P. in stock — Stationary or Portable.

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HENSHAW, BULKLEY & CO., Agts.
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LATEST DEEP WELL TURBINE PUMP

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Guaranteed to deliver any amount of water depending upon diameter and capacity of well. Belt driven or directly connected to motor.

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LOW RATES
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May 15, 16, 20, 21, 22, 31.
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Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

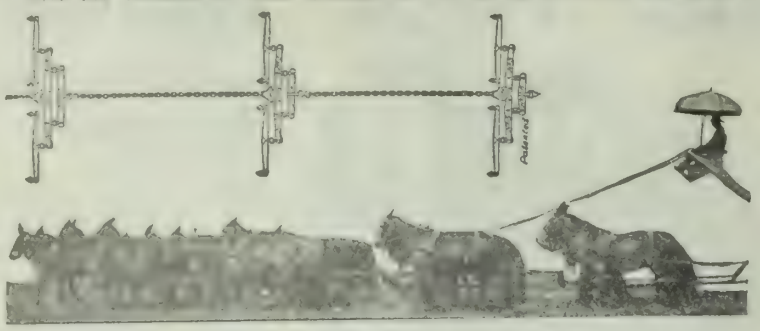
Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

Redwood Tanks
Fruit Boxes, Egg Crates
Write NOW for prices.
P. F. WILSON
Stockton, Cal.

THE SCHANDONEY EQUALIZING HITCH

over two thousand of these **hitches** now in use on combined harvesters.

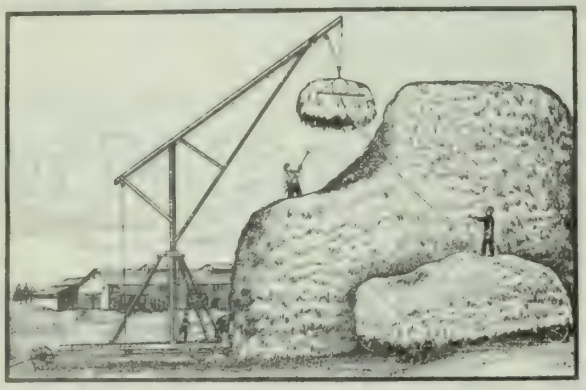


Positively prevents run-aways with combined harvesters. Runaways are more expensive than these **Hitches**—why take the chances. Any body can drive—expert driver not required.

For further information, Catalogue and Prices, address

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Comes nearer stacking hay without assistance than any other Derrick in the market.

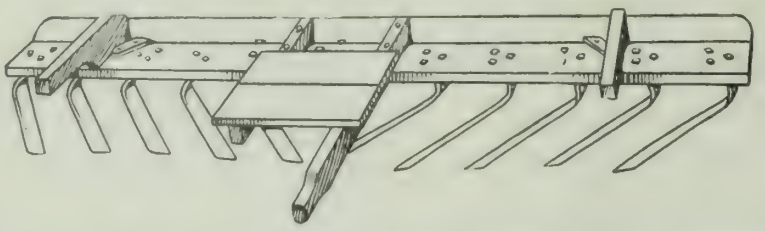
Write for descriptive circular today and we will tell you how it can be done.

Schmeiser Manufacturing Co., Davis, California

The "KILLEFER" CLEAN CUT WEEDER

For ORCHARDISTS and RANCHERS

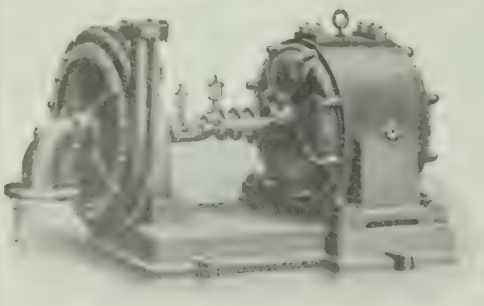
is just what the name implies—a "clean cut" weeder.



This implement is an effectual summer cultivator where conditions require a 2 or 3 inch dry dust mulch for conserving the moisture.

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Centrifugal Pumps

For high or low heads
Direct connected or belt driven
Highest obtainable efficiency.

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Send for new catalogue No. 50 just issued.

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SHEET IRON & STEEL PIPE

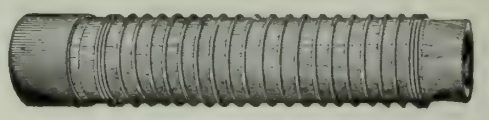
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GREENBANK

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Best Tree Wash.
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All Soils Alike to Wood Pipe



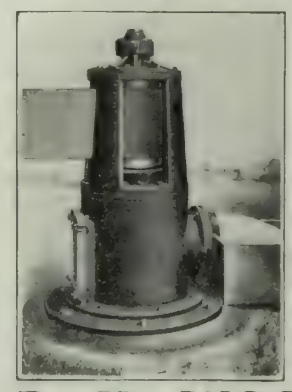
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THE P. K. WOOD DEEP WELL PROPELLER PUMPS

It economizes money in the **first cost;** in the **upkeep;** in **power required;** in **installation,** and in **efficiency.**

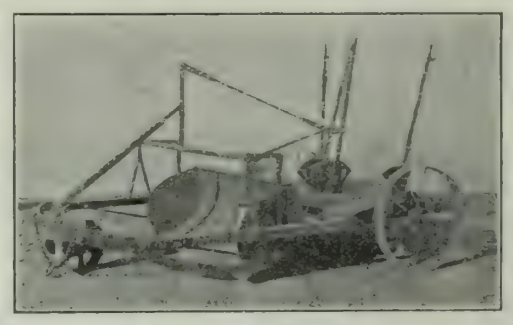
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No well so deep that it won't lift the water to the full capacity. No lost power through friction or slippage. No pit required in which to set the pump.

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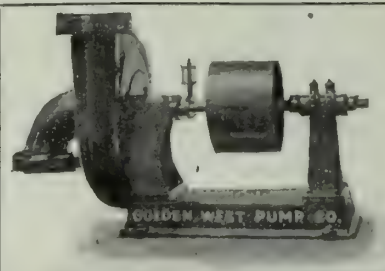
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The only grader and scraper combined that moves earth and levels the ground perfectly and with ease.

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GOLDEN WEST CENTRIFUGAL PUMPS

Specially designed for economy and durability.
Write for catalogue and prices.

GOLDEN WEST PUMP CO.

311 Harriet Street San Francisco, Cal.



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Tanks Tanks

WINDELER'S PLANING MILL AND COOPERAGE

GEO. WINDELER, Prop.

Water Tanks, Wine Tanks, made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

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SAN FRANCISCO SULPHUR COMPANY, Importers and Refiners of

"Anchor" Brand, Velvet Flowers of Sulphur; **"Volcano"** Brand, Sublimed Flowers of Sulphur; **"Tiger"** Brand, Sublimed Sulphur; "S" Brand, Refined Flour Sulphur; **"Fruit"** Brand, Powered Sulphur, **Roll** or Stick, **Virgin Rock** and Crude Sulphur. AGENTS FOR **"Fleur de Soufre"** Extra Fine Sublime Pour Blanchiment (for bleaching and spraying.)

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DEWEY, STRONG & CO., 1105-6 Merchants Exchange Bldg., San Francisco

THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 18. SAN FRANCISCO, SATURDAY, MAY 1, 1909. Thirty-ninth Year.

Goats for the Home Dairy.

Written for the PACIFIC RURAL PRESS by B. A. R. STOCKER, Arroyo Grande.

Considerable interest has been awakened within the last few years in the goat as a milk producer. With uneasiness as to the purity of cows' milk from some sources comes the assurance that goats' milk is good even for the delicate baby or invalid, and entirely safe. In suburban places where a few keep cows and supply the neighbors, many of these would be better off raising their own milk with a couple of gentle goats; and the child better employed feeding them than going the tiresome errand with the tin pail. And the day is coming when this pleasant solution of the milk problem will be more general.

Some of us have doubted whether the milk would taste right, and were agreeably surprised to find it delicate, rich and delicious, so that we would never willingly go back to cows' milk afterward. Junket and cream, when you have a goat—superb!

Moreover, the milk when skimmed after twenty-four hours still tastes like new. And it will often keep a week or more without souring.

It is evident that people are interested, for since we ventured a little goat talk in an "esteemed contemporary" last fall there has been a stream of enquirers. We had nothing to advertise or to sell, and though gratifying, it made quite an item of correspondence. Since then several have got started with a goat or two from somewhere.

In the neighborhood of many of the cities a few goats of good milk type may be seen, but they are nowhere kept in large numbers for sale. We have to watch our opportunity to secure one here and there.

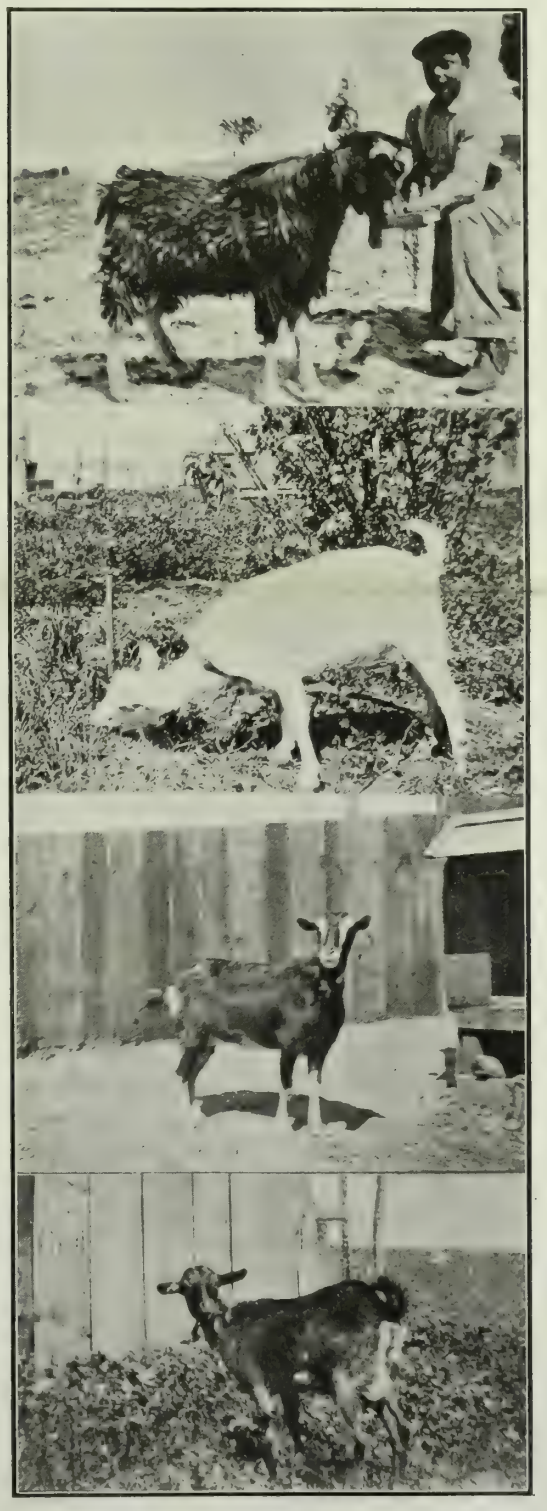
The best known milk breed in England and the United States is the Swiss Toggenburg, a large hornless goat, brown with white points. A few have been imported into southern California. But it is no use to write and enquire for "a Toggenburg doe, just fresh, and a younger one to come in later," as no one has any for sale. There are a few pure bucks, and these crossed upon choice native does give very desirable animals. Some of these kids may be obtained from the importers. Even a full-blood buck kid may be had, for there are a few imported does. We know of four.

We began with the best native does of Alpine stock we could secure. Then were lucky enough to get some hornless does with considerable Toggenburg blood (from an earlier importation), which mated to a young buck from a recent importation, bringing kids that conform wonderfully to the desired type. It all takes time. And expert advice on goats being far to seek, we have to make our mistakes and buy our experience.

How much milk will they give? It is a poor goat that won't give over a quart a day. Our best record is four quarts. Some give five or six. The milk sells for 25 to 40 cents a quart in central locations.

Now I want to tell you some things we did that were wrong. Please avoid!

Having no proper fences (a good poultry fence will do—fortified, for the goats like to groom themselves against it), I kept three does always on the chain—staked out at pasture and tied in the barn at night. One of these, a costly one, died from kidding. They must have freedom for exercise, in a small enclosure, part of the time. A few square rods will do, with houses or big boxes to jump up on.



1.—Yearling half-Toggenburg. 2.—Young white hornless doe. 3.—Young grade Toggenburg doe. 4.—Red Alpine yearling doe.

Grade Milch Goats of B. A. R. Stocker.

Some of our goats were bred too young. One brought her first kid before she was eleven months old. She is a fine milker, but would have been much better. It stunts them. Often it is an accident. Fifteen to eighteen months is soon enough in California. They go on improving for several years.

Another mistake was to feed grain hay. Grass, alfalfa or clover hay is all right, but if you give a goat barley hay she will pick off the grain and waste the straw, and get too fat for any use—may die kidding.

The Swissmen tell me that back there, where the goat industry has been a staple for hundreds of years and is of vital importance, they always take away the kids the day they are born, and raise by hand. Some let the kid suck once to start the milk, some not at all. The goat will then readily yield to be milked, whereas, if we leave the kids with her even a few days, she may be stubborn and fractious about it, and may fret terribly for the kids when they are removed. It is mistaken kindness to put off the evil day. As one friend puts it: "It is not so picturesque, but it saves a lot of bother and noise." The kids take the bottle readily, and seldom cry if kept comfortable. Four or five times a day is our allowance at first. It is best to kill the male kids at once, unless one is especially valuable, for the milk is worth more than the meat. Wean kids at three months.

A good goat, well managed, will milk as long as a cow, that is, to within a few weeks of coming fresh. The Swiss allow them six weeks rest. I gave my first goat only two.

They will come in profit any time of year in California, so that we can have a spring goat and a fall goat. You don't want little kids till the heavy winter rains are over. Or you won't next time.

If there is no male animal around, the does will sometimes not show any disposition to breed for months together. Where he is always in sight they will try to breed twice in the year, which is seldom desirable.

Five hundred pounds of hay is provision for a goat for a year. Half a pint of grain twice a day is the limit for a goat in profit. Youngsters and dry goats have less. Grain is the expensive item, but it is generally necessary. If not allowed to the goats when dry, they will not freshen in such good shape: the kids may be all right, but there will be much less milk. However, we have had goats on good alfalfa pasture turn up their noses at the grain ration so persistently that we ceased to offer it; and they were giving three to four quarts a day each at the time. So that it appears if we can provide plenty of fresh fodder of the right sort, the one expensive item can be greatly reduced all the fine weather. Goats are very fond of beans.

For wet weather it is good if we have a pile of

(*Continued on Page 335.*)

Pacific Rural Press

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FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., April 27, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.24	42.06	42.12
Red Bluff	.00	30.56	23.10
Sacramento	.00	21.75	18.84
Mt. Tamalpais	.00	35.52	21.60
San Francisco	.00	25.57	21.20
San Jose	.00	18.26	12.21
Fresno	.00	9.79	8 82
Independence	.00	8.00	8 67
San Luis Obispo	.00	31.37	19.30
Los Angeles	.00	19.07	15.02
San Diego	.00	10.23	9.50

The Week.

Naturally there is considerable disappointment at the shyness of spring showers. We are becoming somewhat hopeless of seeing more of these grand old-fashioned years when the rains began just right in the fall, continued just right, without surplus or deficiency, during the winter and finished up just right in the spring so that the ground remained mellow for the cultivator and the air just right to push grain and feed to maximum growth before heat and drouth came on to mature them. And yet in spite of the absence of those perfect seasons, which everyone remembers but probably very seldom, if ever, experienced, the State has gone on in development, and total values of present production make the old time totals look like thirty cents. And so we say the memory flowers of spring have apparently nothing to do with the case; with sharp demand and high prices the State will probably make more money out of this year's crops than it has ever made before and still have the pleasure of croaking all the time it is doing it. With pockets full of money we shall be just as delightfully miserable as we were in those good old-fashioned years when everything in the way of weather was just exactly right. The musical grumbling of the farmer is a subjective state and has been enjoyed by the race ever since old Jeshuron "waxed fat and kicked." We do not know just how it is coming, but we expect it will arrive. Last spring the ground was so dry that the grain had to grow in the air, which was cool and moist. This year all the ground which was open on top took water down to bedrock and the plants may pull that up so that they can grow in dry air. There is an old promise that seed time and harvest will continue so long as the earth shall endure, and though we all know there are serious local misses now and then, California has advanced through all of them, and so it will be this year and there is no use of complaining more than is necessary to keep one cheerful and comfortable. There will be plenty of everything, and it promises to go at very good prices, too.

An important event in the line of interstate comity and the general advance of the great American citrus interest is the visit to California of a large delegation of prominent Florida orange growers, packers and shippers, accompanied by others interested in the citrus fruit industry and the marketing of this product. There are about a dozen in the party officially delegated by some organization or county, and others in private capacity. Of course the orthodox Californian welcome has been extended, the hosts being the California Fruit Growers' Exchange and the visitors assured that they will have entree to packing-houses, extensive groves, offices and other places where the citrus fruit business is handled, for the purpose of making the most careful and minute investigations. A number of special receptions will be given in their honor by publicity organizations and by special packing-house organizations. Californians will be delighted to entertain such a representative group of Floridians, and what the leader of them, Dr. F. W. Inman, says of their purposes are quite in harmony with California motives and ambitions. He is credited with these words: "The importance of our undertaking is hard to portray or comprehend; it not only interests every orange grower in Florida, but every merchant, every professional man and every citizen in our State, as we have no other staple agricultural or horticultural industry which is so general and far-reaching and involving such vast capital as does the growing of citrus fruits. This is not selfish work upon the part of any one, but a spontaneous uprising which is calling for a sacrifice of time and expense by those who are magnanimously undertaking the work for the good of Florida." These words convey a very sincere compliment which Californians will fully appreciate. They concede leadership and success in handling citrus fruits for distant markets in which California has certainly set the world's pace, and it is the public spirited hope of those who have ministered to this end that all mankind shall reap advantage from it.

Raisin Day will be over before this issue reaches the reader, and it is clear to see already that it has accomplished a good deal merely to wake up and look around. Sleep is no semblance of death, industrially; it is the real thing. And waking up about raisins will not only sell the fag end of the old crop, but it will sell the new crop and glorify the place where it is grown. Fresno real estate dealers claim that they have an inquiry for land which has not recently been experienced. A great many persons from the Middle West and Eastern States have arrived in Fresno with money to invest in agricultural land of all sorts, and there has been a heavy increase in business. It is said that more sales have been made in five days last week than were made in the past three months. It does seem funny that a wide announcement that there were a few too many raisins on hand should have started people up to grow more raisins, but that is not unusual. Start up a movement in any direction and everything gets to moving. Therefore we say: wake up! If you cannot get your eyes open any other way, try a little dynamite; it will uncover something.

And then there is the San Leandro cherry festival which has been almost eclipsed by the raisin spectacle. It has been definitely set now for Saturday, June 5, and is to be the most elaborate carnival ever planned in the town. There is to be a baby show at which the prize will go to the baby who can eat most cherries without swallowing the pits. Probably a special invitation will be sent to Mr. Smith Ely, former mayor of New York, now 85 years old, who has just published a statement that he has reached that ripe old age because pies have constituted one of the principal features of his diet. Mr. Ely's statement, published by the Medico-Legal Journal, is accepted by the profession as an interesting contribution to the subject of longevity. The great American institution of pie thus becomes the corner stone of our advancement, and "pie for breakfast," which has long been a New England synonym for family prosperity, has a good foundation. And of all pie, of course, cherry pie is first and best, and there will be acres of cherry pie at the San Leandro carnival.

And speaking of pies, why not English sparrow pie, also by the acre. How to get rid of this pestiferous bird, which only seems to be held in check by cats and bluejays, seems now to be feasible by treating him just as the cat does—eat him up! The Oakland Tribune has made the discovery, and we honor the discoverer. In the fruit districts adjacent to the city there is much fruit territory and the activity of the small boys with their air-guns has reduced the numbers of the sparrow flocks perceptibly and driven them out of the orchard. One correspondent says that as a table bird the English sparrow is first rate, and he has become a regular customer for the birds which a skillful nine-year-old sharpshooter slaughters. So skillful is this youngster represented to be that he brings down three out of every five birds at which he fires. The Tribune claims that a pair of English sparrows contain as much, if not more meat, on their plump bodies than an average quail, and that it is infinitely more dainty and luscious eating. Whenever this fact becomes generally known the English sparrow will be sought as a table luxury and its propagation arrested to such an extent that it will cease to be an orchard pest at least. It is naturally a town bird and gregarious in its habits and, therefore, more easily captured and controlled by the pie route.

But even cherry pie and sparrow pie become irksome when one thinks of the great ambition of Los Angeles. The State has appropriated a quarter of a million for a State exposition building in Los Angeles, and this is the first step toward a great exposition in 1913, which will celebrate the completion of one of America's greatest water projects—the Owens river aqueduct—and the inauguration of the county's magnificent $3,500,000 system of boulevards and highways. To be commemorated at the same time will be the improvement of San Pedro harbor and the consolidation of the city and the port. The main purpose of the exposition will be to exploit the resources and possibilities of the Southwest and to promote and encourage commerce with other countries. About $2,000,000 is to be expended on the project. Evidently all the pie is not to be found in the upper part of the State.

As a result of the recent agitation by the Farmers' Educational and Co-operative Union, to which we have alluded amply in these columns, there was organized in Fresno last week the California Farmers' Union. The organization is capitalized for $250,000, of which $50 has actually been subscribed. The directors are: A Sorenson, Fresno; J. H. Dawson, Hanford; C. W. Updyke, Dinuba; Scott Manlove, Selma; J. M. Kneeland, Kingsburg. According to the articles on file, the union will engage in any sort of business that has to do with growing crops, even being empowered to attain and conduct warehouses and depots for the distribution of the products that may come into its possession. The campaign is now on for mem-

bership. We shall soon see whether farmers are desirous of doing their own business or whether these are the parties whom they desire to do it.

However that may appear as the result of the campaign, we note the similarity of the agricultural situation the world over in regard to efforts at co-operation and legislation which shall be fair to the farming interests. We read in the report of a committee, which has considered the advancement of agriculture in Great Britain, a recommendation that the best efforts of the chambers and of the agriculturists generaly should be directed toward: (1) Securing suitable candidates in rural constituencies, pledged to support agricultural legislation. (2) Securing the better organization and control of the agricultural vote in the House of Commons. (3) Preparing from time to time lists of legislative questions most urgently affecting the needs of agriculture, and taking steps to have such measures brought prominently before members of Parliament and candidates for agricultural constituencies. Agriculture needs just such efforts in all civilized countries.

Queries and Replies.

The Mexican Pea in Colorado.

To the Editor: Please send me all the information you can regarding the Mexican pea. It is raised quite extensively in Colorado. The main thing I want to know is whether they would grow on summer fallow cross plowed in April and planted at that time.—Farmer, Mariposa county.

Probably any of our advertising seedsmen can get this seed for you through their Denver correspondents, for the crop is a large one in Colorado, where they are grown in irrigated valleys. You would probably get a certain amount of growth on your summer fallow, but whether it would be satisfactory or not you could only tell by trying, and, of course, it would remain a question as to whether you could grow peas without sacrificing the retention of moisture for the following year's crop, which is the chief purpose of summer fallowing in our valleys, though possible otherwise at your elevation. If you have ample moisture for the crop and summer fallow for other reasons the growth of peas would be a decided advantage, if you can get it, and that is a thing which you must determine by trying. Some of our readers have already tried the pea to which our correspondent alludes and we would like to know their conclusions.

Alfalfa and Alkali.

To the Editor: Is it safe to sow alfalfa on land which may be alkaline? Is the alkali likely to become less or more after irrigation? How can I find out whether there is danger of too much alkali later?—Enquirer, Santa Clara county.

It is dangerous to plant alfalfa on alkali land. If the soil is very deep and light and there is a good outflow for drainage water, well irrigated alfalfa would succeed very well; if, on the other hand, there is a shallow soil, or hard-pan, there will be an accumulation of alkali, from the irrigation water which must largely evaporate from the surface and not run off below. For this reason alfalfa has been killed out by alkali on some lands which showed very little indication of its presence before irrigation began. You will see that it depends entirely on the character of the soil and upon the amount of alkali present whether such a sowing of alfalfa would be successful or not. The only way to test land for alkali is to take samples to a depth of four or five feet and have the amount of alkali present determined by a chemist. A qualitative test can, of course, be made by using the common red litmus paper of the druggist, but this does not give you much idea of the quantity present, unless the reaction should be very sharp. How the litmus paper is effected by alkali any druggist can show you.

Peanuts in Orange Orchard.

To the Editor: I would like to inquire if the raising of peanuts exhausts the soil, and if it is detrimental to raise them among young orange trees; that is, does it retard the growth of the trees if the soil is not manured?—L. W., Los Angeles.

As the peanut is a legume, the growth of it may be a contribution of nitrogen to the soil greater than the amount removed. So far as other ingredients go into the peanut crop they go out of the soil and reduce the amount of them available to the orange trees. But a deep, alluvial soil such as best suits the peanut would be, in all probability, a rich soil, and therefore unlikely to suffer for the lack of what the peanut would remove. On the whole, the peanut is more likely to injure the orange trees by using water which the trees should have or by interfering with a good condition of summer tilth, which is important to the trees in several ways, than it is by its use of plant food.

Late Sowing of Alfalfa.

To the Editor: Will you kindly inform me if it is too late to sow alfalfa this month under the condition that I have plenty of water to irrigate the land and the soil is of a light adobe. The location is in San Ramon valley, Contra Costa county. Would there be any crop raised this year?—Owner, San Francisco.

It would be pretty risky to sow alfalfa as late as this. The best results are usually obtained by sowing in February and getting the germination by the spring rains. If your land is all ready for irrigation and you can sow at once, possibly you could get a stand by irrigation, but we would not invest much in it, but would prefer to get the ground in good condition and either sow after the rains in the fall to get a stand before the frost comes on, or to sow in February or March, as first suggested. From such a start you would get something of a cutting the first summer.

Australian Salt Bush.

To the Editor: In a recent Pacific Rural Press you ask about Australian salt bush. I have but within the year moved here from New Mexico. I had very little soil on my rocks and less water, but found Australian salt bush flourished and was a great blessing. My hens were fond of it and the horses and cows would eat all I would give them. —New Comer, Stanislaus county.

There has been must testimony on the taste of poultry for salt bush in the dry season, and occasionally approval of it for stock. What we particularly want is a report from some one who is pleased with it on a large scale for grazing cattle or horses.

When Is Fruit Set?

To the Editor: Will you please inform me what month apple trees set their fruit and what condition the buds are in when they are considered set. —Reader, Redlands.

Apples, or other fruits, cannot be considered really set until the young fruit is not only formed, but has gone through what is called the first drop. This dropping of small fruit after beginning its growth is chiefly due to lack of pollination of the blossom. It is not possible, then, to tell from the buds whether the fruit will set or not. That can only be determined after the bud has discharged its first function and has, therefore, disappeared as a bud. The month in which this phenomenon occurs differs in different parts of the State. It would be in the months of March, April and May, according to location.

On Smooth Cactus.

To the Editor: What is your opinion about spineless cactus as a forage and hay plant? I read so much about it that I do not know what to think.—Reader, Shasta county.

Our idea about thornless cactus is that it is, according to analysis, a fair cattle food; about equal to green fodder corn. It has to be harvested with an ax and cannot be dried for winter use but must be fed green. The amount you get to the acre depends upon how much richness there is in the soil and how much water the plant has to grow with, providing, of course, that water in excess of its requirements is not present.

Inoculation for Corn.

To the Editor: I have seen in some paper an account of inoculating field corn. If you could tell me where I could buy such preparation I would like to try it. If it increases the yield it would be a great help.—Grower, Los Angeles county.

We never heard of inoculating field corn. All inoculating practices known to us are with reference to leguminous plants and not to the cereal grains.

GOATS FOR THE HOME DAIRY.

(*Continued From Page 333.*)

pumpkins, some apples, potatoes, and a box of carrots put away in sand. For they need succulence to balance the hay; and anything we might snatch for them out of a wet garden is not relished in that state, and is not wholesome. They hate the wet, and must never be staked on swampy ground nor left without a dry refuge in rain.

I have a little house for each goat, set up a foot or more from the ground and partly open in front. In fine weather they prefer to sleep on the roof. Each has a six-foot chain with swivel, and open-eye snap at each end, which generally hangs on a nail at her house. But at meal times they are always chained, and can jump in and out of their houses with plenty of sea-room yet, so that they cannot interfere with one another. Each has her feedbox and her bowl for grain. They are very clean and particular.

Sometimes a goat with two or more kids will slight one and favor another. One I had liked her little son and wanted him to have all there was. She would hardly own the daughter—thought it a homely little fright. It was. Neighbors said it was a good deal like her! Another had a triplet—Billy, Lily and Tilly. She didn't want to keep Billy—thought he was entirely uncalled-for. Indeed, she was only fixed for two. When Tilly came of age to keep house she resolved to avoid the error of her parent, and treat her twins with absolute fairness. So she never would let one suck without the other. If they got a false start she would jump over them and make them try again. One, two, off! And she would count tails nervously a number of times to make sure they were all there. But when they were six weeks old, Tiny, the little doe, fell sick and died. And now what? It was vain for Bud to bewail his hunger and bunt around for something to assuage it. Tilly had made a decree according to the law of the Medes and Persians, that altereth not, and from the hour that Tiny lay down to die Bud never got another drop!

Then we had a desperate time breaking Tilly in to be milked by hand in face of her convictions. And poor little Bud proved too big and clumsy now to learn to take his milk another way, so he was weaned very suddenly, and if he had not been rugged and quite an eater already, it was enough to kill him. That was when the Swissman said: "Take them away at first, and then if you lose one you don't lose all."

Horticulture.

WINTER APPLES IN THE SAN JOAQUIN.

Mr. W. R. McIntosh recently attended a meeting of Tulare Grange and asked why the valley farmers did not grow more apples. He stated that apples in the Fresno market were usually scarce and very high, and inquired if it were possible for us to raise apples in this valley. Half a dozen members came to their feet, almost at once, all anxious to tell their experience as growers of apples. The testimony was all in favor of growing winter apples. They were pronounced among the best fruit of the farm, being even superior to most of the much-heralded mountain and coast apples, both in flavor and in keeping qualities. But the members could give but a limited experience, because they had "only a few trees about the house."

All of this in the face of the generally accepted notion that we can't raise good apples in the San Joaquin valley. In an account which he subsequently published, Mr. McIntosh says:

"If I were going into fruit-raising, and could secure a body of white ash soil, with good drainage, I should plant the whole of it to winter apples, whether it be 40, 80 or 160 acres of land.

"The kinds of apples touched upon in the discussion referred to were few, but they were all winter varieties, being mostly Ben Davis, Arkansas Black and Mammoth Black Twig, but many others would do as well.

"While the foregoing are all classed as winter apples, most of them ripening late in the autumn, under the climate and soil of this valley, they become really fall apples, ripening all the way from a month to six weeks ahead of the "regulation time," as measured by cold winter climates and late spring weather; while fall apples ripen in this valley in the middle of the summer and are almost worthless, as a rule. Summer and fall apples should never be planted in the interior valleys of California."

[To this declaration we must protest that no region which ripens its fruit too early can be considered a winter apple region in a commercial sense. No doubt something can be done for home use and local sale and should be done, but if Mr. McIntosh should plant 160 acres of winter apples in the San Joaquin he would be in it to lose a large amount of money. As for early apples like the Astracans, they are far better to grow in the interior valley than winter apples are and much more likely to be profitable if one will work it right so as to have large lots of worm-free apples for shipment north during the early part of the season before early apples are ripe there.—Editor.]

HINTS ON FRUIT HOUSES.

To the Editor: I wish to build a fruit storage room in which to keep until spring late winter apples and pears. I learn from your book on "California Fruits" that apples should be exposed to a moist air to keep well, while pears should be enclosed in boxes or drawers, and that the latter keep better in a dry than in a moist atmosphere. Will you kindly give your views as to some points that are doubtful in my mind, as follows:

Should the room be built in a cellar, in the open air, or under the shade of a group of live oaks, which is available? I fear the cellar, and perhaps even the live oaks may afford too much moisture for the pears, and I am inclined to believe better results may be obtained by building a house in the open. I propose, if it be decided to place it in the open air, to build it say 12x20 feet, 6 feet high to the eaves; the sides and roof to be insulated with sawdust of 8 or 10 inches thickness; ample ventilation at top and bottom of the house, also air space between the outside boards and insulation, the floor to consist of earth, which may be dampened for the benefit of the apples, open shelves to be arranged around the lower sides for the apples, and close fitting drawers around the upper sides for the pears. I am somewhat doubtful as to the wisdom of adopting the earth floor. While it would afford moisture for the benefit of the apples, it seems to me to contain two serious objections. The pears, although in drawers would be in the upper portion of the house, may be subjected to too much moisture. Again, the temperature of the earth at least during the fall and early winter months is higher than the outside atmosphere during the nights, and it is possible that if a wooden floor be made, insulated with sawdust, and air currents admitted beneath the floor into the room during the night time when the temperature is lowest, the house may be kept at a lower temperature than is influenced by the heat radiated from the earth. Would the absence of moisture from the earth floor be more serious in its effect upon the apples than the benefits derived from the lower temperature?—A Subscriber, San Francisco.

[We trust to get you more and better hints by inviting a general discussion by all who have learned important lessons from experience. We consider an earth floor better than any materials subject to decay, like sawdust and planks, even if aired below as you suggest. A good concrete floor would be superior if its cost is not an objection. For cheapness and permanence an earth floor is unapproachable. Moistening the air from the floor may be accomplished by sprinkling the concrete, and a concrete floor is proof against vermin. We hope readers will take up the discussion on all points advanced by "Subscriber" and others which occur to them.—Editor.]

The Vineyard.

CUTWORMS IN THE VINEYARD.

To the Editor: A brown worm, from one-quarter to one inch long, is damaging vineyards here by eating out the heart of the best buds. One worm will stay with a single vine until it has destroyed the buds. It works mostly at night, and a vineyardist with a lantern gathered a bucketful of these worms in an hour. Where a bud is drilled through or scooped out, small shoots start out below it, but these scarcely bear at all. They were worse last year, perhaps owing to the dry season. As the vine grows they feed on the leaves, but the serious injury is while the buds are young. Various remedies have been tried, but with indifferent success—sulphur, lime, ashes, coal oil, and arsenic mixed with bran; but the last is not safe to put out. Can you suggest a better remedy and oblige vineyardists?

A. J. Lloyd.

Roseville.

[This is the old cutworm trouble which comes early every spring. The following account is from Prof. Quayles' bulletin on vineyard insects, as published by the University Experiment Station:

The cutworm, although belonging to the same group as the army worm, on account of the difference in habits must be controlled in a different way. Since it is those species which acquire the climbing habit that attack vines, they require a different manner of treatment from those which feed upon plants at or near the surface. Because they actually devour the buds of the vine, the application of a poison spray ought to be effective. However, since the surface on which there may be poison in the case of buds is so small, one worm may destroy most of the buds on an ordinary sized vine before the dose eaten will prove fatal. Probably one of the best ways of fighting these is to place poisoned bait around the base of the vine. This consists of bran and molasses or other sweet substance, poisoned with arsenic, and distributed in handfuls about the vine. The proportions are as follows: 40 pounds of bran, 2 gallons of cheap molasses, and 5 pounds of arsenic. Cheap glycerine may be used to prevent the mixture from drying. This will be eaten by the worms in preference to climbing up the vines and destroying the buds. They may also be captured by means of traps. Because of their habit of feeding at night and remaining concealed during the day, pieces of boards may be placed on the gorund around the vine, and these may be turned over during the day and the worms killed.

You object to using poison because of danger to animals, fowls, etc., probably. They must, however, in many cases be confined in order that poison may be used, for it is, on the whole, a very cheap and effective remedy. A little of the poisoned bran is placed at the base of the vine stump on the surface of the ground, and it is eaten by the worms as they come up from hiding in the ground, instead of climbing the vine to feed upon the tender growth.—Editor.]

Citrus Fruits.

AN ARRAIGNMENT OF CALIFORNIA NAVELS.

Mr. W. V. Falconer, a horticulturist and horticultural writer of good and long continued repute has what is evidently a frank and sincere criticism of the California navel orange in a recent issue of the Rural New Yorker, and as we know these qualities actuate Mr. Falconer we pay attention to his remarks which we would refuse to the claims of ignorant or malicious Eastern knockers. Mr. Falconer's statement is as follows:

"It was reported some weeks ago that seven of the leading hotels in New York city, owing to complaints of guests, had discontinued the use of California-grown navel oranges, substituting therefor the juicy and well-flavored oranges so liberally supplied this season from Florida. The California fruits were criticized as too dry and tasteless. Patrons of the great and expensive hotels demand the highest quality of viands that can be procured, and buyers are ever on the alert for the best the market affords. An explanation of the poor quality is that considerable quantities of the finest appearing navels were frosted before picking, resulting in loss of juice and flavor without other distinguishable defects. There was unusual cold in the California navel districts about the ripening season, and it may be that oranges were shipped East that should not have been put on the market, but there is a growing suspicion that the eating quality of the California navel orange, even at its best, will not bear comparison with the choicer seed-containing varieties from Florida. For the first, since the calamitous freeze of 1894 that all but annihilated the Eastern orange industry, we have had Florida oranges enough to supply fully the principal Eastern markets. They have been so satisfactory that the seedless navels were barely salable, notwithstanding their great size and fine appearance, and in fact were not offered in quantity until the Florida crop was practically sold out.

"The commercial qualities of the navel orange are admirable. It is an excellent shipper and a good keeper under ordinary conditions of handling and exposure for sale. Dealers and peddlers much prefer it to others, but consumers have grown restless as regards its general insipid flavor, and discriminate in favor of the more palatable kinds when they may be had. As the navels are long keepers they are now held until the Floridas are cleaned up and only the Mediterranean imports remain to be competed with. Occasionally navels are juicy and pleasant enough to be compared to the best Eastern fruits, but, on the whole, the variety as grown in the Pacific coast region is likely to rank with the Kiefer pear, the Ben Davis apple, the Elberta peach and the Concord grape—all good shippers and cheaply produced, but of ordinary inferior quality.

"The Bahia or navel orange is almost exclusively grown in the warmer portions of California, where the tree is productive and vigorous. When introduced 30 years ago by the U. S. Department of Agriculture buds and scions were distributed throughout the orange producing localities of the country. Great hopes were entertained of it in Florida, but it turned out a shy bearer near the Atlantic and Gulf coasts, but an excellent producer in California, and is consequently little

planted in the East. During the long periods of scarcity of Florida oranges it has increasingly dominated the markets when in season, but may now meet its Waterloo unless the quality improves, or another Arctic wave puts the Eastern orchards out of business. In its native home in the highlands back of Bahia, Brazil, the seedless navel orange is of very good quality. The writer recalls the flavor of this distinct variety as sold in Brazilian coast cities many years ago, as particularly agreeable in contrast to the ordinary local oranges, which, however, were generally lacking in sprightliness. California conditions of climate and culture have certainly not improved it."

Comments by the Editor.

Following the order of Mr. Falconer's statements, we note as follows:

The disfavor which is made the basis for the whole series of comments is conceded to have occurred "some weeks" previously—evidently at the time when a good many immature oranges were being shipped from California. Ripening conditions were poor this winter and the effect was clearly shown in the quality of the fruit sent right after the holidays. There was also too much frosted fruit shipped which never should have been put aboard cars. Mr. Falconer's complaint is probably all right thus far. This immature or frosted fruit came into competition with the best of the Florida crop and was naturally discounted. Mr. Falconer's mistake consists in using this exceptional condition of things as the basis of an unwarranted generalization. Whether one likes the Florida type of oranges better than the California type is a question of taste. The two types are radically different. The California type is not only immeasurably more valuable commercially, but when it reaches its best condition of ripeness is intrinsically superior by virtue of richness, nutritiveness and tonic or stimulating flavors. Mr. Falconer notes that this is "occasionally" so. The fact is that it is usually so and the ill condition is altogether exceptional, or, to use his own word, "occasional." If it is regarded otherwise it is because shipments are not made of fruit in its proper maturity. We have undoubtedly been shipping the fruit too green, and by profiting by Mr. Powell's demonstrations of causes of failure in shipping and the disposition of the overland lines to increase speed, it will be perfectly practicable to make notable improvements in this respect. But the shipping quality of the California type of oranges is really the foundation of our great orange industry. If we had conditions which produce the Florida type we could never attain what is now possible and profitable. It is not a question of variety altogether: it is the arid semi-tropical type of fruit which Florida cannot produce, for her producing conditions are different.

Mr. Falconer's recollections of the Bahia oranges in its old home many years ago are based upon the fully ripened orange of the tropical type, and he compares it with fruit which he acknowledges was immature or frosted, which is not a fair thing to do. But there is no long distance shipment from Bahia; nor could there be, because the fruit does not have the character which the California climate gives. Mr. Falconer is simply mistaken when he says California conditions have not improved the navel orange. They have actually made it what it is, the great commercial orange of the world, and when properly mature the most delicious and nutritive orange of the world and the one which most notably invites to its own eating—inciting the appetite which other oranges cloy. Mr. Falconer ought to come to California and learn something about this fruit from experience. His conclusions are too remote from the facts.

The Field.

GROWING HORSERADISH.

Mr. G. W. Baker gives the Oregon Homestead an account of his experience with this relishing vegetable. He has worked with horseradish for sixteen years, twelve of which were for John Henry, at Beaverton, who is known as the horseradish king of the Pacific Northwest, he having as high as thirty acres of the plant growing at one time, consequently thinks he ought to know how to raise it successfully.

In the first place, we save the small roots that form on the large ones and trim them, square cutting the large end (or the end that came off from next to the large root) and the small end sloping and about six inches in length. In planting, the small or sloping end is to go down, square end up, and in trimming the long roots (we have had them three feet long) be sure and cut the top end square so you will not get them wrong end down, for if you do they will not make nice roots.

The soil should be very rich. Beaverdam land is the best; but I have raised good roots on swale land and some on high land. I have had them to weigh two pounds and on beaverdam land as high as four pounds.

The soil must be mellow. Plow deep and plant the roots as early as the ground will work up in good condition. Lay out the rows three or three and a half feet apart. Plant the sets eighteen to twenty-four inches apart; the more room the larger the roots. Make the holes with a pointed stick, drop in root and firm the ground around it by punching the stick alongside. The root should be placed two inches underground.

When the plants are four to six inches high dig away the dirt from them or about half way down, then sucker them by pulling off all sprouts but one nearest the top of the set, then draw the dirt around as it was before.

In suckering do not tear the set loose, for it may die. The suckering is a particular job. The shoot that is left is like a graft on a tree; it forms the top of the root and when properly done will make a nice smooth root that ought to weigh from one to three pounds in the fall, say about October or November—the time when we commence digging.

Cultivate them until about the middle of August.

Do not try to raise any other crop with your horseradish, for it will need all the ground.

Do not plant them in any other soil than that which is well drained, rich and mellow.

If your horseradish has not the full strength the first year do not be discouraged; it will take on full strength the second season, for the ground must be inoculated.

Never raise horseradish on the same ground more than three years, for it will get diseased after that length of time. Change to some other cultivated crop for one or two years, and the ground will then be ready for horseradish again.

In digging, go deep and save all the small roots for the following year's crop.

POTATO SCAB.

This is the disease which causes scabby potatoes. It lives over in the soil from one season to another, and where a very scabby crop has once been secured potatoes should not be planted again for several years. Neither should scabby potatoes be fed to animals from which the manure is to be applied to potato land, because the scab germs will live through the digestive system of the animal and infect the crop in the soil. If these precautions are followed this disease is easy to control by dipping the tubers in disinfectant solutions before cutting them up for planting.

Two solutions are in use. One is corrosive sublimate, which is dissolved in water at the rate of two ounces to sixteen gallons of water. The potatoes may be put in the sack and dipped in this solution for an hour and a half, then taken out and allowed to drain into the barrel, so as to save the solution, and then cut up immediately for planting or spread out to dry. This solution should never be used in any but wooden or earthenware vessels, because it corrodes metal. It is good for dipping as long as any of it is left. It is, however, a very deadly poison. Tubers which have once been dipped into this solution should never be left where any stray animal might get at them, and the solution should always be kept securely covered and in some out of the way place, so that no animal will have any opportunity to drink any of it, for but a small quantity is very deadly. Formalin dip is much safer to use. It is prepared by pouring one pint of commercial formaline into thirty gallons of water. The potatoes are dipped in this for two hours and then handled the same as with the other solution. Thirty gallons of this will treat twenty bushels of potatoes.

The Irrigator.

IRRIGATION IN THE SACRAMENTO VALLEY.

All those who are interested in farming in the Sacramento valley, and the number is daily increasing, should apply at once to the Office of Experiment Stations, U. S. Department of Agriculture, Washington, D. C., for a copy of a report just published on "Irrigation in the Sacramento Valley, California," by Prof. Samuel Fortier, chief of irrigation investigations. The report is based upon the author's wide knowledge of the region and a number of special examinations made by his assistants under his direction. The report discusses the soils of the valley, the water supply and its distribution and the use of water upon different crops, and thus supplies information of most direct value to those intending investment in the valley or the improvement of property which they desire to bring into more profitable production. To all these matters Prof. Fortier gave careful attention while he was located in California in charge of the work of the department in this State, and he understands them fully both from engineering and agricultural points of view. His report is so rich in local details that it must be had in entirety.

Several very important experiments are, however, described, each with its particular conditions and lessons, and some general conclusions therefrom are summarized which give suggestions regarding the economical use of water, which would reduce the cost and give both the irrigators and the water companies greater satisfaction.

In the first place, the water should be measured. Charges for water should then be based on the quantity used, not on the area served. Until this is done the irrigators will never use water economically. There are many methods and different units. For alfalfa the cubic foot per second proves the best, although many still use the miner's inch The miner's inch does very well for small heads, but is inaccurate and inconvenient for large heads. There should be a ditch tender, who should have every division box and headgate under lock and key. It should be his duty to give to each irrigator, upon application, a good working stream of water for the proper length of time. When the water is scarce, he should arrange with the farmers a system of rotation in use, and it should be considered a misdemeanor for an irrigator to take water without permission. The company should keep its main canal and main laterals free from weeds and aquatic plants, and the farmers, if they expect to handle water readily, in turn should keep their distributing ditches in first-class condition.

Before planting, no matter whether it be trees or alfalfa, the land should be properly prepared. There are several methods of making the surveys and grading the land. No high places should be left where it will require an extra head of water to reach them. The levees should be as low as possible, so that they will subirrigate and produce as good crops as the rest of the field and will not be an inconvenience in harvesting.

On gravel land the size of the laterals should be increased and a larger stream of water used. At least 5 cubic feet per second, and from that up to 10 cubic feet per second, of water should be used on alfalfa. A small stream should not be subdivided and made to irrigate a half dozen checks at once, but it should all be turned into one check, and when that check has enough water it should be turned into the next one above. The field laterals should be arranged so that the irrigator can begin by applying water at the lower end of the field and work back. This will save all the water that would have passed into the soil in flowing across the field to the lower end. When the highest check has been irrigated, the field is finished and there is not a great amount of waste water to be drained off. Competent men should do the irrigating, and the same man should do the irrigating each time. His experience with the same field will save both time and water. It has been shown by experience that where alfalfa is being grown upon clay land and the soil will not absorb water, disking the surface is beneficial.

AGRICULTURAL REVIEW.

Horticultural Notes.

The Santa Barbara Walnut Growers' Association will hold its annual meeting May 3.

Hundreds of acres of irrigated land are being set to orange trees this season near Hemet, Riverside county.

It is stated that the California Lands Company has planted 11,000 Smyrna fig trees on its tract in the eastern part of Glenn county.

News from Butte county is to the effect that the peach crop will be very heavy and that the fruit on the trees will have to be thinned.

The F. A. Bizzell 400-acre vineyard, a few miles north of Los Angeles, has been sold and will be rooted up and the land set out to oranges.

Henry Bassford of Vacaville shipped the first lot of ripe cherries of the season from this State last week, consigned to Philadelphia parties.

P. N. Jones, entomologist from the U. S. Bureau of Entomology, arrived at Lindsay last week to aid the citrus growers in that locality in fighting the thrips.

The Indio Index says that several hundred acres of orange trees would have been set out in that section this spring if nursery stock could have been obtained.

The meeting of almond growers announced by the California Promotion committee to be held at Del Monte for May 7, has been declared off, owing to lack of interest by the producers.

The Winters Dried Fruit Company is preparing to increase the storage capacity of its warehouse at Yosalano by adding a basement 31x1. feet, which is to be completed or the coming season.

According to the Fresno Republican, cut-worms have been denuding grape vines of their leaves around Del Rey and Lone Star. The ranchers will try to head them off by heavy irrigations.

The Monrovia-Duarte fruit district will break all its records in orange shipments this season. So far good prices have been realized and the crop of 665 cars will bring lots of money to the district.

The two canneries in Stanislaus county are preparing for a big season's run. The one at Oakdale is to commence packing peas early in Many, and the one at Modesto will commence putting up apricots in June.

Sutter county reports fruit prospects good generally, but cherries, apricots, pears and almonds will be light. Peaches and prunes will be heavy. The Thompson seedless grape as well as other varieties promise a very heavy yield.

The canteloupe crop of the Imperial valley is now estimated at 1000 cars for the season. The area will be about 3000 acres instead of 8000 planted last year. A poor growing season and heavy winds have been the cause of the loss of many hundreds of acres of vines.

The Geyserville Prune Growers' Association has apparently taken the right method of selling its prunes. Last week two cars were shipped East and three more are to follow at once. The association has adopted its own brand and has gone to the markets and found buyers for the fruit.

The Mountain View Walnut Growers' Association of El Monte, has sold all of the last crop of nuts of its members, and has given the growers over $125,000. The prospects are for a good crop this year, and next year the output will be increased from 100 acres of young trees coming into bearing.

The Covina Argus says that the navel orange season in that district is much later than last year, and the total shipments of navels up to April 15 had been 987 cars, as against 648 cars to the same date last year. The Valencia crop is estimated to be much heavier than last season. A large acreage has been set out to Valencias during the last six months.

The Bend, Tehama county, berry growers have all arrangements made for the handling of the big crop now ripening. They will have an agent at Red Bluff to supply the local trade and to forward shipments as orders are secured. The association expects to harvest the largest crop ever grown there, which is estimated will amount to 42,000 one pound boxes.

General Agriculture.

The Kerman News says that there will be about 700 acres planted to beans and 350 acres to melons in that district this year.

Onions are now being shipped from the Imperial valley. The crop is estimated to be from 50 to 75 cars, and the growers are now receiving 2 cents per pound.

The onion crop of the Coachella valley is now being harvested and shipped. Growers are securing good prices and the crop, it is estimated, will gross about $100,000.

The wheat acreage of Kansas this year is stated by Secretary Coburn to be 6,424,000 acres, and the averae condition to be 88 per cent. The acreage is 400,000 less than last year.

About 400 acres have been planted to sugar beets in Butte valley, Siskiyou county, this spring which promise a big yield. The beets will be shipped to the beet sugar factory at Hamilton.

Cabbage growers of the southern portion of the State have done well this season. Prices have been high, ranging from $35 to $45 per ton. In the Coachella district 15 cars have been shipped, which was the extent of the crop. About 35 cars is the estimated crop from the El Centro district, Imperial valley, most of which has already been marketed.

According to the Houston, Texas, Chronicle, the population of the United States has grown from sixty to ninety millions in the time elapsed from the Cleveland to the Taft administration. Cotton production has grown from six to thirteen million bales; wheat from 500,000,000 to 700,000,000 bushels; foreign trade has grown from $1,300,000,000 to over $3,300,000,000.

The Farmers' Educational & Co-Operative Union claims to have a membership of more than 15,000 wheat growers in eastern Washington, northern Oregon and Idaho. This membership represents an annual output of 40,000,000 bushels of grain, and they own 40 warehouses and expect to soon have 100 more in operation. The Union expects to reach into Montana and then control the wheat output of the Northwest. The future handling of this immense grain output will be watched with interest.

Live Stock and Dairy.

Over $15,000 worth of butcher cattle were shipped from Porterville last week to San Francisco.

The Monterey Mule Co. is a new company that has recently leased 2000 acres of the Arroyo Seco ranch for ten years, and will use it as a breeding ranch for mules.

Brokers are quoted as offering 20 cents a pound for spring clip, and 15 cents for lamb wool at Cloverdale last week. Around Marysville the price has reached the 20-cent mark and some growers are holding for higher prices.

Miscellaneous.

The Grange company has about decided to erect a mealfalfa mill at Modesto. Other mills are being started in the lower San Joaquin.

The San Jacinto Register states that the Columbian Sugar and Land Company will soon commence the erection of a 500-ton beet sugar factory at Perris, Riverside county.

The reclamation of the experimental tule farm at Klamath Falls, Oregon, is completed and various kinds of crop will be grown this year to determine the best or that section.

At the election to vote $200,000 in bonds held by the Modesto irrigation district recently the bonds were carried by a large majority. The money is to be used in building a storage reservoir four miles east of Waterford.

The campaign at the sugar factories of Corcoran and Visalia will each commence about June 1. The daily consumption of beets by these two concerns will be about 30 carloads, and the sugar made at Corcoran will be about 1500 bags and at Visalia 800 bags daily. The campaign will last about 100 days.

Plans for the Lodi co-operative winery have been drawn, which, when built, will be the best plant ever erected in the State. Two crushing stations are contemplated having a capacity of 5000 tons per day. One million gallons storage is provided for, and the distillery will be able to handle 40,000 gallons of material daily, making a high-proof grade of brandy.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J. St., Sacramento, Cal. Send for catalogue.

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14 in long,	10.00 per 1000
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$1.50 per doz., $6 per 100, $40 per 1000.

All kinds of small fruit and berry plants.

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The Rhubarb and Berry Specialist. Dept. I.

TULARE GRANGE MEETING.

Tulare Grange, P. of H., held its regular semi-monthly meeting on Saturday, the 17th ult. There was a good attendance and an excellent lunch, which promoted greatly a good social time. A number of sisters and brothers expressed their intention of joining Tulare County Pomona Grange and were recommended for membership. The secretary will report the recommendations to Tulare County Pomona Grange, which will convene in Dinuba.

Worthy Master Henry announced that he has made arrangements with the Santa Fe railroad for a fare and a third for the round trip.

Brother Thomas Jacob, the chairman of the State Grange executive Committee, reported that at the last meting of the committee preliminary arrangements were taken for mutual fire insurance for members of the order, under the law passed by the legislature at its last session.

Brother Jacob also reported that arrangements have been made for a joint picnic of all Tulare county Granges, their friends and well-wishers, who are invited to be with them at the Delta orchard on May 8. The Delta orchard is the property of Thomas and Morphew Jacob, is well worth a visit and has a charming picnic ground in a beautiful grove of oaks. To say the Jacob brothers are excellent entertainers is putting it too mildly, however; every one attending will have an enjoyable day with friends who will be pleased to meet them there.

It is expected the worthy master, overseer, lecturer and secretary of the State Grange, as well as other prominent members of the order, will attend and that the State Grange executive committee will have a session. A committee was appointed to arrange for conveyances for members or friends desiring to attend the picnic. The committee reported the arrangement is made at a charge of $1 each. Tulare Grange will pay for children of its members.

A letter from Brother E. C. Shoemaker to Brother Tuohy was read, conveying kind wishes to the members of Tulare Grange, of which he is now and for the past twenty years has been a faithful and esteemed member. The Grange and the members all joined in sending Brother Shoemaker their fond regards and sincere desire to have him with us again. Brother Shoemaker is at Jarrettown, Pa. He will return to Tulare as soon as he can settle his business there.

The hour of adjournment being near, owing to the number of subjects considered, the consideration of the subject of the day, "Is a parcels post a good thing for the farmer and are we justified in demanding it?" was laid over until next meeting by consent of Brother Hawley, who will, if time permits, tell us: "How shall we keep the boys on the farm?"

It was reported the outlook for good crops of grain and fruit in Tulare county is very encouraging with abundance of water for irrigation purposes. J. T.

DURABLE WHITEWASH.

Of the many kinds of whitewash I have tried, says a writer for the Breeders' Gazette, is one that I call John Young whitewash. He was a superintendent of construction on the Ohio State Fair grounds in the 80's, and gave me this recipe to be used on the inside of a brick building. The members of the State Board, after inspection of the work, asked for the recipe and said it was the finest job of whitewashing they had ever seen. It had the gloss of paint and did not rub off or flake off for at least six years. What it may have done since I do not know: For every barrel of fresh lime add 16 pounds of tallow, 16 pounds of salt and 4 pounds of glue, dissolved. Mix all together and slack; keep covered and let stand a few days before using. Add water to bring to the right consistence to spread readily. For nice inside work strain it. When less than a half barrel of lime is used, the quality of the wash does not seem so good. It is better to apply hot, but it does well cold. Gen. Le Duc, once Commissioner of Agriculture, recommended a mixture of skimmilk and Portland cement for outside work. He claimed it was more enduring than the white lead and oil commonly sold. Fresh skimmilk mixed with fresh Portland cement to a consistence of separator cream is preferred.

ALFALFA IN MOJAVE DESERT.

Mr. T. S. Van Dyke who is growing alfalfa near Barstow in the desert district of San Bernardino county, says of it: "I have soil of various textures, from near clay to the coarsest gravel. In spring when it is windy much of the time and in summer when it is hot but rarely windy I find it almost impossible to get a decent stand of anything without flooding. The moisture cannot be kept long enough at the immediate surface even for seeds like alfalfa—which is up inside of five days—unless the surface is sealed over. My first planting of alfalfa was in the most orthodox manner with deep plowing, fine harrowing in on soil wet many feet deep. I got about one plant to the square rod from 35 pounds of seed to the acre. I concluded that air spaces drying out the soil under the hot sun dry air had done the mischief and that if the seed were drilled in shallow on unplowed ground so dry that loose dirt could be easily dragged back over the seed by chains that trail behind the feeders of the drill and the whole sealed over by flooding I could get a stand in spite of the hardening and tightening of the soil. The ground in the other case had been irrigated by furrows and they were run for some time after planting without effect, except in the bottom of the furrows, with a few scattering plants along the sides. Now I rushed a big head over the whole patch. In five days the young plants lifted the thin crust in every direction and I have a stand about three times too thick, although I planted the smallest amount of seed the drill will feed—about 15 pounds to the acre or half of what is generally deemed necessary for sowing broadcast under good conditions and culture."

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

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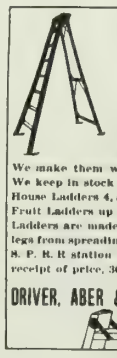
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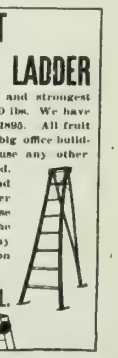
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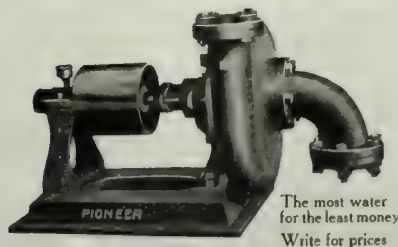
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POTASH FOR CALIFORNIA WHEAT.

To the Editor: For many years it has been taught that California soils are unusually rich in potash, and that, in general, potash fertilization is not necessary; but the results obtained in the field and orchard by growers who have used this plant food in their practice seem to prove that it is a much more desirable factor in horticultural practice than has been generally held in this State.

It is not always the composition of the soil that will determine the wisdom of the use of any plant food, but rather the more practical question as to whether the resulting crop has been so increased or bettered in quality as to return a profit over and above the extra cost of the material used. There are many growers in California who can testify as to the benefit obtained in both directions by the use of potash. The highest results are invariably obtained by the use of a complete form of fertilizer, embracing all three elements of fertility, potash, phosphoric acid and nitrogen. The nitrogen serves to build the framework of the plant, to impart a healthy action to the leaves, so that they can well perform their proper function, while the potash supplements it by developing starch to fill this framework and at the same time impart flavor and color to the fruit. The phospohric acid is no less important in its function of developing the albuminoids and rendering the other materials more assimilable by the plant. It is also very closely allied with the reproductive functions of the plant, hastening maturity and developing seeds.

All of these functions are important in all plant life, and often, although there may seem to be a large supply of the elements in the soil, the addition of a reasonable amount of fertilizing matter carrying these elements, stimulates and feeds the plants to such an extent as to make them return a larger profit.

It should be thoroughly understood that if the largest returns are to be expected from the use of fertilizers, the soil must be, first of all, put into a good physical condition. There are but few crops that can stand unfavorable soil conditions, and even these will yield proportionately less than when the conditions are congenial. This is even paramount to fertility, and no amount of fertilizer applied can make up for improper physical conditions. Without such proper physical condition the plant food cannot be changed into the available condition demanded by the plant before it can be assimilated. The air must be able to penetrate the soil to act upon the minute particles and render them soluble, so that they can be taken up by the plant. The soil must also be absorptive and retentive of moisture to act as a conveyor of this food to the plant. It should also be in such condition that free water will not remain in the soil in excessive quantities and thus render it cold and uncongenial for bacterial action. It is only when these conditions are essentially fulfilled that the commercial fertilizer can be expected to be of much benefit, however much it may be needed. If one is to experiment in the use of commercial plant food he must, first of all, make sure that he has obtained a good tilth in his soil, otherwise he may not only be disappointed with the results obtained, but may even draw very erroneous conclusions from the trials. The failure to secure beneficial results from the use of potash, or any other plant food, is most often due to a lack of appreciation of this most important fact.

Stable manure may often be used for improving the physical condition of the soil by improving the humus supply. At the same time, manure returns some of the plant food that has been removed, principally nitrogen. Where manure is so used, it should be supplemented by the use of potash and phosphoric acid, else the tendency will be to make an unbalanced condition of the soil in respect to an excessive amount of nitrogen as compared with that of the two mineral elements named. By the judicious care of the stable manure, the growing of legumes occasionally, and supplementing these by reasonable applications of potash and phosphoric acid from time to time, no soil should become depleted.

Under such a practice the mineral fertilizers, phosphoric acid and potash, may well be added to the legume, thus insuring an increased growth of this crop while not losing the effect for the subsequent crop to any material extent, provided the leguminous crop be turned under entire. This is a common practice with many of the most careful horticulturists, and the results secured have been very encouraging. The main advantage of this practice over direct fertilization is that the physical condition of the soil is maintained as well as the chemical condition, and there is a lessened cost, owing to the fact that the most expensive element of the complete fertilizer, nitrogen, is taken by the legume from the air. We cannot urge growers too strongly too make use of this method.

GEORGE WRIGHT.

DISKING ALFALFA.

Prof. E. A. Burnett of the University of Nebraska, answering a question in the Breeders' Gazette, says: The experience in disking alfalfa by the farmers of Nebraska has not been very uniform, some farmers reporting a material increase in the yields where disking has been followed, and others reporting that no beneficial results could be seen. If alfalfa land is disked when it is dry, so that the disk does not make much impression on the land, it probably does not do any good whatever. It frequently happens that land is so dry when disking occurs that no soil is formed by the work of the disk, and the labor is lost. Young alfalfa should never be disked, since a sharp disk will be sure to cut the crown off a great many alfalfa roots and destroy them. On the other hand, old alfalfa fields, and especially those in which there is some blue grass and other grasses, are materially benefited by the use of the harrow. When the crowns are split they frequently send out additional stems, so that the alfalfa is made finer rather than coarser. It is possible that later on these roots may decay and die. A new tool is now being placed on the market where the disk is being replaced by spikes which will tear up the ground much more thoroughly than the disk and will work deeper, especially in dry ground. The spike tooth disk has not been used sufficiently to determine its value, but it is looked on with favor by many alfalfa growers and will likely come into considerable use. To scatter manure thinly over a young alfalfa field is considered good practice. If manure is coarse or is put on thick enough so that the coarser parts will be gathered up in the first crop of hay, it is advisable to harrow the field just as the alfalfa is starting and to rake up all the coarse manure with a hay rake and remove it from the field. The application of manure to older alfalfa fields is also extremely valuable and should be practiced where manure is available.



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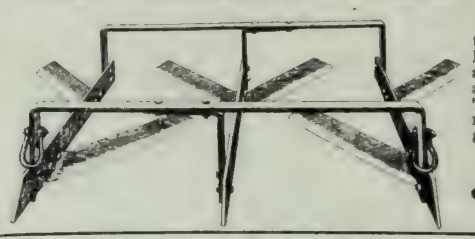
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Live Stock and Dairy.

DAIRY COWS AND THE MAKING OF MILK.

Written for the PACIFIC RURAL PRESS
By LESLIE W. SYMMES.

Animals are called dairy stock when they show certain definite indications toward the production of milk. That old remark of an expert, when asked as to what breed of stock a certain animal that was before him belonged, replied that he should call it just plain "cow." This is true of plenty of cows in dairies in this country, and we do not blame the cow, but the man who purchased or raised her. The true dairy cow is a little more than just an animal that produces milk. If this were not so the breeds of cattle which we know of as beef animals would have just as much right to be called dairy stock as they have to be known as beef animals. No doubt the average dairyman will smile and say he knows what a good dairy animal is, and perhaps he is right, because I have had this answer made me. But it seemed that he insisted upon selling and apparently had sold nearly all the animals which came nearest to being considered good dairy cows. Several cases occurred last fair season where the mediocre or average cow from a pure-bred herd was entered in the dairy contest, and apparently the owner did not know what the animal was capable of, besides the fact that she gave a certain quantity of milk. But this is not enough, whether we figure on entering a competitive dairy contest or not.

To estimate the merits of dairy cows when giving milk there is no method so satisfactory as the actual records made with the Babcock test and the scales. Having the weight of milk yielded, the percentage of fat in it, duration of period of pregnancy together with the amount of feed consumed, the merits of a dairy cow for dairy purposes may be accurately determined. But even all these details will not completely express the meritorious qualities that it is possible for a dairy cow to possess.

The breeder has in mind some other qualities that he desires, chief among which we may mention the ability of the cow to produce calves of the merit of herself and to continue doing this for a number of years. While the judging of dairy cattle by points may not be completely satisfactory, it is a quick method for use in the ring and assists in the study of many traits that are common to dairy cattle. For instance, the following scale of points is that which is used at the London and Canadian dairy shows as a basis for making awards: Twenty points for constitution and conformation, one point for each pound of milk, twenty points for each pound of fat, four points for each ten days in milk after the first twenty days (limit 200 days), ten points is deducted from the total score for each per cent of fat below three per cent fat in the milk. Some prize-winning cattle in our dairy exhibits would be shorn of their ribbons by awards on these points. Nevertheless it shows us what is expected of good dairy animals and a closer study of the points which determine the selection of dairy animals in our stock fairs would often be valuable.

To properly understand the good points of a dairy animal we should understand how milk is made. Let us follow the course of the food after entering the cow's mouth, from which it passes into the gullet and then to the first stomach or paunch. After remaining there for a time, the most of it is returned to the mouth and remasticated. When this is accomplished the food passes through the two other stomachs and finally lodges in the fourth. After undergoing a mixing process by the action of the muscles of the stomach the food passes into the small intestines. Up to this time the chief action of the various parts has been to break up the food, so that the fluids of the body may act upon it and make the digestive and nutritive portion into a solution. In its passage thus far the food has been subjected to the action of the saliva of the mouth and the gastric juice of the stomach, together with the bile of the liver and pancreatic juice, which attack it in the small intestines. The result of this action is that the soluble nitrogeneous material, carbohydrates and salts are now in a condition to be received by the blood and carried to the parts of the body that make the most abundant use of it. From this we see that the stomach and its aids have a very important part to play in preparing the food so that it may supply the cow the material to carry on her specialty—which is the making of milk.

The food now being in a condition to be utilized by the animal, we must go further and see how it passes into blood and finally reaches that important manufacturing center of the body of the dairy cow, the udder. The blood is the medium for carrying the nutritive portions of the food to the organs needing them. The mucous membrane or inner lining of the small intestines is covered with a large number of small glands that have the appearance of the pile on velvet. These tufts consist of cells and numerous small branches of veins called capillaries, and they also have what is known as lacteals. All the constituents excepting the fat pass through the wall of the small capillaries, and these connect with the portal vein which carries the blood to the liver and thence to the right side of the heart. The fat in the form of an emulsion reaches the same destination by a slightly different course, so all the digestible constituents of the food are now in the blood and have reached the right side of the heart. From here the blood goes to the lungs to be purified by the air that is breathed in, and then it again goes back to the left side of the heart to be pumped through the arteries to the various portions of the body. Several branches run to various organs of the body, but that which goes to the numerous glands is of chief interest in the function of making milk as they go into all the regions of the udder.

Following the blood still further, we find that it passed through the udder and appears outside of it in what are known as the milk veins. They run along the belly, pass into the body at what we know as the milk wells and finally direct the blood to the heart again. Up to this point we can understand the functions and relations of the organs; that the stomach and its accessories perform the greatest amount of work in making food into blood, while the lungs purify it, and the heart propels it to those parts that are most in need of it.

An individual who has charge of machinery acquaints himself with the working of each part in the production of the product. We think that an idea of how the cow handles her food in producing the milk should be of interest and valuable to owners of dairy cows, as many of these lead us directly to requisite forms for selecting good dairy types. Next

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week we shall continue the milk elaboration through the udder and speak of other essentials which directly concern the production of milk.

THE LAMBING SEASON.

It is pretty late to discuss the lambing season in most parts of California, but even so, some points which Mr. F. M. Joslin gives the Colorado Field and Farm may do to remember until next year:

My experience has been that if the ewes are properly cared for during the winter months little trouble will occur during the lambing season. The ewes must be in fairly good flesh and have milk; then a man and ten dogs cannot separate them from their lambs. In my last lambing I had only one ewe out of the flock of 1512 that did not own her lamb, so when I hear a man telling of his hard luck and his ewes not owning their lambs, I consider it his own fault, for a ewe will own her lamb if properly fed and tended. Mother Nature will assert herself in the ewe stronger than in any other animal. I never had any trouble with my ewes owning their lambs.

I send my ewes out on the prairie every day during the winter when the weather will permit, even when the mercury is from eight to ten below zero, if the wind does not blow too hard. The exercise is beneficial, even though they cannot remain out long to graze. A young lamb should never be allowed to go out with the drop band. The lambs dropped through the night are allowed to remain in the corral until two or three o'clock in the afternoon, at which time the lambs have taken the milk and each ewe has her lamb by her side. Then they are driven out where the ewes can graze a few hours before night and then are put in esparate pens. Those lambs dropped on the range through the day are put into small pens about two in the afternoon. Eight ewes are enough to place in one pen the first night. We have to clear these pens the next morning before breakfast in order to be out of the way of the drop band as they come out. For the first three or four days I never want over fifty ewes and their lambs in a flock. After four days I double them and gradually double up until at four weeks old I have four hundred in a flock, where they should remain two weeks more before throwing the whole bunch together.

I always arrange to keep my sheep away from the home buildings and just as soon as we can bunch up a little band with lambs they are driven away. In warm weather be sure that they are out of the corral long before the sun is up, so that they may bunch on water from ten in the forenoon until three or four in the afternoon and then feed until eight or nine o'clock in the evening. Success depends much on the herder, whether large fat lambs are turned off in the fall or not. A good man never herds the sheep, but simply watches them, keeps the coyotes away and corrals the flock at night. A good dog is all right on a ranch, but keep it about the house for the small children to play with. It is much better that sheep never see dogs. I never allow them about my sheep at lambing time. I always keep a good dog to use on my neighbor's stock, but not on my own. With the present outlook for good prices for our spring's wool clip every owner of a flock of ewes should not fail to feed them a good grain ration daily from now on to about lambing time. It will pay fourfold, besides the satisfaction of having the sheep in nice condition. Mutton will also he high another season as well as at the present time. Choice finished lambs have sold as high as $8.35 a head this week and old fat ewes as high as $6.50 a head. Feed the ewes as well as the young sheep all they can eat, besides a good grain ration daily and very little trouble will come in the lambing time.

Twenty years ago I spent the lambing season at one of the most prominent flockmaster's camps, and on looking back I can see many changes for the better in the manner of handling sheep. At that time it was considered very unhealthy to place sheep in a shed, even in lambing season, and thousands of lambs perished every year for want of shelter. A night herder at that time was not thought of, and now a good warm shed and a night herder during lambing season are considered quite as necessary as the grass on which the sheep feed. Our sheepmen are raising a much larger percentage of lambs, raising better sheep and better wool. They have a better system of selling wool. They have eradicated the scab, but the matter of improvement is not yet finished but has just begun. The investigations and experiences of one generation have been handed down to the next since the days of Adam and the story has not half been told.

LARKSPUR POISONING

This trouble crops out every now and then in California, and stockmen should have it in mind. Mr. R. E. Cox of the Laramie plains writes about it to the Denver Field and Farm as follows: Larkspur does not seem to be disastrous to either sheep or horse raising interests, but proves a serious menace to cattle interests every spring until all the plants have finished flowering. Cattle seem particularly fond of the weed, as it is almost the first new green forage of the season, and while the loss from this cause in native cattle is frequently negligible it is apt to lead to the death of entire herds that are shipped in from other regions where the weed is not abundant. Larkspur seems to flourish best in sandy soil or on flats in preference to the hills. Whenever possible keep the cattle on the hills and away from sandy pastures until after the weed has blossomed. Cattle poisoned by larkspur bloat rapidly, become unable to remain on their feet, and unless attended to promptly are soon beyond aid.

In mild cases clipping an ear so that the blood flows freely is frequently all the action necessary for a cure. In more aggravated cases raise the animal's tail and cut the vein on the underside near its roots. When convenient a small handful of baking soda or saleratus thrown into the animal's throat and a half pine of vinegar poured in while holding the head up causes enough fermentation to relieve the gaseous pressure upon the stomach.

In extreme cases the trocar and canula seems to be the only remedy, but it should be used only as a last resort, save in the hands of an experienced person. A well vouched for prescription for either larkspur or death camas cases is the following: Thirty grains of potassium permanganate and thirty grains of aluminum sulphate dissovled in a quart of water. It is a mistake to presume that alkali water is the cause of death in cases of this kind. The reason for this presumption is due in large degree to the fact that whenever animals are poisoned from various weeds they immediately strike out for water and are found after death lying adjacent to water holes, springs and accessible streams. The danger, however, was done with the eating of the poison plants and the journey to water is only the natural impulse of the afflicted animals when they feel their temperature rising.

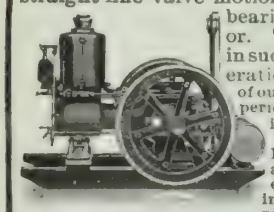
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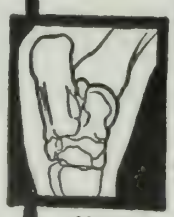
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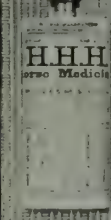
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NEW WORLD'S RECORD BUTTER COW.

World's Champion Cow, 35.55 lbs. Butter in 7 days. Grace Fayne 2nd's Homestead, Pure Bred Holstein.

To the Editor: The milk of the Holstein cow bearing the name above given was tested for butter by a representative of the Cornell University Experiment Station, Itahaca, N. Y., during the latter part of March, 1909, and by the Babcock test showed a yield in 7 days of 28.44 lbs. of butter fat. As such records are commonly stated by the Herd-Book Association this yield of butter fat is equivalent to 35.55 lbs. commercial butter at 80 per cent fat.

This yield exceeds that of any other cow tested under the present scientific systems in use at experiment stations, which are today the only true tests, and is a wonderful example of the capacity and development of cows of this famous breed of dairy cattle. The previous high record was held by a Holstein cow owned by a Wisconsin breeder, and New York State now claims the champion cow of the world, owned and developed in Syracuse by Mr. H. A. Moyer.

This cow exhibits to a great degree the characteristic vigor of the Holstein. Her last test was begun when she was 6 years 23 days old, and showed 5.42 per cent fat. She was the champion 4-year-old of 1907, testing 29.16 lbs. in 7 days and 119.22 lbs. in 30 days. As a 5-year-old she tested 30.55 lbs. in 7 days and 126.68 lbs in 30 days.

F. L. HOUGHTON,
Sec. Holstein-Friesian Ass'n of America.
Brattleboro, Vt., April 15, 1909.



GRACE FAYNE 2ND'S HOMESTEAD, PURE BRED HOLSTEIN
WORLD'S CHAMPION COW. 35.55 LBS. BUTTER IN 7 DAYS

COTTON SEED MEAL FOR COWS.

To the Editor: Can you give me any information regarding cotton seed meal as a feed for milk cows? I have heard that it is a good milk producer and not relaxing. I would like to know whether it could be fed alone, and if so how much per cow per day, or should it be mixed with bran or other feed and in what proportion? DAIRY.

Napa.

Certainly not alone. It would put you out of business by several routes if you should try it that way. Experience approves five or six pounds a day for short periods, or three or four pounds a day for long periods—always in connection with an abundance of coarser feeds.

CALIFORNIA WOOL INTEREST.

The Guscetti Sheep and Land Co. of Sierra county write to the American Sheepbreeder in this way: You might have expected to see us go out with 1908. It was the dullest year we have seen in half a generation; feed scant, harvest light, market for wool and mutton there was none. What we need, and need it bad, is to have the present wool tariff kept just as it is, or if a change is ordered, make it a few cents higher. American shepherds need protection and encouragement to produce all the wool needed in this country, instead of looking to foreign countries for it. We have capacity in the United States to supply half the population of the earth with wool. We can grow as good a grade of wool, and we need the protection which organization and a good wool tariff can give us. I would like to live to see the day when every sheep breeder and wool grower in America was in a hard and fast organization for the advancement of the industry. The wool storage movement, started but a year ago, has proven a success, and great credit is due the gentlemen who started it. When auction sales of wool are held in Chicago, then the voice of the American shepherd will be heard around the world.



The Right Oil For Hand Separator Bearings

Whether you get the proper per cent of cream from your milk depends, not so much upon the separator, as upon the oil you use *on* the separator. Poor, gummy oil retards motion and wastes good cream in the skim milk pail.

STANDARD Hand Separator Oil

lubricates close fitting cream separator bearings perfectly, for any length of time, without gumming the...

It runs a separator with the least effort and reduces wear to an imperceptible quantity. Standard Hand Separator Oil is the best economy for separator users.

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STANDARD OIL COMPANY
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More than 15,000 users who had made such a mistake replaced their "mistaken" machines with DE LAVAL separators during the year 1908.

They had probably wasted Five Million Dollars worth of investment, labor and butter meanwhile.

If you feel inclined to buy some other make of separator, by all means do so, if you can find any apparently good reason for it.

BUT why not TRY a DE LAVAL machine beside the other machine for ONE WEEK before you actually contract to buy it? Simply SEE the comparative operation and comparative results and examine the comparative construction.

That's a proposition open to every intending separator buyer. Any DE LAVAL agent will carry it out. WHY not avail of it and KNOW what you are doing before making this very important investment?

Don't let any alluring "catalogue house" literature or clever talking agent wheedle you into buying any other separator without FIRST actually TRYING it alongside a DE LAVAL.

In other words, buy your separator intelligently and knowingly, and not on blind faith in anybody's representations.

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The Poultry Yard.

MAYTIME IN THE POULTRY YARD.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

In the growing and blooming month of May many little things spring up in the poultry yard which require special attention. It is the season of the broody hen. All worn out by the strenuous labors of filling the incubators and the cold storage plants in addition to meeting the demand for "ham and," she feels the need of the rest-cure and clings to her nest with a pertinacity which arouses the ire of her owner. Among even the non-sitters a few will decide to try a "set" and all hens will take a rest of a week or two some time during this month. The poultryman should not begrudge the hen this rest. She needs it and she has earned it. If allowed to rest and recuperate in peace and comfort she will soon make a fresh start in laying and, until the molting time, which may not occur until in November, she will show almost as good an egg record as in the early spring. We had hoped our civilization had outgrown the petty cruelties practiced upon the broody hen; but we note in a recent issue of one of the coast poultry papers where, answering an inquirer, it is advised to throw the broody hens into a pen with as many vigorous males as can be spared. This is an outrage upon the hen and a disgrace to the man suggesting it. Such methods are unprofitable as well as cruel. Being harassed as indicated may "break" her quicker, but it also tends to break her constitution, and the poultryman practicing such methods will lose by them.

In breaking broody hens the best plan is to have a yard with roosting quarters attached in which to confine them. The hens may be shut out of the latter during the day and so will the quicker lose the brooding idea. If there be grass in the yard it will be all the better for the hens; in any case the soil should be mellow so that the hens may dust and rid themselves of any vermin which is very apt to infest them in the feverish state that attends broodiness. As soon as a "clucker" is found holding down a nest she can be removed to these quarters and after a week she will come out recuperated and will soon be hunting a nest for the right purpose. By this method the broody hens will be almost no trouble and there is no strain on the care-taker's temper or the hen's nerves. Such hens should be well supplied with green feed and pure water and with a light feed of hard grain night and morning. If no yard can be spared for this purpose the hens will have to be confined in coops, but do not put two or more in one small coop, as they are sure to seriously injure each other.

Do not allow "broodies" to occupy the nests of the laying hens. They injure the quality of the eggs and they breed lice and mites. The careful poultry keeper goes through the poultry quarters after dark. He examines the condition of the nests and removes any hens found lingering thereon to the broody pen, or it may be to the hospital quarters; for a seriously ailing hen is almost sure to crawl into a nest at night. This is why hens are so often found dead in the nests. He listens for any wheezing or choking sounds among the fowls and chicks and keeps a sharp lookout for any sign of disease. He at once doctors, or if the case seems serious removes the ailing bird; and he also looks for the cause. The careful poultry keeper does not wait for an epidemic to break out among his flocks before he "bothers"—and so disease becomes a stranger to his yards.

In California May is not a good month for hatching. True, there are exceptions to this general rule for chick raising here. Results are good where the eggs are from vigorous hens that come fresh to their work; for the fault is not in the weather, but in the condition of the hens that furnish the hatching eggs. They are run down, "played out." If they have good care, as has already been suggested, through their broody or resting spell their eggs will have stamnia when the hens make a fresh start in laying.

In May the trade winds begin to blow briskly coastward, and fowls, especially chicks, confined in small yards should have the protection of a windbreak. A thick hedge along the southeast side is best and gives shelter from the hot afternoon suns as well as the force of the winds, and the fowls enjoy scratching among the damp soil at the roots of the bushes; or a tight board fence is good, or even sacking tacked to the wire netting is better than nothing. The poultry keeper should also look for drafts in the chicken houses at this time. While in the protected valleys of the interior little care need be given to weather conditions for fowls in the summer time on the coast this is the season for an outbreak of roup, and extra care is required in guarding against drafty or crowded quarters. The young fowls require particular care to have them roosting properly upon wide clean perches. If they are crowded into small brood coops and piling up in corners, stunted and diseased chickens will be the result.

Now is a good time to round up the male birds on the farm and in the poultry yards generally. The breeding season is over, or should be, and all such birds should be marketed except those which are to be kept over. They will bring a better price than later and their room will be lots better than their company to the hens. The young cockerels, too, should be disposed of, or yarded by themselves in the fattening pens. They are a great detriment to the pullets if allowed to run among them. It is more profitable to sell off the cockerels in a bunch at the earliest marketable age than to hold them for better prices as fryers. The cost of feeding and the advantage of the extra room for the pullets are more important considerations to the poultry raiser than the difference in price. Both the cock and cockerels to be kept over for breeding purposes should have a range by themselves. An old cock among the cockerels when yarded tends to keep them in bounds and prevent them from injuring each other.

Wheat has gone up out of reach of the poultryman. It is no longer profitable to feed it to the general flock. Barley and corn must fill the poultry bill of fare, and these grains answer very well. Fowls do not relish dry barley greatly; but the whole grain sprouted and the rolled barley with cracked corn for the scratching feed are all right. Boiling the cracked corn and rolled barley together for a half hour in salted water with any scraps of meat or vegetables handy, then mixing with bran or shorts is an excellent mash. Plenty of tender greens reduces the cost of feeding, as it largely takes the place of meat and less grain is required. A supply of such greens should be provided for now, if it has not been before. The stock beets which produce green tops may be planted this month, and if the ground is well cultivated and rich they will grow well through the dry season, as will field carrots. The roots of both are excellent for yarded fowls to peck at between feeds. With thorough cultivation in rich soil, Swiss chard is another fine green feed for poultry and requires only a little water under those conditions. Plant a patch now if you have not already done so. ...Manure the ground well, plow or spade deeply and pulverize it thoroughly; sow the seed in drills some three feet apart (where space is limited, 18 inches), cover a half inch deep with mellow earth and wet down. In a few days the plants will appear.

And this is the month for cleaning up and burning up and giving the poultry quarters a general whitewashing! Few indeed will be the poultry premises where lice and mites and fleas have not taken advantage of the breeding season to get in their work. Make it warm for these pests. Where the houses may be shut tight, a sulphur smudge is good, but this does not destroy mites; it is excellent for disease germs, however. Hot water in which copperas has been dissolved is good for a first application to the houses and also for the ground about them. Then sprinkle the latter with lime and spade well. Prepare the whitewash by slacking the lime with hot water; allow a heaping pint of salt to each bucket of whitewash; dissolve it in hot water and thin the wash to the consistency of thin cream; apply the wash hot. For the perches use cheap coal oil.

WORMS IN POULTRY.—We have just had an urgent letter from a poultry keeper who says her hens are dying from worms. This condition speaks badly for the cleanliness and care of the fowls, or it may be due to old and infected quarters and ground. If possible the fowls should be moved to fresh ground; if not the ground should be spread with a mixture of lime and carbolic acid (a cupful of crude acid to a bucket of air-slacked lime) then spaded; this mixture should be scattered over the floor of the pens and houses after they have been thoroughly scraped, then fresh earth sprinkled over the mixture. The houses and pens should be thoroughly whitewashed. To doctor the fowls, mix oil of turpentine and sweet oil, half and half; give the grown fowls a large spoonful and young fowls a teaspoonful in the morning when the crops are empty. In bad cases put in coops and repeat the dose noon and night; the next morning give a dose of castor oil. Scald and disinfect the drinking vessels and keep them out of the sun and full of pure water. Never let the fowls eat their food out of filth; keep the troughs sweet and clean and hung up when not in use; don't feed rotten leaves and vegetables, sour messes, raw meat, nor slops. Keep the premises sweet and clean and feed sweet wholesome food and there will be no worms.

In the above case, and in all flocks of fowls at this season, an occasional dose of sulphur is beneficial. Allow one teacup of sulphur for every 50 fowls; mix it with the dry shorts or bran and make into a moist mash. Give this only when the weather is sunny and dry.



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The Home Circle.

Nature.

Of Nature my spirit grows fonder,
As I gaze o'er her flowery sod,
As I pause by her streams and ponder
The wonderful things of God.
Nor vainly her shadows I've waited
To list to the voice of night;
My musings with her are mated,
With her there's a calm delight.

Through many an eve of summer
I've roamed o'er the fruitful earth;
I've worshipped her as a mother
For all of her beauteous birth;
I love her when dayspring blesses,
When her hilltops hail the sun;
When wrapped in her ebon tresses
As toils of the day are done.

Her mystical shades I've pondered,
Through the forest's moon-lit way,
As the night bird's flute-notes wandered
In ecstacy's varied play.
The gray rocks were there, the mountain,
The purl of the winding stream;
And I lingered beside the fountain,
Forgetful of life's sad dream.

Her mountains and cliffs are holy,
The solitudes charm her vales;
She has sooth for the sad and lowly
When darkness o'er life prevails;
She has music forever dying
O'er crags of the bounding sea;
And her woodlands are ever sighing
In silvery chords to me.

—*William Whitehead in Summer Eve.*

The Flower Painters.

One day a very queer little girl whom we will call Bertha, was walking in the garden and looking at the flowers. I call her a queer girl because she has such strange thoughts, and such a singular way of thinking them aloud.

"I wonder," said she to herself, "who paints the flowers?" (I am telling you the story just as Bertha told it to me.)

"We do! We do!" cried a jingle of little voices that sounded like so many tinkling bells.

Bertha looked around but could see no one, so she called out: "Who are you? Where are you?"

"Ha, ha, ha! right here under your nose," tinkled the little voices again; and there in the midst of a white lily stood a crowd of tiny folks laughing and shouting.

Bertha drew back when she saw them, but one of the little folks called out: "Don't be afraid. We love everybody who loves flowers, for we are the flower-painters!"

Bertha was over her fright when she heard this, and she stooped down before the lily to talk with these wonderful little people.

"What is your name, little folks?" she asked.

"Juice is our name," one of them replied. "We are the Juices. We sleep under the ground all winter wrapped in stout brown cloaks; but the spring wakes us up, and from that time until winter comes again we are as busy as busy can be, for painting the leaves and flowers is only part of our work."

"Do you paint the leaves as well as the flowers?" asked Bertha. "Where do you get your paints from?"

"From the sun, little girl," answered one of the smallest fairies, in a very wise way.

"What a story!" shouted Bertha. "The sun hasn't any colors, and besides you couldn't go up to it, it is so far off."

"You are right, Bertha," said the first fairy, "we couldn't go to the sun; but God, the kind God, sends our paints to us wrapped up in little bundles that you call sunbeams. Spread out your handkerchief in your lap and take this piece of glass in your hand. Now let the sunbeams fall on the sharp corner of the glass; that will split them open and the paints will fall out on the handkerchief."

Bertha did as the fairy told her to do, and, as soon as one of the sunbeams fell on the sharp glass, it split open and several little paints fell out on her lap. There were violet, orange and red—all out of one very small bundle.

While Bertha was looking at the paints, the fairy continued talking. "Our winter nap," said she, "is so long that we almost forget how to mix colors; so when we wake up in the spring, we use only one at a time."

"Oh, that is why everything is green at first," cried Bertha, "and why the violets are all blue and the dandelions all yellow, isn't it?"—*Our Scrapbook.*

HELPS AND HINTS FOR THE HOME.

(This department is open for questions and suggestions.)

FARM FARE.—That the more delicate and tasty fruits and vegetables are often absent from the farmer's table comes more from habit than any other cause. In considering the main and commercial crops such small items are overlooked until it becomes a habit to do without them.

"Oh, yes; I enjoyed the country—all but the fare!" said a lady who had just returned from a two weeks visit to her aunt up country. She was just convalescing from an illness and it was decided that and abundance of fresh milk, eggs, vegetables and other good things indigenous to a ranch, were just what were needed for her up-building. "Uncle has a big grain and stock farm," the lady continued, "but I happened to strike it at the wrong time. It was November and the orchard was resting, the family cow was not 'in'; the hens were laying off, we were too far from market and the teams were too busy plowing to get fresh meat often; garden truck was not raised on the place, so it was mostly straight pork and beans, cabbage and potatoes and bacon with an occasional tough chicken. My, but wasn't I glad to get back to town and have my fille of chops and salads and fresh eggs and milk!"

Now, the farmer deserves the best of fare, and he can have it, too. The good things of the earth are at his feet and may be had in crisp freshness. A bit more care in regulating the dairy and hennery will insure fresh eggs, cream, butter and milk at all seasons; a few salad beds, an asparagus bed, a strawberry and blackberry patch, will add the dainty relish to the more common and stronger meats and vegetables. Getting them started is the point; then the thing seems easy and the farmer wonders how he ever did without them.

THE ASPARAGUS BED.—This vegetable, coming as it does in the early spring when there is a scarcity of fresh things and they are particularly needed, it is both grateful to the appetite and beneficial to the system. It has distinct medicinal properties, and, unlike most things which are good for us, it is good to take. The labor put into an asparagus bed is a lasting investment, for time only improves the yield and quality of its product. Mrs. A. L. Smith of Lima, N. Y., writing to the Tribune Farmer, says: "The asparagus bed at my home has been in existence at least seventy-five years. It was planted right in the first place. It is on gently sloping ground. The earth was dug out to the depth of two or three feet, stones and broken crockery thrown in to make good drainage; the earth taken out was well mixed with manure and returned to the bed. Then the roots planted. In using, we cut it for six weeks, then allow it to grow and ripen its seeds and the stalks to stand until early the next spring. Then we scatter a little dry straw over it and burn straw and stalks. This warms the ground and gives it a little ash; then we fork up the surface lightly, work in a little fine barnyard manure, and sow a very little salt over it. It is now ready for the spring growth. The shoots should be cut with a sharp knife, giving a smooth slanting cut just below the surface of the ground, so that the earth falls over the cut."

In making an asparagus bed in our heavy soil, particular emphasis is laid upon these points: it must be in a well-drained location where the water never stands in the winter; in filling in after preparing the under-drainage of coarse gravel light soil mixed with manure should be used. If this is not obtainable, the heavy soil must be worked with sand and manure until it is light and friable before putting into the bed. The roots should be used for planting, as it requires from three to four years before plants from seeds are suitable for eating.



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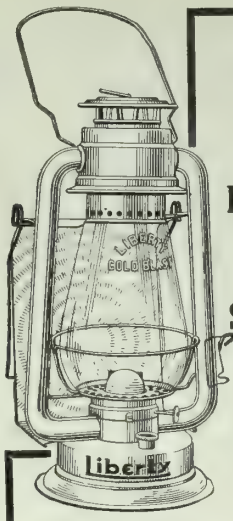
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Liberty Lanterns

A special wick-regulating device prevents a flame with "horns" on the sides, it can be turned up higher than others. Air supplied in just the right proportion, it gives a brighter, whiter, stronger light. Burns longer with less oil than others.

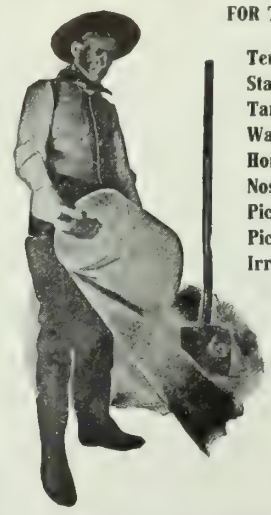
Prices from 60c. to $3.50.

Don't be persuaded to buy the "just as good" kinds. Buy the best —LIBERTY LANTERNS.

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SIMMONS HARDWARE COMPANY (INC.)
ST. LOUIS AND NEW YORK, U. S. A.

CANVAS GOODS
FOR THE RANCH.



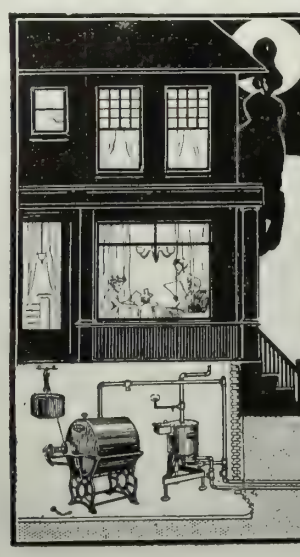
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THE WM. H. HOEGEE CO., Inc.
138-40-42 South Main, Los Angeles.



Perfect Light for the Country Home

DETROIT Combination Gas Machine

No matter where you live, you can have plenty of clear, beautiful light in every room of your house, by installing the Detroit Combination Gas Machine.

This system of lighting is cheaper than any other form of light for the country home, and gives perfect results. A gas plant complete in itself right in your own home. Perfectly safe, as fuel is stored outside of the house, and is satisfactory to all insurance companies—endorsed by the National Board of Fire Underwriters. The gas is in all respects equal to city coal gas, and is ready for use at any time without generating, for illuminating or cooking purposes.

With this lighting system, you can make 1,000 feet of gas for 100 cents or less, which will give an 80-candle power light for 400 hours, at a cost of less than 1-4 cents per hour per burner. The best light for residences, schools, churches, factories, etc. The days of kerosene lamps are over. Why not find out about this light at once? Write today for our free 72-page book. "Light for Evening Hours."

DETROIT HEATING & LIGHTING CO.,
352 Wight St. Detroit, Mich.

THE MARKETS.

San Francisco, April 28, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Notwithstanding some fluctuation and rumors of weakness in the East, all the Coast markets remain very firm, with light supplies in all quarters. Spot quotations in San Francisco have again been advanced, Club bringing $2.15 and milling grades $2.20. White Australian is really nominal, as there is scarcely any movement. Inferior grades, however, show no advance, as there is little demand for them. Milling wheat is rather quiet, as the milling interests are unwilling to pay the prices asked. No sales of December wheat have been made yet, but buyers have offered $1.60.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	1.80	@1.90
Northern Club	2.10	@2.15
Northern Bluestem	2.20	@2.30
Russian Red		2.10
Turkey Red	2.00	@2.20

BARLEY.

The crop prospects are not as good as they were a few weeks ago, on account of the lack of late showers, and there is accordingly a stronger tone to the speculative market. Prices on spot barley are well maintained at the last quotations, but with considerable stock coming in the feeling is a little easier. There is a strong demand in the North, however, which will probably prevent much decline before the new crop comes in.

Brewing	$1.62½	@1.65
Shipping	1.62½	@1.65
Chevalier		1.70
Good to Choice Feed, per ctl.	$1.60	@1.61¼
Common Feed	1.52½	@1.57½

OATS.

The scarcity of oats is growing more pronounced, and while the demand is not of large proportions, buyers find some difficulty in getting supplies. Gray and red oats are 10 cents higher, and whites have made a slight advance, everything being very firm at the new figures.

White, per ctl.	$2.15	@2.25
Gray	2.10	@2.15
Red, choice		2.15
Common	1.95	@2.10
Black		Nominal

CORN.

California small round yellow shows some decline, but white Egyptian is higher. Arrivals of the Western grades are still very light, and the price on bulk shipments has been slightly advanced.

California Small Yellow	$1.85
Western State Yellow	1.75
Mixed, in bulk	1.66
White, in bulk	1.69
Egyptian White	2.00

RYE.

Rye is still quoted at $2 per ctl., though the demand is not large and few buyers are found at that figure. It is understood that all the stock in the market is controlled by one holder, and higher prices may be asked before additional supplies come in.

Rye	$2.00

BEANS.

A number of advances have taken place this week, and with an increasing demand for shipment and light stocks on hand the market is decidedly firm. Bayos, cranberry beans, pinks and limas have advanced quite sharply, and blackeyes are also a little hiher. Large whites are easier. While the volume of business in some varieties is not heavy, it is sufficient to keep prices at about the present level. Some inquiries have been received for new crop beans, but no definite predictions can be made this early in the season. In view of the present high prices, dealers expect that a large acreage will be planted, but no stock is likely to be carried over into the next season.

Bayos, per ctl.	$5.00	@5.25
Blackeyes		3.50
Cranberry Beans	4.00	@4.25
Garvanzos	2.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.35	@5.50
Large Whites	4.25	@4.35
Limas	4.20	@4.25
Pea	5.25	@5.35
Pink	3.15	@3.25
Red		Nominal
Red Kidneys	3.65	@3.80

SEEDS.

The seed market is now comparatively quiet, as the spring season is now over. Little business is looked for during the next few months. Prices, however, are steadily held at the former quotations.

Alfalfa, per lb.	18	@19 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.	3¾	@ 4 c
Canary		4 c
Flaxseed		4 c
Hemp		4¼ c.
Millet		3¾ c
Timothy	6¼	@ 6½ c
Yellow Mustard	6	@ 6½ c

FLOUR.

Some of the Northern mills have been shipping low-grade flour East, as there is now little demand in that quarter for Oriental shipment. There has been little export movement locally for the last week, but the demand keeps up fairly well. The local demand is limited, as the majority of buyers have sufficient stock on hand for immediate requirements. Prices are very strong, but have not advanced since last week.

Cal. Family Extras	$6.40	@7.00
Bakers' Extras	6.40	@6.65
Superfine	5.20	@5.50
Oregon and Washington	4.85	@5.75

HAY.

Arrivals of hay at San Francisco have fallen off again, being about 400 tons less than last week. While it is claimed in some quarters that the old hay is practically cleaned up, the market is weak at a further decline, and the arrivals are sufficient to supply all demands without difficulty. While several carloads of new hay have been marketed, there is not enough available yet to affect prices. The market is likely to be in an unsettled condition until arrivals of the new crop increase materially, when prices will of course decline. With the new harvest at hand, no higher prices are looked for, but supplies are scarce enough to keep values at about the present level for a few weeks.

Choice Wheat, per ton	$22.00@24.00
Other Grades Wheat	17.00@22.50
Wheat and Oat	20.00@22.50
Tame Oat	19.00@23.00
Wild Oat	18.00@21.00
Alfalfa	13.00@17.00
Stock	7.00@10.00
Straw, per bale	50@ 90c

MILLSTUFFS.

This market is unchanged since last report, prices on rolled barley and all other feedstuffs being stationary. While millfeed is reported firm in the southern part of the State, the demand here is rather quiet, and prices are inclined to weakness. The production, however, is limited at present, and prices have been maintained at the present level for some time.

Alfalfa Meal, or mealfalfa, per ton	$25.00@26.00
Bran, ton—	
White	29.50@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	1.15
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Middlings	33.00@35.00
Mixed Feeds	28.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	33.00@34.00
Shorts	31.00@32.00

VEGETABLES.

Onions are in rather better demand this week, and both Oregon and Nevada stock find ready sale at advanced prices. The supply of Australian onions is also gradually moving off with no decline in prices, but the Bermudas receive little attention and are offered at lower prices. The arrivals of asparagus were lighter during the week, bringing higher prices, but supplies are now plentiful. Good lots, however, still bring comparatively high prices. Rhubarb is also stronger. Supplies of string beans are increasing.

Onions, Oregon, per ctl.	$ 2.35@	2.50
Australian Onions	4.00@	4.25
Bermuda Onions, per crate	1.40@	1.50
New Green Onions, per box	50@	65c
Garlic, per lb.	8@	10c
Green Peas, per lb.	3@	4c
String Beans, per lb.	12½@	15c
Cabbage, per ctl.	2.00@	2.25
Tomatoes, per crate	1.00@	1.25
Cauliflower, per doz.	65@	75c
Celery, doz.	40@	50c
Asparagus, extra choice, box	1.50@	1.75
Asparagus, common to choice	1.00@	1.25
Rhubarb, per box	1.00@	1.50
Turnips, per sack	1.00@	1.25

POULTRY.

Shipments of Eastern poultry have been extremely light this week, with scarcely any new supplies at hand for the first few days, and California arrivals have continued about the same as for several weeks past. The surplus carried last week has accordingly been well cleaned up, and while the demand is a little below normal, the scarcity of stock has caused more or less advance in most lines. Inferior stock of all kinds is bringing better prices, and both broilers and fryers are higher.

Broilers	$ 5.50@	7.00
Small Broilers	3.50@	5.00
Fryers	7.50@	8.50
Hens, extra	7.00@	9.00
Hens, per doz.	6.00@	6.50
Small Hens	5.00@	5.50
Old Roosters	4.50@	5.00
Young Roosters	9.00@	10.00
Young Roosters, full grown	10.00@	12.00
Pigeons	1.25@	1.50
Squabs	3.00@	3.50
Ducks	6.00@	8.00
Geese, per pair	1.50@	1.75

BUTTER.

Butter has remained fairly steady all week, with no change whatever in prices. While the arrivals are much larger than can be disposed of locally, and considerable surplus is carried most of the time, all accumulations are easily disposed of for shipment to the North. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb.	24 c
Firsts	23 c
Seconds	22½c

EGGS.

The only feature worthy of note in the egg market is the strong competition for storage supplies, which keeps the market in a condition of firmness, thouh the arrivals are now quite liberal. The local demand is fairly active, but many dealers consider the prices decidedly high for storing. Extras fell off ½ cent a few days ago, but at present are higher than for several weeks, being quoted at 26 cents. Firsts have advanced ½ cent. The condition is due to the fact that the large dealers are buying up the supply in the producing districts.

California (extras), per doz.	26 c
Firsts	24 c
Seconds	22 c
Thirds	21 c

CHEESE.

Cheese has shown little feature this week, and the volume of business is rather light. Prices stand as before, with the exception of Oregon flats, which are higher. While the market is now fairly well supplied with local grades, there is no surplus, and prices are firmly held.

WE SEED FORTY ACRES TO ALFALFA ON OUR

California Improved Farms

In the Sacramento Valley near Arbuckle, California

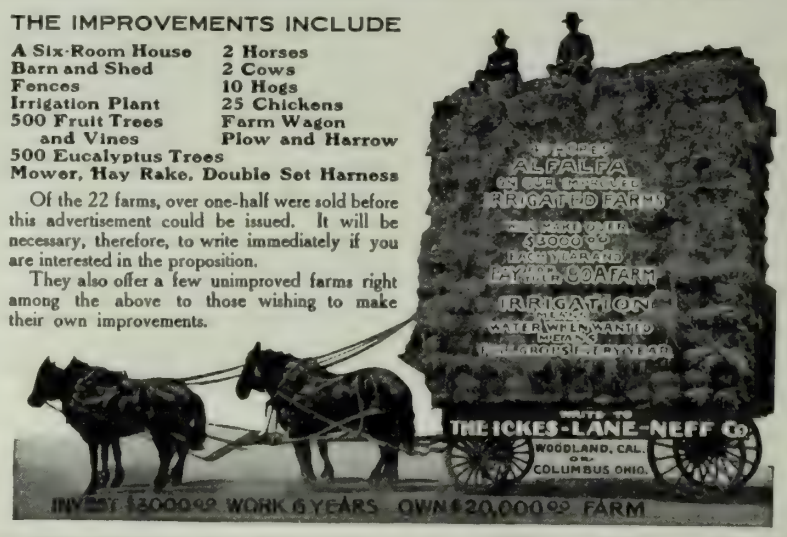
We are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. We offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land.

THE IMPROVEMENTS INCLUDE

A Six-Room House	2 Horses
Barn and Shed	2 Cows
Fences	10 Hogs
Irrigation Plant	25 Chickens
500 Fruit Trees	Farm Wagon
and Vines	Plow and Harrow
500 Eucalyptus Trees	
Mower, Hay Rake, Double Set Harness	

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



Second Hand Pipe and Casing

All sizes from ½ to 10 inch Std. and 2 to 8 inch casing all as good as new.

Write for Particulars and Prices.

PACIFIC PIPE CO. S. W. Main and Howard Sts. San Francisco, Cal.

Fancy California Flats, per lb.	15½c
Firsts	15 c
New Young Americas, fancy	16 c
Oregon Flats	16 c
Oregon Y. A.	16½c

POTATOES.

Pronounced firmness is again the feature of the potato market, with a sharp advance on all varieties of old stock. A strong demand has arisen in other markets, and the stock remaining in the river districts is being rapidly cleaned up. Salinas Burbanks are no longer quoted. Some potatoes from Nevada are being marketed at high prices.

River Whites, per ctl.	$ 1.75@	2.00
Oregon Burbanks, per ctl.	2.00@	2.25
Sweet Potatoes, per ctl.	1.60@	1.65
New Potatoes, per lb.	1¾ @	2½c

FRESH FRUITS.

The first cherries o the season, Purple Guignes, from the Sacramento valley, arrived on the market the first of the week, and found a readiy market at the price quoted. The market is fairly well supplied with strawberries, and crated lots are considerably lower. Longworths are offered at $9 to $11 a chest. Apples now receive little attention.

Strawberries, per crate	75c@	$1.00
Cherries, drawer		4.00
Apples, fancy, per box	1.25@	1.50
Apples, common	50@	1.00

CITRUS FRUITS.

Tangerines are a little easier, but the navel orange is active and fairly strong, with a liberal demand for fancy stock. Lemons are plentiful and quiet, but former prices are still maintained. The market is now well supplied with limes, which show a further decline.

Choice Lemons	$1.75@	2.25
Fancy Lemons	2.75@	3.00
Standard	1.00@	1.25
Limes	4.50@	5.00
Oranges—		
Fancy Navels	2.25@	2.50
Choice	1.85@	2.00
Tangerines	75c@	1.25
Grape Fruit	2.50@	2.75

DRIED FRUITS.

Prunes are now quite active, and while prices are unchanged there is a stronger tone to the market. Notwithstanding the heavy shipments recently made to the East, stocks there are moving off more rapidly than usual at this time of year, and there is some demand for shipment. There is more or less pressure to sell in this market, however, both packers and growers being desirous of moving their stock. The demand for apricots is limited, but in view of the scarcity of supplies the price remain very firm. Peaches are quiet and steady. Figs are firm at the recent advance, with a fair demand and little stock in sight. Local packers are offering the prices quoted below on fruits. Raisins are more active, both here and in the East, as Raisin Day is receiving more attention in all quarters. While purchases are generally small, a good deal of accumulated stock is being disposed of, and the market seems to be recovering somewhat from the long depression. Local packers, however, still show little anxiety to buy. They still offer 1½ to 2 cents in the sweatbox, the quotations below being for packed stock.

Evaporated Apples	5	@ 6¼c
Figs, black	3	@ 4 c
Figs, white	3½	@ 4 c
Apricots	7½	@10 c
Peaches	3¼	@ 4½c
Prunes, 4-size basis	2	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

This market is rather quiet at present. There are plenty of walnuts on hand, with only a moderate movement, and the situation in almonds is unchanged, supplies being closely held at firm prices, with a strong demand.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c
WALNUTS.	
Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Honey is entirely nominal at present, with no movement whatever. The market is entirely bare of the better grades, and the limited offerings of undesirable stock are hard to dispose of at any price. The new crop, however, is expected to appear within a few weeks.

All grades nominal.

HOPS.

Hops are still dull. Old stock is pretty well cleaned up, and holders are unwilling to sell at the prices now offered. So far little has been done in the way of contracting for this year's crop and the market outlook is not considered encouraging.

Hops	6 @ 8 c

WOOL.

The spring clip in California has found an unusually ready market, and a large part of the stock has already been disposed of. The southern market is about cleaned up, and the usual Red Bluff sale will not be held on account of the small amount now offered. Prices are unchanged.

Red Bluff, choice, f.o.b. S. F.	16	@18 c
Middle Counties, free	13	@16 c
Southern, free	12	@13 c

Defective wools, 2 to 3c. lower.

MEAT.

Grass-fed beef is beginning to arrive in rather larger quantities, causing some decline in dressed meat, though the supply is still moderate. Dressed mutton and lamb are also a little easier, but live stock is unchanged.

Beef: Steers, per lb.	7¾	@ 8¼c
Cows	7	@ 7½c
Heifers	7	@ 7½c
Veal: Large	6½	@ 7½c
Small	8	@ 9 c
Mutton: Wethers	7	@ 8½c
Ewes	6½	@ 7½c
Lambs	8½	@ 9 c
Spring Lamb	10	@11 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	4½	@ 4¾ c
No. 2		4¼ c
Cows and Heifers: No. 1		3¾ c
No. 2		3¼ c
Bulls and Stags	2	@ 2¼ c
Calves: Light	5	@ 5¼ c
Medium	4½	@ 4¾ c
Heavy	3¾	@ 4¼ c
Sheep: Wethers		4¾ c
Ewes		4¼ c
Lambs: Yearlings		5¼ c
Spring Lambs	5¾	@ 6 c
Hogs: Grain fed, 100 to 150 lbs.		7 c
150 to 250 lbs.		7¼ c
250 to 325 lbs.	6¾	@ 7 c

Common Hogs, lb..... 4 @ 4½c
Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., April 27.—There has been no improvement in citrus conditions since last week, prices remaining about the same and much lower than at this time last year. This is on account of the very heavy shipments, the April average being 1400 cars a week, as against not much over half that amount last season.

A very large quantity of fruit is now being disposed of in the Eastern auctions, 159 cars selling in that manner on Monday. The average price for orchard run navels was about $2.50, with other varieties about on par with navels. A few of the well known top-notchers sold at over $3, while some of the weaker fruit went for nearer $2. With the country very nearly overstocked and no orders coming in, the auctions will have to take more than their usual quota. The fruit must be moved at once, for it is getting very ripe and growing in size all of the time. Some cars now run to 75 per cent of 126s and larger, and it is next to impossible to get out what is known as a standard sized car without robbing other cars of their quota of the smaller sizes. The off varieties, sweets, seedlings, bloods and St. Michaels are running very small and serve to work in nicely with the oversized navels.

Navel quotations at this end are just the same as a week ago. The asking price for orchard run stock is $1.65 a box, and as this is higher than the delivered price after the cost of freight and icing is deducted, there is almost nothing doing in cash orders, most of the jobbers preferring to buy the fruit at their doors. It is just the same with seeds, Mikes and sweets, all selling delivered. Mikes are quoted as high as $2 a box cash California, sweets at $1.85 and seeds at $1.65.

The little flurry in lemon prices caused the shippers to get right down to business and 175 cars went out last week. With a very large stock of poor fruit in storage here prices cannot get very strong, and it now seems would go lower. A very good lemon can be bought for $1.65 cash and prices range from $1.25 to $2.40, according to quality of fruit and the shippers judgment of prices warranted.

The total shipments to date have been 17,951 cars of oranges and 2571 cars of lemons, as against 16,688 oranges and 2106 lemons to same time last year.

"VACATION, 1909."

Now is the time of the year that the ever present question pervading the family council is, "Where shall we go, or what shall we do this summer?" The planning and scheming period is now upon us when our thoughts turn from the sordid pursuits of city life; for man hath need of rest and he longs for the simple joys the country yields. We all wish to set aside for awhile the cares and worries of business and visit the Blessed Isles of Rest and Recreation.

To aid you in selecting a place for your outing or to locate your family for the summer so as to make possible the week-end trips, the NORTHWESTERN PACIFIC RAILROAD, the Picturesque Route of California, has issued a book called "VACATION." This book describes the garden spots and playgrounds of California in the counties of Marin, Sonoma, Mendocino, Lake and Humboldt. You can find in this book some place to suit your fancy and your purse, whether it is to fish, hunt, swim, rusticate on a farm or visit the numerous mineral springs or resorts.

The issue of "VACATION, 1909," is now ready for distribution and can be obtained from the NORTHWESTERN PACIFIC RAILROAD, at the Ferry Ticket Office, the up-town office, 874 Market Street, and room 986 (general office), Flood Building, San Francisco, Cal.

PUBLISHER'S DEPARTMENT.

This office has had the pleasure of beholding the illuminating countenance of H. W. Kruckeberg of Los Angeles the past week. Mr. K. prides himself upon occupying the place in horticultural printing on the Pacific coast that J. Horace McFarlan does on the Atlantic, and we believe that he is making good. Several notably handsome pieces of printing have been turned out by the Kruckeberg Press during the past season, and on this trip to San Francisco we know that catalogue work of the highest class has been offered him.

The R. R. Rogers Chemical Co. last week shipped ten barrels of its Spra-Mulsion to Mr. Earl Rogers at San Jose. The University of California bought the Spra-Mulsion to exterminate the Argentine ant, which made its appearance at fourteen or fifteen different points in the San Jose country and now it has spread out over a large area. The Spra-Mulsion is sprayed wherever an ant hole is found. Sonoma county officials are using Spra-Mulsion to kill off the caterpillar and aphis. Napa county is using it upon the brown apricot scale and Inyo county is trying it upon a scale which has recently made its appearance there. The University of Nevada and horticultural inspectors of twelve other counties of California are using Spra-Mulsion for insect pests. Besides some prominent citrus growers are spraying their groves with it in southern California.

The poultry business is being carried on in this State under more favorable conditions than elsewhere and the demand is large and increasing. Attention is called to the Spring Valley Poultry Co. advertised in another column, where the business is carried on extensively, concerning which circulars can be obtained upon application.

The Auto-Fedan Hay Press Co. of Kansas City have an advertisement in this issue. Concerning this press the following letter from W. C. Mayhew of Moorpark, Cal., will be of interest: "The Auto-Fedan is a dandy. I have done better bailing and more of it at less expense than with any press I ever used. I baled 16 tons in seven hours out of the stack." The company have agencies at Sacramento and Los Angeles, and either place will be glad to answer inquiries.

Attention is called to the advertisement of the Tuttle Elixir Co. in this issue. Regarding the efficacy of this remedy a letter from Jess Knight of San Pedro, Cal., who owns a livery stable there, states that he has used Tittle's Elixir with satisfactory results in the cure of curbs, spavins, sprains, splints, and kindred diseases. "It is the very best veterinary preparation I have used. It gets there every time."

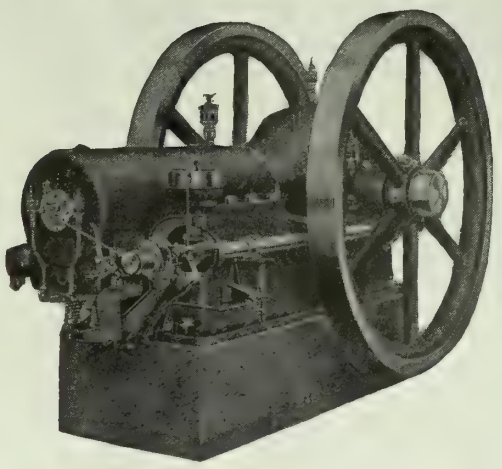
HARVESTER CO. HAS PROFITABLE YEAR.

According to an Eastern dispatch there is money in farm machinery manufacturing in this country. The item states that notwithstanding the reduction in the volume of business in 1908 due to the financial depression, net profits of the International Harvester Company were greater than for 1907. Sales last year were $72,541,771, as compared with $78,206,890 in 1907, a 7 per cent decrease, but net profits last year were $8,885,682, as compared with $8,080,457 in 1907. This represents more than 7 per cent on the total paid up capital.

Careful economies, without any reduction in wages of employees, were chief factors in the favorable showing. Dividend payments of $4,200,000 left an undivided surplus of $4,685,682 for the year, which, added to the previous surplus of $12,006,306, yields a total surplus on hand of $16,691,989.

During the year the company reduced its current liabilities from $19,509,412 to $14,066,052, a net reduction of $5,443,360. It expended $1,839,844 for plant maintenance and repairs, and $743,557 for experiments, patents, etc., to increase the efficiency and durability of the implements manufactured.

THE FIELD ENGINE



Here's Value for Your Money.

This engine is built right—operates right—and sells at a price in reach of all.

Operates on gasoline, alcohol, distillate or gas; 4 to 30 H. P. in stock — Stationary or Portable.

CALL OR WRITE FOR CATALOGUE F.

HENSHAW, BULKLEY & CO., Agts.
San Francisco.

ABOUT BUYING A WAGON.

A mistake in buying is a costly mistake. A wagon is used so much that it must be strongly built and it must be of good materials. There are machines a farmer may try to economize in, but the wagon is not one of them.

The better plan in buying a wagon is to get at once right to the root of the matter and decide to buy something known to be standard, such, for example, as the old-time favorite Weber and Columbus wagons, which are sold everywhere by local agents of the International Harvester Company of America.

There are many wagons on sale. You cannot be acquainted with them all. And again you may not be a judge of true wagon requisites. If you are not posted, it is well to bear in mind that paint and varnish may cover many serious defects. But you take no chance whatever in buying one of the I. H. C. wagons above mentioned. They are known and recognized all over the country as among the first and best of the high grade wagons. You are sure you are not making a mistake in buying one of them. There is no question as to whether the right kind of wood is used, whether it is properly seasoned or whether it is properly ironed. These are wagons for heavy roads and rough roads and for all climates. They afford greater strength and carrying capacity for the same weight and draft. There is no swelling and no shrinking and drying apart in different kinds of weather.

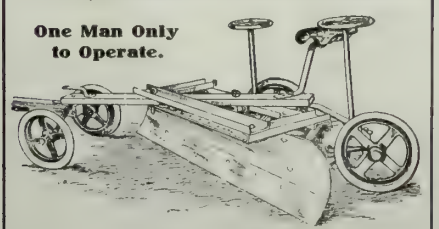
Our advice is not to look for a "bargain" in a wagon. Be willing to pay a fair price and insist on quality. That course insures satisfaction months and years after the purchase is made and the paint and varnish have begun to wear off. It is the course that will save many a repair bill which makes the real cost of the "cheap" wagon much more than you bargained for when you made the purchase.

A wagon of known dependability, bought for a fair price, from the responsible local agent of a responsible company is the one that will prove to be the true bargain. Catalogs setting forth the merits of the wagons mentioned above can be had from International local agents or by writing to the home office of the company at Chicago.

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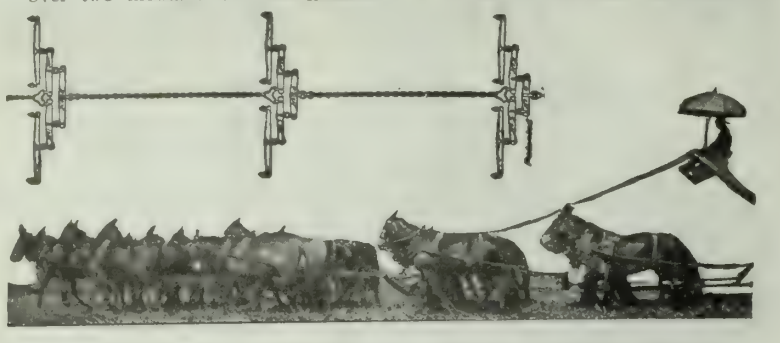
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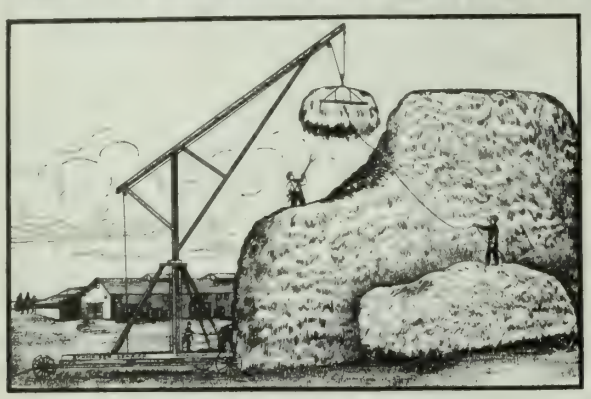


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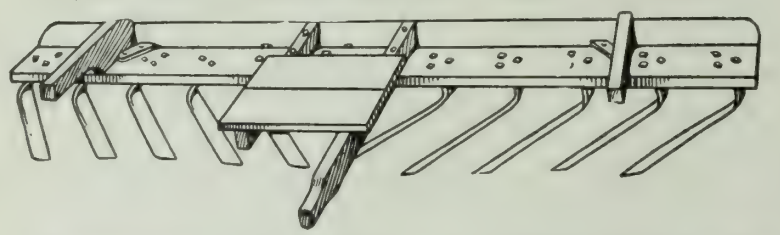
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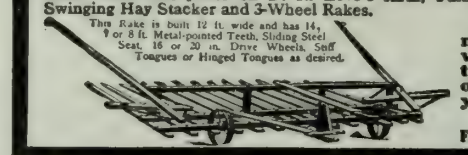
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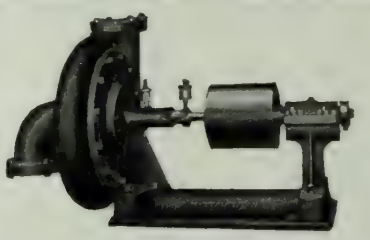


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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 19. SAN FRANCISCO, SATURDAY, MAY 8, 1909. Thirty-ninth Year.

The Cork Oak in California.

California has more than a score of oaks of her own—native sons of the golden west. These trees, with their great variation of form, size and choice of situation, taught the pioneers that California was a land of oaks. How natural it was then that the old timers, being somewhat familiar with the drawing of corks, should be impressed with the fact that though the country was rich in oaks, none of them were of the kind yielding cork. An appeal therefore went forth in the '50s to the United States Commissioner of Patents, who was the official farmer in those days, that he should procure from Spain acorns of the cork oak, so that this land of oaks should become the home of cork for the United States, and good, patriotic, home made liquor should no longer be submitted to the indignity of imprisonment by a foreign cork.

Thus it came about that Mr. J. Holt, Commissioner of Patents in 1858, secured from the south of Spain large quantities of the acorns of the cork oak, and evidently scattered them quite widely in California, for twenty-five years ago we personally knew of cork oaks bearing acorns in Los Angeles, Tulare, Calaveras and Sonoma counties, and there were probably others. In 1885 the Agricultural Department of the University of California began distribution of acorns gathered from trees in Los Angeles and Calaveras counties, and nearly all parts of the State were reached. From these came what may be called the second generation of cork trees in California, and they are now attracting much attention by their growth as significant of the fact that California may ere long have a share in the world's supply of the buoyant bark. The beautiful tree shown in the picture on this page is growing in California, and though we cannot at the moment place it and give its history, we judge from its aspect that it is one of the second generation trees and therefore approximately 25 years of age. It is growing in its natural form in open ground and therefore branching lower than is desirable in cork-producing trees, which should have a tall, straight trunk from which a considerable area of clear bark may be removed.



A Good Specimen of California-Grown Cork Oak Trees.

Commercial cork is of several grades, with corresponding uses and values. When growing wild the cork oak sheds its outer bark naturally, but such bark is of no value. The bark of young trees, even if artificially removed, is of low value because of its coarseness and fissures, and is used for tanning or for fuel. When this removal is made at an age of 15 or 20 years, there comes in about ten years a growth of finer character, but still rather coarse, which is used for nets, life preservers, etc. The true, high-value cork begins with the third peeling, about ten years later than the second, and by this time the tree is approximately 40 years old. Thence onward, for two or three centuries perhaps, the tree is productive of good cork, yielding a crop about once in a decade, the quality advancing with the age of the tree. The best cork, which is not less than 1¼ inches thick, is described as supple, elastic, neither woody nor porous, and of a reddish color. This is what the French call "velvet cork"; yellow cork is inferior, and white cork poorest of all.

As may be inferred, the removal of the outer bark is not injurious to the tree. Circular cuts and vertical cuts are made on the trunk, with care not to injure the inner bark, and the outer bark is removed at midsummer, when the second sap is flowing plentifully—the time we choose for budding ordinary fruit trees,

[*Continued on Page 351.*]

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., May 4, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.00	42.06	42.85
Red Bluff	.00	30.56	23.49
Sacramento	.00	21.75	19.18
San Francisco	.00	25.57	21.45
San Jose	.00	18.26	12.41
Fresno	.00	9.79	9.07
Independence	.00	8.00	8.91
San Luis Obispo	.00	31.37	19.75
Los Angeles	T	19.07	15.21
San Diego	T	10.23	9.66

The Week.

We have been wondering all during these warm, quiet, sunshiny days, with temperatures in the '70s and '80s, according to location, what the throngs on the overland trains have been thinking of the great blizzard they left behind them in the Mississippi Valley and eastward. No doubt our distinguished guests from Florida, whose coming was noted in our last issue, have been nervous lest the tail of the meteorological monster should be long enough to lash the Gulf Coast. No doubt many will assure them that such things have never entered California territory, so that we do not need to enlarge upon that point. The mind of the Californian never loses interest in the contrast of conditions which is so often dramatically presented. Over wide groups of Central States temperatures have been reported down to 20°, and thick ice on quiet water in fruit and truck districts, where the injury must have been great and widespread. The details will come later and will explain much of the present disposition to move to California. It was telegraphed from Ogden on May 1 that over 1000 colonists and homeseekers from Eastern, Middle and Southern and Southwestern States passed through that point en route to California and the Pacific Northwest. As a result of this rush of people westward, trains were sent out of Ogden in two sections, and every coach in the long trains was crowded to the limit with passengers. The rush was expected to last several days.

Another item of contrast is seen in the eagerness with which Colorado is going into frost prevention undertakings. The story is that at Grand Junction on May 1, 200,000 "smudge pots," watched through the night by an army of men, women and children, probably saved the fruit crop of Grand Valley, estimated this year to be worth $3,000,000, from destruction. All during the night the country was lit by the glare of the fire-pots distributed throughout the orchards, practically every able-bodied man and scores of women and children in the fruit districts staying up all night to replenish the fires. The contrast is found in the fact that though this style of frost-fending was first put in operation in this State, the chances of frost injury are so small that the common conclusion now seems to be that it is cheaper to freeze than to fight frost.

Returning for a moment to large movements of people, we note that Agnes C. Laut, the author of "The Conquest of the Great Northwest," has an interesting article in "The Last Trek to the Last Frontier" in the May Century. In less than six years 388,000 American farmers have left their homes in "the States" and moved to free homesteads in the Canadian Northwest—a region in which the writer has recently traveled. This immense migration she calls "one of the most epic movements of the century." The "lure of the wheat" is the chief factor in the great gamble. And yet the closet economists keep telling us that the American continent has passed its maximum of wheat production and we shall soon have to depend upon chemical bread—a modern version of the parable about asking bread and getting a stone. When reports of this movement northward of 60,000 a year of Americans into Canadian territory depress us because of losing population which our own country needs, we always console ourselves with the California view, viz: that every increase in population and development of that far northern country is really an advantage to California. It makes new markets for our fruit and other high-value products, and gives us cheap wheat, which we cannot afford to grow because we can do better with the land in higher cultures. No matter how much they do with hardy fruit at the North, we can always have ripe fruit for them while their trees are blooming, and mature vegetables while they are sending off orders to the seedsmen. Besides the whole group of tender fruits, semi-tropical and others, we can send them without chance of competing with local crops. Go ahead then with the development of the North; whoever gets rich in wheat or other product of the North will want to live in California as soon as he can. Every development west of the Rocky Mountains helps California in one way or another.

But not only do hard-earned Canadian dollars go well in this State, but easy money, even if slightly tainted, seems also to help California forward. The daily papers speak of investment in light and power in this State which are reaching great figures. It is said that J. Pierpont Morgan has blown sixty millions into California enterprises since January 1, and those who know Wall Street say that these deals presage the investment of many millions of Eastern capital in this State, and, most important of all, indicate that in the judgment of the astute Eastern financiers California's prosperity is assured. While these things are going on it is no wonder that California values are hardening and that food producing enterprises are confident.

Speaking about easy money, on a very little scale of course, we are reminded of a thrilling disclosure which is telegraphed from Los Angeles about Rainmaker Hatfield's return to the southern paradise. The claim is that he returns south "from the San Joaquin valley, where he spent the winter in successfully increasing the rainfall of that section of the State from 8 inches, last year's record, to 13.6 inches for this season." and for this distinguished service the San Joaquin people "gladly paid him $3000". We do not wonder so much at that, because these people have been just as foolish before, but the surprising thing is the disclosure of Hatfield's method, thus: "In his 'rainmaking' Hatfield did not use explosives. His method was to place large trays containing water on top of towers 25 feet high, erected on elevated points. As the water evaporated under the rays of the sun the vapor, combined with electricity and chemicals, was used in causing the moisture in the atmosphere to condense into rain." Oh well, what is the use writing about it? Hatfield is not giving the people a square deal with his disclosures. We are sure he used a little planetary conjunction and a little precession of the equinoxes and some other strong stuff—but of course he does not want to give the business away.

Has any reader tried English sparrow pie yet? We are going to lose that pest through our appetites. And we are going to lose another pest through our fears. The State Board of Health and the United States Health Service are in conference about the best plan to exterminate the squirrels in Contra Costa county. The United States Government has contributed a sum of money to be used for that purpose, as the squirrels in that county are said to be so numerous as to endanger the health of the community by distributing contagious diseases. The officials are very cautious about saying just what they are aiming at, but it might as well be stated. The ground squirrel is to be attacked because he is probably in partnership with the rat in dealing in bubonic plague, and has already hit the human species in one or two cases with it. We say this because it will give people a disposition to help the health experts in doing up the squirrels, and their doing up is a thing to be earnestly desired. If people can be scared into exterminating them it will be a great gain.

And here is another thing to be governmentally exterminated. We really did not know that porcupines were a scourge, but it seems that they are —in our porcupiny woods. The United States Forest Service has under consideration plans by which to exterminate porcupines in Inyo county, in order to save the forests from destruction. Reports have come from Mr. Bishop, calling attention to ravages caused to the pine forests of the eastern slope of the Sierra by these animals, which destroy the trees by feeding on the inner bark close to the ground. Fully 25% of the trees in that vicinity have been killed by these animals, which prove a veritable pest, and must be exterminated to save the forests.

This is another instance of the moderately paternal character of our government, and we ought to be glad that it is not so sternly paternal as is, for instance, the Syrian Government, which makes the people protect themselves. They had a hard go with grasshoppers in northern Syria last year, and the Government appointed a commission empowered to exercise such means as appeared most effective toward exterminating the insects. The commission therefore required that every rural inhabitant collect and deliver to the Government at least 55 pounds of locust eggs, under penalty of a fine. This has resulted in the gathering of a total of 629,882 pounds of eggs. In addition, the surface of certain territories was plowed over to an equivalent of over 4000 acres. This is the way a really paternal government goes at it. It commands the people to dig eggs and plow fields, and they have to do it. We remember a few years ago, when there was a local swarm of grasshoppers in a foothill county, and an expert advised that the fields be burned over to kill the hoppers before they took on wings and flew to devastate the valley. The whole enterprise was stopped by a landowner who secured an injunction because such a fire would destroy his dry feed. What would have

happened to his dry feed in Syria? He would have been required to burn it himself. We are therefore only moderately paternal—but perhaps paternal enough.

A brave effort is being made in Washington to raise the tariff on lemons to a figure which will enable California growers to compete on fair terms with foreigners and shut out over three million dollars worth of importations. Four prominent representatives of the lemon interests are now in Washington. They are A. F. Call, B. A. Woodford, C. C. Teague, and G. A. Charters. They are being vigorously assisted by the California delegation, and the case is a strong one. The California lemon industry needs more protection to reach a fair basis for competition, and on that basis it is confident of success. The New York trade is the influence which has to be fought, and how little that trade cares for the country is shown by its attitude on another delicacy somewhat removed from lemons. The report is that 200 members of the New York Produce Exchange have organized to induce Congress to place Danish cabbage on the free list in the tariff law. The duty at present is 3 cents a pound, and they claim there is a demand in this country for the vegetable which cannot be supplied by home production. Just think of that. The United States not able to supply its own people with cabbage! What a humiliating claim. Why, California alone could produce enough to supply the whole United States, but that is not necessary because the East can produce its own main supply, with California to help out with her sauerkraut as a spring tonic. And yet the New York traders are proclaiming to the world that the United States cannot grow cabbage! Do they really desire to stop German immigration to this country? We pause for reply.

Queries and Replies.

Winter Irrigation.

To the Editor: Most of the irrigation in this section is done in the early winter, and that may be all right for a dry year, but I cannot see the necessity for it when we have a winter like this one with 17 inches of rain. I covered my orchard with a good coat of manure last fall, got a good growth of green stuff plowed under the first of April, but could only harrow lightly because of bringing too much of the grass on top. How long should I let it lie before working again, and how should it be worked? Now, as to green stuff in the orchard, the practice with most is not to let a spear go to seed. That may be all right, but it seems to me that we might have a better growth of grass if we were not so careful to kill everything. Of course the ground must be kept in good condition. Can't this be done without killing every spear, especially the early seeding kind, such as burr clover or filaree, which are both good green cover crops.—Beginner, San Benito county.

Winter irrigation is undertaken for the purpose of storing water in the soil for the growing season. With 17 inches of rain you might not need irrigation, provided you cultivated well and provided the soil is not leachy; that is, is deep enough and retentive enough to hold moisture for growth during the latter part of the summer. But even under good conditions you will find more than 20 inches desirable, and winter irrigation may insure this. You are right that a considerable amount of winter growth of grass, weeds, clovers, etc., should be worked into the soil for the improvement thereof, but if you have a large amount of coarse grass turned under late it is liable to do more harm than good, because it facilitates the drying out of the soil. Instead of using the ordinary harrow you should disk the land so as to cut up and reduce to a fine condition, clods, grass, etc. In this way you will find that you can succeed much better than by the use of the ordinary harrow. As for growth late in the spring or early summer for the sake of getting seed into the ground, it is very dangerous when you are near the edge of the moisture question. You can buy seed cheaper than you can grow it when the trees are likely to need every drop of the water which you can save by clean cultivation.

Weeds and Young Alfalfa.

To the Editor: On March 1 I sowed on a half acre of ground twelve pounds of alfalfa seed. Owing to the long rainy spell in January and February my ground was not in a condition to seed earlier. The soil is a fine sandy loam. I now find the whole patch covered with a thick growth of dog fennel and May weed as thick as it can stand, pretty much all over the ground. What will be the outcome; will the alfalfa when well rooted kill these weeds, or will the weeds choke out the alfalfa? It is not possible to destroy the weeds without plowing them under, which I do not want to do, and lose all the labor and expense put on the ground, unless there is not another way. What would you do?—Farmer, Yolo county.

We would mow the dog fennel to give the alfalfa a chance at the light, providing you find on examination that there is some alfalfa trying to get a start under the dog fennel. If you cannot find this the case is hopeless. If there is struggling alfalfa you can bring it out in this way if you get the irrigation water on as soon as possible, for the weeds have probably pumped out all the surface moisture in making their growth and there does not seem to be much doing in spring rains this year.

Danger in a Leachy Soil.

To the Editor: Will you tell me what is considered the least depth of ground in which it is desirable to plant fruit trees. I mean land from two to three feet in depth, which rests on a bottom of loose round stones with which little or no earth is intermixed. Is such a depth of soil suitable to plant fruit trees in? I should also like to know the effect on vegetables and root crops planted in such ground, which is a well-drained clay loam with gravelly clay subsoil. Is not such soil too shallow for successful fruit and vegetable culture? I have examined a good many works on soils, but none of them seem to go into the question of the depth of soil necessary to bring about successful results. The writers seem to concern themselves almost exclusively with the question of chemical values, water and cultivation and to have disregarded the question of the depth of soil.—Investigator, Alameda county.

If you will read the soil chapter in our book on "California Fruits" you will find a statement concerning soil defects along the line which you indicate, and which are not merely statements of the chemistry involved. As a matter of fact, you must be very careful in buying land for fruit purposes which is so shallow as you mention, especially when it lies upon a foundation of loose rocks or gravel. Such situations are not only well drained, but in many cases too well drained, so that they do not retain moisture enough to enable plants to grow as they ought during the latter part of the season. If trees do well under such conditions it must be by free summer irrigation, using small amounts at short intervals, to make up for the loss of moisture through the rocky or gravelly substrata, because tree roots, although they penetrate very deeply into a good free soil, do not generally extend far into gravel. Vegetables and other shallow rooting crops are liable to suffer even more than trees; in fact, two or three feet of good soil over a tight clay is much better for vegetable purposes with irrigation than where the stratum below allows the water to escape too readily. The situation which you ask about should be carefully looked into before investment. Good things can be grown under such conditions if water, manure and work are used just in the right amounts and at the right time.

Good Spots in Grain Fields.

To the Editor: How do you account for the clumps of extra large, fine vigorous grain which is to be found in all grain fields? This question has been put up to me and I have given my opinion, but for the sake of exactness would like to check it with yours. The reason for it may have a direct bearing on the future handling of our grain land to some slight extent.—Farmer, San Joaquin valley.

We have no general theory to account for the extra fine growth of some clumps of grain in a field otherwise exhibiting less growth. It is probably due to many different causes. Our own observation is that the most common causes are two: first, the accidental or intentional application of animal manure; second, the addition of plant food to the immediate spot by the burning of straw. One can often see such appearances outlining swaths or piles in which straw has been burned. Of course, beyond that, there are often occurences of a little extra moisture in spots, due to various causes. We cannot think of any one condition which would be generally assigned as an explanation of all such appearances.

THE CORK OAK IN CALIFORNIA.

(Continued From Page 349.)

when the bark lifts easily. An interesting story is told of barking oak trees in Spain, perhaps a century ago, which illustrates the effect of the operation. It is said that a contract was made with the Government for the removal of a quantity of the finest cork from the Sierra de Morena, near Seville, the contractors being required to take the inner bark as well as the outer. The Government evidently needed a lot of money, and proposed to make the contractor take as great weight as possible. It was not the greediness of the contractor, for the inner bark is of no use except for tanning. He lived up to his contract, however, paid his bill, the Government gaining the money but losing the trees, occasioning a national loss of an immense number of valuable trees.

Whether this generation of Californians will enter upon the cork industry for the benefit of their successors we cannot tell. We do not hear of any great scramble in that direction. Cork returns will evidently not be as heavy as the prospectuses of companies for eucalyptus planting, but perhaps that is in the nature of cork. The speed of realization may be about the same, because, if we read aright, about ten years is all that is needed to grow a wealthy crop of eucalyptus timber, but that begins from the ground up, while a cork oak tree has to grow about twenty years to the point of beginning. We cannot therefore conscientiously back the cork oak against the gummers: they have the advantage of us. And yet there are some glad figures in cork. According to a bulletin issued in 1904 by the Chamber of Commerce of Cadiz, the production of cork in Spain was estimated at 28,450,716 pounds; in Portugal, 32,515,104 pounds; in Algeria and all other corky places, 20,321,940 pounds, or a world's total of cork annually of 81,287,760 pounds. We have no way to estimate the value of this raw product, but in 1902 Spain exported 4,360,698 pounds of manufactured corks, which were valued at $4,445,700. If the reader can fix the relation of raw material to manufactured product of corks, he can get some edification from these figures.

Horticulture.

CALIFORNIA GROWN SEEDS.

Mr. B. Hoffmaster of Stanislaus county writes to the Rural New Yorker as follows: A trade paper recently stated that a California seed firm had secured a contract for seeds amounting to $100,000 or over. Is it any wonder that the government gets poor seeds when they buy from the lowest bidder? A few years ago I helped my employer ship a lot of government seeds which, if sent to a reliable dealer, would have been returned. I am still in the seed business, but do not sell government seeds, as I value my reputation too highly. Some of your correspondents want guaranteed seeds. I would not warrant results from our best stocks of tomato seed, yet they are carefully grown from selected stock each year. One could guarantee no sports in the patch from which seed was saved; but winds and insects sometimes make trouble. Selected seed from the common sort of tomato would be worth $3 to $5 per pound, while the common stocks sell at wholesale for as low as 60 cents. Some dealers using cannery stock sell for much less than that.

Let the government spend its money raising good seed to sell, instead of buying seed that will not sell in the trade, to give away. It seems that our servants, the Congressmen, think themselves quite generous when they hand out presents that no one wants and which the recipient must pay for.

[This is, of course, an old question and bids fair to continue unsolved so long as Congressmen like to have things to give to their constituents. About the only consoling thought is that the U. S. Department of Agriculture now tests all seeds before buying and therefore gets into the hands of Congressman seed which is more likely to grow than the stuff they formerly had, but Congress will not agree to restrict distribution to new things grown for that purpose. They must have quantity, quality is possible; but, in any event, quantity.—Editor.]

THE ALLIGATOR PEAR.

Those who are interested in this fruit, which is slowly reaching greater importance in California for home supply, in competition with the Hawaiian product, will be interested in this note of the Florida fruit as sent to the Rural New Yorker by Mr. Charles Parry of Miami:

"The last of the crop of Avocado pears has been sold, and the prices received the past winter are the highest ever realized. The price on these pears has been steadily rising during the last 10 years. They are packed in crates holding three dozen each. They sold in early December, in lots of 100 crates, at $12 per crate, or $4 per dozen. At Christmas they brought, as usual, $6 per dozen. During January they sold at $1 each, and higher during February. There was a fine lot exhibited at the Dade county fair, March 2 to 5. At the close of the fair these sold readily at $2 each. It is certainly encouraging to the growers to know that there are people willing to pay $2 apiece for these pears when they cannot be had for less."

A PERTINENT QUESTION.

To the Editor: Can you tell us what is the matter with the raisin marketing? I notice the market price of Sultanas, according to your market report, is 2 cents per pound. Here we are paying 15 cents, or two pounds for 25 cents, and they are difficult to get at that price. Where does the 13 cents get to? The average family would probably use a large quantity at a reasonable price, and use up all the holdover, but at such retail prices and large stores without any in stock, the present problem will remain unsolved.

A Would-Be Buyer.

Redding.

[This is the situation we alluded to in our editorial comments in the issue of April 24. It ought not so to be. When raisin producers are effectively organized they can correct it.—Editor.]

LOMPOC APPLES.

To the Editor: A word to the answer you make to the inquiry of Mr. Henry Hazlitt of Dixie, Idaho, in regard to apple growing on the Pacific coast.

While you are correct in regard to apples coloring on the coast, and while they do not color so high, the better keeping qualities will more than balance. No better place can be found than the Lompoc valley for growing the standard California apple. There are but few pests, cheap land and a good market. Our climate is death to the codlin moth and the San Jose scale has practically no effect on the tree, but of course will mark the fruit.

J. A. Stambaw.

Lompoc.

[It is not demonstrated that the coast apples keep better than the mountain apples; in fact there is some reason to think that they do not.—Editor.]

Citrus Fruits.

THE HANDLING AND MARKETING OF CITRUS FRUITS.

Written for the Pacific Rural Press
By T. C. Wallace.

The Riverside Y. M. C. A. winter course of lectures and discussions on questions arising in the culture and marketing of citrus fruit has ended. As the last meeting was on the matter of handling the fruit from tree to market, Mr. Powell was asked to preside, as he has been more prominent than any one else in studying the essentials of fruit handling and pointing out the preventable causes of decay.

Mr. Charles C. Chapman of Fullerton handled the subject from tree to car and Manager Woodford of the Exchange went to market with the fruit. Neither gentleman went much into details, as a detailed account of the work would take more time than was at their disposal.

Mr. Chapman drew attention to the fact that the encyclopedias have not yet found the California Washington Navel, except in a very general way, but that they keep up their old type which extols the Florida orange in its superiority to the Mediterranean productions. He did not apply extravagant language to a description of the navel or Valencia, but the expression of his face and the smile as he asked the question, "what do you think of that?" needed no words to tell that he considered the California fruit as the best in the world and explanation unnecessary. He emphasized the necessity of having picking ladders taller than the trees, so that they will do no damage by getting tangled in or breaking the branches or bruising fruit. He advocated picking bags capable of holding about half a picking box of fruit and without great rims at the top to keep them open so that fruit could be "fired" into them. He said it was quite practical to hang a bag so that the fruit could be easily put into it, and in such a bag the fruit is more gently placed than in a wide open bag into which the inclination is to toss, or even what is best described as "fire," the fruit. Another point in fruit work which seemed vital to Mr. Chapman was the construction of the picking boxes. He condemned the use of packing boxes for this purpose and he advocated a carefully constructed picking box with corner and top guards and hand-holes in the sides to handle them by. Mr. W. G. Fraser demurred to this and feared damage from the finger nails through the hand-holes, but the speaker thought the inside top guard strip protected the fruit by not allowing it to come to the hand-hole. In emptying the fruit from the sacks into the boxes he said that the boxes should always be set two high and never three high. To empty a sack into a box on the ground, risk of bruising the fruit is too great, while when the box is piled in third tier the lifting of the sack over the rim so as to deposit the fruit is too rough an operation. He advocated the spring wagon, but emphasized this more strongly where the distance to the packing house was an item. The narrow low wheeled wagon he considered a necessity to protect the trees when well grown. He believed navels should be packed as promptly after picking as possible, though the Valencias were improved by keeping a few days, even a week. The grader seemed the grand-stand in his packing house detail. Constant care and extreme watchfulness were necessary to keep both the machinery and the hand graders up to the point of best work. The machinery required watching at the sizer, at the leads, and at the bins, but the hand work required close overlooking to prevent lapsing. The packing required a full box, but not so full that the power required to put on the cover drove the oranges together so that they were a study in geometry when unpacked. While Mr. Chapman went so far as to say that the best picking ladder was made in Riverside, he was careful not to appear as advocating any particular clipper or packing device, but he emphasized that care and attention to details were the secrets of his own success. He eulogized the work of Mr. Powell in searching out and pointing out the causes of decay as mostly due to the handling of the fruit, and in teaching us that the orange was practically immune from decay if carefully enough handled. That the price obtained for the fruit permitted of the necessary care in handling made it lucrative as well as pleasurable to put up a perfect pack.

Manager Woodford of the California Fruit Growers' Exchange followed Mr. Chapman with an impromptu address, and in his terse way he told his hearers that the time had arrived when the fear of overproduction of citrus fruit was no longer a bugbear. The Exchang, he said, had now 60 per cent of the oranges, while the packer-growers had about 20 per cent, leaving only about 20 per cent now in the hands of commercial packers and local jobbers. The grower-packers, like Chapman, Chase and the Lemoniera, etc., were practically all large growers, which accounted for their having such a proportion of the fruit as 20 per cent. The Exchange had increased the sales 40 per cent in Iowa last year by a campaign of advertising, and they are now extending this work through several States with gratifying success. Of course this advertising assisted the whole shipment of fruit, or such of it as sought business within the area covered by the newspaper advertising. Mr. Woodford pressed home the point that there were three distinct, yet dovetailing, phases of the orange business that must receive equal consideration, as they influence to the point of depending upon one another.

First, the grower must produce good fruit, and this entails not only his selection of bud, but as well his methods of culture.

Then the mechanical work of gathering and shipping the crop requires expert attention.

Finally, the selling organization through which he sold his fruit must by methods and attention find, develop and supply the market.

He noted that all along the line progress was being made so that each year made the business safer, until now we can say that the California citrus industry is on a sound basis in keeping, and mayhap in advance, of any agriculture on earth. Today the investor in California orange groves took no more risk than in any other established industry.

LEMON BY-PRODUCTS.

To the Editor: In your issue of March 20, Mr. C. C. Teague answers an inquiry about a method for bottling lemon juice. Having manufactured citric acid in large quantities in the East, I was interested in Mr. Teague's reply; and in the main he is certainly correct. As regards lemon juice, I do not believe that any considerable outlet could be found for it, except it were concentrated and sold to citric acid manufacturers. I think there is only one plant of any importance which manufactures citric acid on this Coast.

Lemon juice, even when concentrated, is subject to decomposition. Eastern manufacturers sometimes get the concentrated Sicilian lemon juice, but they much prefer the dry citrate of lime (or calcium citrate—not citrate of lemon).

If Mr. Caulfield has an idea to market bottled lemon juice, to go into consumption direct as food or beverage, he can use only healthy (untainted) fruit; whereas, if he wants to dispose of all culls, windfalls, etc., he can market his product only as crude material for citric acid manufacture. But in the one case his market will be very limited.

while in the other he would probably have no difficulty in disposing of all his waste product.

As to the profit to be made, that is another matter. It depends upon the quantity of material and the method of handling it. The most satisfactory would be the production of calcium citrate; but one who has little or no knowledge of chemical processes had better leave it alone, for to learn by practical experience is far too costly in this case.

The way to handle such an undertaking would be to form an organization of citrus growers, and erect a suitable plant of suitable size to handle all the waste citrus fruits of a community, placing the manufacturing operations in charge of a competent person.

Citrate of lime is a stable substance. Its only use is for the production of citric acid. Citric acid is a solid, white, crystalline product. It is used largely by confectioners and in foods; but because of its high price there is frequently substituted for it tartaric acid (the acid of the grape), which is about 25% cheaper. As neither of these acids is subject to decomposition in the dry state, they are used to the exclusion of juices or solutions. Syrups used at soda fountains are of course mixtures; for instance, lemon syrup would contain sugar, citric acid (or tartaric acid), and a little oil of lemon.

It is perhaps needless to say that citric acid has no aroma—it is merely acid (sour); the lemon "flavor" is to be found in the rind of the lemon, and is obtained as oil of lemon by special methods of expression. The Sicilians enjoy a monopoly of this industry also, because of their cheap labor.

I trust this may be useful to you in case you have more inquiries along the same line.

PAUL LESSOW.

470 Moss Ave., Oakland, Cal.

NEW CITRUS ACREAGE.

While at the PACIFIC RURAL PRESS office last week, R. M. Teague of the San Dimas Citrus Nurseries gave us some very interesting figures upon the new citrus acreage being planted out this season. Mr. Teague, as the largest citrus nurseryman in the world, keeps in touch with every phase of the industry, and his statements are probably the best estimate of the new acreage being set out that can be had.

It was known last fall that there would be a heavy planting this spring and it was also known that the stock of nursery trees available would not fill the demand. However, very little advantage was taken of this knowledge by the nurserymen generally, and the San Dimas Nurseries made no advance, so that the average price for all kinds of citrus trees will not go much over the dollar mark. Mr. Teague sold over 150,000 trees and has now a waiting list to take all the trees that may not be sold when the final packing is done. Of the three thousand acres to be planted out the Washington Navel, the Valencia and lemons are in about equal demand.

Tulare county leads in the number of young trees, Mr. Teague's estimate being 1000 acres, in Fresno county there will be about 250 acres planted, in southern California proper the acreage will be about 1450, and in Arizona about 250. Contrary to expectations the Imperial valley will not gain much in acreage, while there will be a heavy increase in the Coachella valley. Arizona would have planted out a larger number but for the lack of stock; as it was, much of the stock came from Florida.

Mr. Teague anticipates a larger demand next season than this, and has already sold over 50,000 trees for 1910 delivery at the dollar price. For the year following he has sold some trees at 75 cents, and for 1912 delivery he has contracts to grow trees at 50 cents each. The cut in price he explains by saying that there is so much seed bed stock being planted that he expects the trade to become demoralized. Regarding the great amount of seed-bed stock being set out, he estimates that fully 200 bushels of orange seed is planted which will grow trees ready for market in three years. When one realizes that one quart of seed will make 2800 trees, that one bushel will make 89,600 trees and that 200 bushels will make 17,920,000 trees, the immensity of the stock to be ready in three years can be appreciated. Of course all of the seeds will not grow and make good trees, but cut the number in half—nearly 9,000,000 trees—and then think of this enormous stock ready for one year's planting. The total number of citrus trees now growing in California is only about 7,000,000.

Regarding the question of overproduction, Mr. Teague thinks there is not much danger. With all the planting done in the past our shipments have not exceeded 30,000 cars, the market seems to be constantly expanding, aand the further fact that many trees are being taken out year after year, many groves having been planted in poor locations, and contingencies constanly arising make it improbable that the crop will go to 40,000 cars for a long time.

The San Dimas Nurseries are preparing to exhibit 42 citrus trees of various kinds, in fruit, at the Seattle Exposition. These trees are packed in large Japanese tubs, and with proper care will make an attractive feature at the exposition.

Forestry.

PLAN FOR HIGHWAY TREES FOR CALIFORNIA.

A committee on highway trees consisting of Mr. F. E. Olmsted, United States Forestry Service, Mr. G. B. Lull, State Forester, and W. L. Jepson, University of California, chairman, has been appointed by the counties committee of the California Promotion Committee to make a report upon the best method by which systematic tree planting along the highways throughout the State may be accomplished and as to the most desirable trees for different soils and locations. In the preparation of this report it would be highly desirable to know the experience in various counties, and any one who is in a position to give helpful information is requested to write the committee concerning the following points:

1. What is the best way of planting trees along highways and caring for them until established, i. e., under what authority has the work been done and who pays for it?

2. Under the present law Supervisors of counties may pay persons planting trees along highways one dollar for each tree planted at the age of four years. Has planting been done under this law? Would you favor any change in the law? Can effective planting be done by improvement organizations?

3. Would you favor a law by which cost of highway planting could be assessed to the frontage, i. e., paid for by the property owners? (Under present municipal law cost of street planting may be assessed to the frontage. I doubt, however, if planting is ever done under the provisions of this law for the following reasons. The legal formula which must be gone through with is the same as that for other street improvements. In the case of macadamizing the legal costs are, however, but a small percentage of the total cost to the property owner. In the case of planting trees the cost of advertising for bids alone may be two or more times the cost of planting the trees. There seems to be no doubt that town authorities have the power to plant trees along designated streets and charge the cost to the general fund.)

4. What are the most successful highway trees for different soils in your county? What interval distance do you favor between adult trees?

5. Please suggest a barren highway in your county which if planted to trees would serve as a model for the region and would be of sufficient importance to form part of the State-wide scheme contemplated by this report.

This undertaking is for the purpose of awakening efforts in the direction of the improvement and beautification of our highways, and the committee hopes that, in the framing of the best possible plan, it may count on the helpful co-operation of the public. The members of the committee have undertaken this commission without remuneration. Address replies to California Promotion Committee, Union Square, San Francisco.

WILLIS L. JEPSON,

Professor, University of California, Chairman of Committee for Tree Planting on Public Highways.

Sylviculture.

GROWING THE CALIFORNIA PRIVET.

The California privet (Ligustrum ovalifolium) has the distinction of being known abroad better than it is known at home, although it surely is appreciated here also. It is probably the ornamental plant which has constituted California's greatest gift to the world's landscape architecture, and the ways of propagating it constitute a respectable part of distant horticultural literature. It is interesting to draw phases of its popularity from the columns of recent issues of the Rural New Yorker as follows:

Mr. E. S. Black, writing from Monmouth county, New Jersey, says: The California privet is the most popular hedge and specimen plant that is known or grown. For the past twenty years nurserymen have been increasing their plantings of cuttings, and yet the demand is greater than the supply. One grower alone planted one million cuttings of this popular plant in the spring of 1908, and the plantings will be greater in number this spring than ever before. It is so easily grown that one might think that the plants would soon be a glut on the market, but the demand seems to keep pace with the supply, and, in fact, ahead of it. Not only is this plant popular for a hedge plant, but for beautifying the lawn it has no equal. The expert gardener with his shears finds it the easiest plant in cultivation to trim and train into all kinds of fancy or grotesque shapes. One can see standard plants of this useful shrub rivaling the beautiful bay tree, also the pyramid forms; again it is made into an easy chair form, a bottle, a vase, a globe, or any fanciful form, according to the artistic taste of the gardener. No other plant will stand so much pruning while growing, and at the same time thrive, as will the California privet—hence its popularity. The same rule holds good with it is a cutting; it will grow under the most adverse conditions and for the most careless and inexperienced planter. At the same time, no plant will so richly reward the careful and painstaking man. In good rich soil, where it is well cared for, it gives a wealth of dark, glossy green leaves, and is one of the most beautiful foliage plants in cultivation. The best cuttings are made from wood not larger than an ordinary lead pencil, and without any side branches to cut from it. Cut about six inches long with a knife or shears; tie in bundles of 100 or more, and bury as other cuttings—tops down and bottoms up—or privet cuttings can be put in a cool cellar and packed in moss, sand or sawdust, standing or almost any way, if kept cool. Plant early in spring, and as directed for planting other cuttings, except it is best to leave two or more buds or eyes above ground.

Another Discourse on Propagation.—Another writer in the same journal gives this account: California privet may be grown from cuttings, both of the green and mature wood, as well as from seeds, but seedlings have the objection of not being uniform in character. The most practical means is to take cuttings of the young wood the size of a lead pencil or smaller, some time in midwinter, when the leaves have fallen or can be easily stripped from the twigs. The cuttings are made about eight inches long, tied in bundles of 100 each, large ends all one way. These cuttings are buried in sandy soil, the large or butt end upward, and covered with an inch or two of sand or light soil, over which is placed a very light protection of straw or litter. They are not injured by freezing, and the object of placing them thus is to prevent the tops from starting with the first heat of spring. When the ground can be well worked in spring, it is plowed or otherwise fined in a very thorough manner, rows struck out three feet to permit of horse culture. The cuttings should by this time be well calloused over and then firmly planted in these rows about six inches apart, setting them deeply, so that only one or two buds of the tip appear above the surface. They generally root well under such conditions, and only require clean culture and freedom from weeds to make quite bushy plants by fall. They are used for hedges when one or two years old, setting them in roomy trenches and placing them not over a foot apart for best results.

AGRICULTURAL REVIEW.

Horticultural Notes.

Prospects for a bumper crop of all kinds of fruit, apricots excepted, are excellent in Tulare county.

The San Fernando Press states that the apricot crop will be a large one in that valley, and that the hay crop will also be good.

Advices from Visalia state that the prune crop will be light in that county. Peaches will be a fair crop, apricots light, plums average.

Apricot buyers are reported to be offering growers of the southern part of the State $20 per ton for ripe fruit, and 8c. per pound for dried cots.

A committee of grape growers from Esparto, Yolo county, went to Lodi last week to look into the grape juice industry, with the idea of starting a factory at Esparto.

Beaumont will ship thousands of dollars worth of cherries this season. The crop is an excellent one, and prospects are good for a large almond and peach yield.

Cherries are being shipped from Vacaville at a lively rate, considering that the season has just commenced. The first box shipped from there this season sold for $31 in Philadelphia.

During the month of April there was shipped East, via the Santa Fe railway, 3984 cars of oranges, valued at $4,000,000. This is the heaviest month's business in the history of California orange shipment.

Melon growers of the Imperial country want more ladybugs with which to keep down the aphis, and to supply the demand the State Horticultural Office has men looking through Oregon and Washington for them.

Felix G. Havens of El Centro, Imperial valley, has received several bushels of seeds of sour oranges from Florida, and will plant them on land near Silsbee. When large enough the trees will be budded to navels and Valencias.

A Highland orchardist named W. F. Grow reports a very heavy yield of grapefruit from his 70 acres. From these trees he has taken this season 1000 boxes of first class fruit, which brought good prices in the East. One tree produced 28 boxes.

F. S. Hussman of the U. S. Viticultural Station at Napa has been at Fresno the past week doing experimental work there. Mr. Hussman has a grape in the Sultanina rosea which he believes will become the principal grape in that section, as it is superior to the Thompson Seedless, in that it has a richer color and flavor.

The Riverside Orange Heights Co. has a novel scheme to catch gophers, to prevent them from ruining their nursery trees. The entire plat is surrounded by a trench two feet deep, and in this is being buried wire netting two feet wide and having one inch mesh. This effectually bars out the gopher, and the 300,000 trees are unmolested.

The Watsonville Pajaronian says that not in years have fruit prospects in that section been as promising as now. The apricot crop will be a large one and A1 quality, berries will be a bumper crop, and apples promise a big yield in all varieties. The fruit will be clean and the prospects are that the yield will go 1000 cars over last year's crop.

Cherries have commenced to move, and will be shipped out in car lots from now till the end of the season. Manager McKevitt of the Fruit Distributors is reported to say that the cherry crop will not be large, especially the early varieties. All other fruit excepting apricots will be full yield. Bartlett pears are reported to be dropping.

A largely attended meeting of prune growers called by the committee of fifty was held at San Jose last week. The meeting was for the purpose of perfecting the work of organizing local associations, and after discussion the articles of incorporation and by-laws to govern the proposed prune organization were adopted, and also eleven district associations organized. It is now thought that within thirty days the district organizations for the county will be perfected and the central organization be in shape to handle the crop this season. The following district Prune Growers' Associations have been formed, and will be represented in the central, or County Association: Cupertino, Gilroy, Berryessa, Sunnyvale, Saratoga, Los Altos, Santa Clara, Rucker, Morgan Hill, Moreland, Mountain View.

General Agriculture.

The sugar beet crop in Ventura county is in fine shape, thinning has been done, and the large acreage promises a big yield.

More than 60 cars of hay were shipped from Calexico, Imperial valley, last week. The price for barley hay was $12 and alfalfa hay $10 per ton.

According to the Secretary of Agriculture, the production of beet sugar in the United States in 1896 was 42,000 tons, and in 1908 it had increased to 425,000 tons.

Sugar beet planting in the districts about Hamilton and Chico has been completed, while in the Woodland district the work will not be finished before the middle of May.

The Ventura Democrat says that, owing to the heavy rains leaving the ground moist and cold, bean planting will be late in that county this year. In fact, some of the lower lands will not be planted, which means a smaller crop than usual.

A heavy grain hay crop is being harvested in the Porterville section. The recent high prices stimulated a large acreage, and the local markets will be well supplied and a heavy carry-over is predicted. New hay in the stack is quoted there at $7 per ton.

The fourth Dry Farming Congress will be held at Billings, Mont., October 26-28, and at the same time and place the exhibition of dry-farming products will be held. Thirteen States, besides Canada, Mexico and Russia, will send exhibits, and 17 States and 10 foreign countries will have delegates at the Congress.

A dispatch from Spokane, Wash., states that more than 100,000 acres of land in eastern Washington and northern Idaho and Oregon will be placed under irrigation this year. This land will be largely planted to deciduous fruit, and the estimate is that 7,000,000 trees will be set out in the next year and a half. These figures are doubtless exaggerated, but the chances are that this territory will in a few years astonish the world with its output of apples, peaches, pears, and plums.

Live Stock and Dairy.

The new Mountain View creamery commenced operating at Healdsburg last Saturday.

Large sales of beef cattle are reported in and around Red Bluff, the prevailing price being from $22.50 to $25 per head.

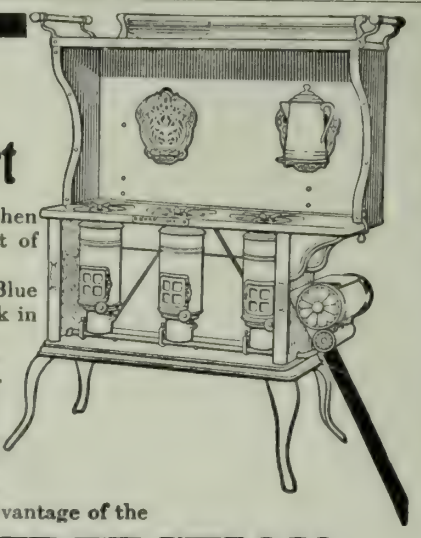
The Lucerne creamery at Hanford recently turned out 4806 pounds of butter in one day—the biggest run in its history.

Twenty-four head of mules were sold from the Cone ranch, in Tehama county, recently for $120 per head. They are to be taken to Los Angeles.

The Woodland creamery is filling an order for 6000 pounds of butter for the Alaska trade. The butter is being packed in tubs holding 65 pounds each.

The bee men of San Diego county are anticipating a large honey crop this spring

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is its handsome CABINET TOP, which gives it every convenience of the modern steel range. Has an ample top shelf for warming plates and keeping cooked food hot, drop shelves for holding small cooking utensils, and is even fitted with racks for towels. Made in three sizes, and can be had with or without Cabinet Top. If not at your dealer's address our nearest agency.



The Rayo Lamp gives perfect combustion whether high or low—is therefore free from disagreeable odor and cannot smoke. Safe, convenient, ornamental—the ideal light. If not at your dealer's address our nearest agency.

STANDARD OIL COMPANY
(Incorporated)

TREES TRUE TO NAME. The Silva-Bergtholdt Co. Newcastle, Cal. PLACER NURSERIES

FRUIT TREES
ALL STANDARD COMMERCIAL VARIETIES
The best that good care can produce
Write us now concerning your Fall and Winter Planting
AGENTS WANTED
The Silva-Bergtholdt Company
117 Orchard Street Newcastle, California

TREES OF ALL SORTS
25 years experience in growing nursery stock. 1500 acres devoted to the business.
CALIFORNIA HORTICULTURE, The Fruit Grower's Guide, fully illustrated, describes 2000 different varieties of trees and plants. Contains valuable information. Sent postpaid for 25 cents in stamps.
PAID-UP CAPITAL $ 200,000.00
FANCHER CREEK NURSERIES
INC.
Geo. C. Roeding Pres. & Mgr.
Box 18 Fresno, California, USA

CHOICE
LEMON TREES
Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Citrus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.
SAN DIMAS CITRUS NURSERIES
SAN DIMAS, CAL.

SEEDS
Headquarters for all kinds of Seeds. Catalogue upon request—FREE.
NAVLET BROS.
520 K Street, Sacramento, Cal.

CRIMSON WINTER RHUBARB
March, April and May, best time to plant Rhubarb.
$1.50 per doz., $6 per 100, $40 per 1000.
All kinds of small fruit and berry plants.
J. B. WAGNER, Pasadena, Cal.
The Rhubarb and Berry Specialist. Dept. I.

FRUIT TREES——TREES OF ALL KINDS
We make a Specialty of Muir Peaches, Bartlett Pears, French Prunes, and the Commercial Smyrna Figs
Send in list of your wants and get our prices before writing elsewhere.
MAYWOOD COLONY NURSERY COMPANY
W. Herbert Samson, Prop., Corning, Cal.

Nitrate of Soda
In Original Bags
NITRATE AGENCIES COMPANY
64 Stone Street, New York
Keyser Building, Baltimore, Md.
36 Bay Street, East, Savannah, Ga.
305 Baronne Street, New Orleans, La.
140 Dearborn Street, Chicago, Ill.
1103 Temple Bldg., Toronto, Canada
San Jose, Cal.
321 Stimson Block, Los Angeles, Cal.
603-4 Oriental Block, Seattle, Wash.

as there is an excellent lot of sage in blossom for the bees to feed upon.

Heavy sales of wool are reported from Red Bluff. The price has ranged from 20 to 24 cents, causing the growers to sell most of the wool in storage there.

The Fresno county bee inspector reports finding some foul brood among the apiaries this spring, but as a general thing the bees are in good condition.

At a public sale of the driving and draft horses belonging to the estate of Henry A. Butters, held at Chico last Friday, when 35 horses were sold in 45 minutes, the animals sold for from $50 to $180.

Imperial valley ranchers are now turning their hogs into the barley fields, and within a few weeks will ship to market about 50,000 head, for which they expect to receive $500,000.

A meeting of dairymen was held at Visalia last week to discuss the advisability of establishing a co-operative creamery at that place. Another meeting will be held next week to finally settle the question.

A herd of 175 head of steers was sold last week by H. M. Fuller of Red Bluff to P. H. Green of Willows, at an average of $25 per head. The stock has been taken to Willows and will be fattened for beef.

Shipments of wool to be made from Corning this spring are estimated to amount to 500,000 pounds, which, at an average price of 20 cents per pound, means that the sheep men will be prosperous in that locality.

Stockmen are scouring the country around Klamath Falls, looking for feeders. Chas. Horton has succeeded in buying about 1000 head, which he will pasture in the Klamath Reservation, where feed is unusually good this year.

W. H. Roussell, president of the San Francisco Dairy Exchange, and Geo. G. Knox of the Central Creamery Co. of Sacramento, are talking with the dairymen in the vicinity of Loyalton, Sierra county, regarding starting a creamery there.

A dispatch from Gridley states that on the Friesleben ranch near there 154 head of horses had been killed to stamp out the glanders. Veterinary King of the U. S. Bureau of Animal Industry had been in charge of the herd for two weeks, watching the case, and it was by his orders that horses were killed and the bodies burned. The loss is estimated to be about $10,000.

Miscellaneous.

A new eucalyptus company has been organized at Vallejo, which expects to plant out a large acreage to eucalypts.

The Sutter Farmer reports the two canneries at Yuba City as getting in a large stock of cans preparatory to a big canning season.

The Lake Tulare Irrigation & Power Co. is a new $2,000,000 corporation, organized to pump water from Tulare lake for irrigation purposes.

Work is progressing on the new irrigation system in Potter valley, Mendocino county, which is to carry 1500 inches of water for the use of ranchers in that valley.

The Eucalyptus Hardwood Co. of San Francisco is establishing a 160-acre eucalypt nursery at Kernan, Fresno county, and expects to plant out a tract of 800 acres to two or three varieties of this wood.

A largely attended meeting of the Kings County Farmers' Educational & Co-operative Union was held at Hanford last week, at which time it was decided to build packing houses in time to handle this year's fruit crop.

The asparagus acreage of California is now estimated at 26,000 acres, of which 90% is in Sacramento and San Joaquin counties; 12,000 acres is being cut this year, and the balance will be ready for harvesting in 1910 and 1911.

The contract for the erection of the precooling plant at San Bernardino was let last week. The building is to cost $190,000, and the plant complete is estimated to cost $450,000, and will have all the latest devices installed. The Santa Fe R. R. will control the enterprise.

Under the direction of an expert from the U. S. Department of Agriculture, 65 acres of land belonging to Balfour & Guthrie, near Biggs, has been planted to several varieties of rice. The work is being done to discover the best variety suited to the Sacramento valley conditions.

Plans are now under way to form an irrigation district under the Wright law in the district around Oakdale, in Stanislaus county. If successful the new district will take over water rights and ditches of the San Joaquin Canal & Irrigation company, having power plants at Knights Ferry.

CANADIAN PACIFIC RAILWAY LANDS SOUTHERN ALBERTA, CANADA.

In the celebrated winter wheat belt. Rich land, yielding from 30 to 60 bushels wheat and 80 to 100 bushels oats per acre. Railroads now building through the tract we are offering for sale. Price, $14 to $17 per acre. Small cash payment and annual installments.

Join our next excursion, last week of May, 1909. Write for map and literature.

R. A. BERRY & CO., Agents.
Center and Oxford Sts., Berkeley, Cal.

SPRING SPRAY

for fruit trees, ornamental trees, vegetables, nursery stock, garden plants, hot house plants, berry bushes, hops, vines.

"Spra-Mulsion"
(Spray-Emulsion)

contains petroleum oils and makes immediate and permanent emulsion with water. No oil separates on standing.

EFFICIENT FOR

Scales (All kinds) **Aphis** (All kinds)

RED SPIDER CATERPILLARS CANKERWORM

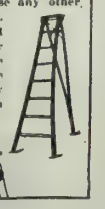
Sold in bbls., 10 gal. cases, 1 gal. cans and qt. cans. Diluted to 25, 30, 40 or 50.

R. R. Rogers Chemical Co.
527-29 Commercial St., San Francisco, Cal.

THE BOSS FRUIT AND STEP LADDER



Is known to be the lightest and strongest made. A ten-foot ladder weighs 30 lbs. We have been making these ladders since 1895. All fruit growers like them. Many of the big office buildings in San Francisco will not use any other. We make them with three or four legs as preferred. We keep in stock Fruit Ladders 6, 8, 10 and 12 ft. and House Ladders 4, 5, 6, 7, 8 and 10 ft. We make longer Fruit Ladders up to 24 ft. at short notice. Our House Ladders are made with a safety lock to prevent the legs from spreading. We will ship one or more to any S. P. R. R. station in California and prepay freight on receipt of price, 30 cents a foot.



DRIVER, ABER & CO., SAN LEANDRO, CAL.

SUGARMAN BROTHERS

Are glad to notify the public who were their customers before the fire that they have established their **Pipe Business** once more at the old stand, **559 Howard St., San Francisco.** Send us your specifications. Every one is guaranteed a square deal. Castings come with the pipe.

"THE SEED HOUSE OF THE GREAT SOUTHWEST"

Plant Seed Suitable to the Season.
For reliable seeds and reliable information Address
AGGELER & MUSSER SEED CO.,
113-115 No. Main St. Los Angeles, Cal.

WE SEED FORTY ACRES TO ALFALFA ON OUR

California Improved Farms

In the Sacramento Valley near Arbuckle, California

We are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. We offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land.

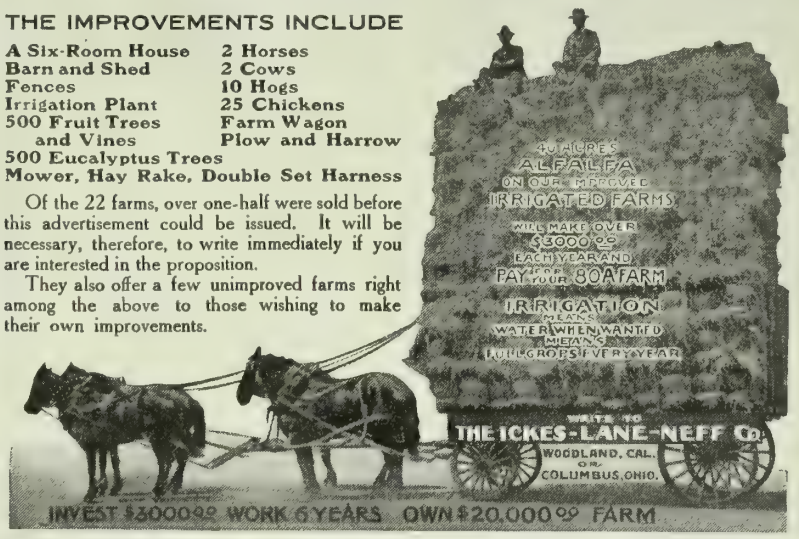
THE IMPROVEMENTS INCLUDE

A Six-Room House	2 Horses
Barn and Shed	2 Cows
Fences	10 Hogs
Irrigation Plant	25 Chickens
500 Fruit Trees and Vines	Farm Wagon
	Plow and Harrow

500 Eucalyptus Trees
Mower, Hay Rake, Double Set Harness

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



Tanks **Tanks**



WINE TANK.

WINDELER'S PLANING MILL AND COOPERAGE

GEO. WINDELER, Prop.

Water Tanks, Wine Tanks, made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

GEO. WINDELER,
144-154 Berry St. San Francisco, Cal.



WATER TANK.

Pear Blight

We have positively demonstrated that WE CAN CURE THIS DISEASE.

Write us for particulars.

Pear Blight Remedy Co.
VACAVILLE, CALIFORNIA.

AN EASTERN TRIP
VIA
SALT LAKE ROUTE
LOS ANGELES & SALT LAKE R.R.
Is a Delightful Experience. 'Tis the
SHORTLINE
FROM
SOUTHERN CALIFORNIA
VIA
SALT LAKE
EXCELLENT SERVICE.
Information at any ticket office or at
714 Market St.,
SAN FRANCISCO
601 So. Spring St.
LOS ANGELES

PREPARE NOW FOR YOUR EASTERN TRIP

Over the

SUNSET ROUTE

LOW RATES
For Round Trip Tickets.

IN EFFECT

May 15, 16, 20, 21, 22, 31.
June 1 to 4, 14 to 19, 25 to 27, inc.
July 1 to 7, inc.
August 9 to 13, inc.
September 7 to 10, 13 to 15, inc.

RATES

New York	$108.50
Washington	107.50
Boston	110.50
New Orleans	67.50
Chicago	72.50

Many more rates on application. Choice of routes. Stopovers and long time limits.

Ask about our personally conducted excursion parties leaving for New Orleans, Chicago, St. Louis, Cincinnati, and Washington, D. C.

HIGH CLASS EQUIPMENT—OIL BURNING LOCOMOTIVES—DINING, OBSERVATION, AND SLEEPING CAR SERVICE.

Southern Pacific

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J. St., Sacramento, Cal. Send for catalogue.

Apiculture.

FIGURES OF THE BEE BUSINESS.

Dr. E. F. Phillips of the U. S. Department of Agriculture has issued a bulletin which contains an interesting array of facts and figures showing not only the magnitude but the importance and possibilities of bee-keeping in this country. A large amount of data has been gathered from the government reports, and these are all put in convenient form for ready reference. In speaking of the magnitude and importance of the pursuit, Dr. Phillips, in his introductory remarks, says:

Few persons realize the magnitude, importance and possibilities of the present bee-keeping industry in the United States. Those who are conversant with the pursuit, and even those who are extensively engaged in it, generally fail to comprehend what an important factor in the agriculture of the country apiculture is as a whole, or how much the honey bee, by collecting nectar and storing it to produce a commercial product, is instrumental in saving our resources. Although the total value of the bee products is small as compared with the value of the products of many other branches of agriculture, it nevertheless has an importance which should not be overlooked.. . . Few rural pursuits have made greater progress during the past half century than has this one. . . .

According to the census of 1900 the average number of colonies on farms reporting them was 5.8, valued at $14.40—a very small investment. In some recent work of this bureau it has been found that in the State of Massachusetts the average number of colonies reported was 5.5 per bee-keeper. This last figure should not be taken as an index of the condition in the whole country, for as one goes farther west the holdings are found to be larger. In California, for example, while there are some small apiaries, the majority are quite large, and the average is several times that of Massachusetts. The number taken from the census can scarcely be accepted as correct.

The number of men who rely solely on the production of honey and wax for a livelihood is rather small, and most of the extensive producers of the West carry on some other business, at least for the part of the year when the bees are less active. The reason for this is found in the nature of the industry. Any location is limited as to the number of colonies of bees which it will support, and in consequence a bee-keeper must either carry on some other business or establish numerous out-apiaries to enable him to keep bees enough to make it an occupation which will support him. Since the establishment of out-apiaries is attended with certain disadvantages, it usually follows that bee-keeping becomes a minor part of a man's occupation or even a side line.

Then, too, bee-keeping is taken up by many as a recreation or a subject of nature study. Such persons do not wish to make it their sole or main occupation. Many farmers also keep a few colonies of bees and add to their income to some extent in that way. It is obvious that bee-keeping must continue to be an avocation in the majority of cases.

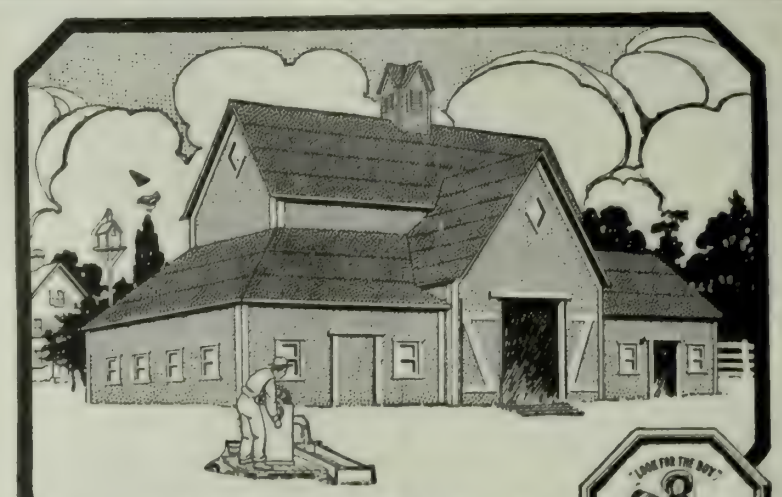
The Scope of the Industry.—Dr. Phillips estimates that the annual production of honey in the United States is somewhere about $20,000,000 in value, and wax about $2,000,000. He very properly says that, "since the harvest depends so completely on various high-life conditions, there is an enormous variation in the annual yield." Of the number of bee-keepers in the United States, he places the figures at something like 700,000. In comparing these figures with the United States census report he says, "It is very obvious that the census figures are entirely too small, and are far from doing justice to the industry."

Imports of Honey Into the United States.—A very interesting set of tables is prepared, made up from various custom-house returns, showing the amount of honey annually imported into the United States. This, in round numbers, is somethink like 2,500,000 pounds annually. Of this amount Cuba sends nearly 50 per cent, Mexico between 20 and 33 per cent, San Domingo from 1 to 10 per cent; Haiti 1 to 5 per cent, all other countries 3 to 4 per cent. Of beeswax annually imported into the United States the amount aggregates something like 700,000 pounds. Of this amount Cuba furnishes the most, next comes Mexico, then San Domingo, the proportion ranging very closely with the percentages of honey from those countries respectively.

Of the imports of honey, it is interesting to note that the imports exceed the exports many times over, but it is a remarkable fact that, away back from 1855 to 1860, there was twice as much honey imported into the United States as during the period from 1901 to 1908, showing the domestic product has served to keep the foreign article out. From 1878 to 1900 the imports ran from 1,000,000 to 1,900,000 pounds per annum, but from 1901 to 1908, with 1903 the big year, the importations annually increased these figures by 1,000,000 pounds. This is probably due to the fact that the large baking concerns are substituting foreign honeys for the domestic product.

The imports and exports of beeswax show a rather different ratio. Since 1890 there has been a gradual increase in imports, while the exports from 1851 to 1908 have very markedly fallen off. The exports in 1851 amounted to 415,000 pounds, while in 1907 they showed only 117,000. On the other hand, the imports for the first three decades since 1850 was practically nothing, while in 1908 they reached nearly 700,000 pounds.

Next Dr. Phillips introduces data showing the value of the bee as a pollinating agent. On this question he winds up by saying, "It is safe to say that the indirect benefit of the bee-keeping industry annually adds to the resources of the country considerably more than the amount received from the sale of honey and wax."



This Trade-Mark is on Every Roll of

REX FLINTKOTE ROOFING

There are just two ways to tell REX Roofing—one is by the service it gives, and the other is by the Boy trade-mark on every roll. Imitations are made that have an outward resemblance to REX Flintkote, but you can't tell anything about the service until after the roofing is laid; so it will pay you to fix the Boy trade-mark in your mind before you start out to buy. It means advance assurance of satisfaction.

Write for Book and Samples—Free

The book will tell you all about REX Flintkote ROOFING and give photographs of buildings on which it is used, with letters of recommendation from users. The samples will show you what REX Flintkote ROOFING really is and enable you to test its properties.

J. A. & W. BIRD & CO., 81 India Street, Boston, Mass.
Pacific Coast Agents: W. P. Fuller & Co., San Francisco, Sacramento, Oakland, Stockton, Los Angeles, San Diego, Portland, Seattle, Tacoma, Spokane.

ORCHARDISTS and FARMERS

who have used our goods once, will always come to us for their fertilizers. We are making a special study of plant life and are therefore in a position to manufacture fertilizers that exactly meet the requirements of each plant. Let us know what you intend to plant, and we will name your special compositions. Write for our new booklet "The Farmers Friend," for 1909.

THE PACIFIC GUANO & FERTILIZER COMPANY
268E Market St., San Francisco, Cal.

SAN FRANCISCO SULPHUR COMPANY, Importers and Refiners of

"Anchor" Brand, Velvet Flowers of Sulphur; **"Volcano"** Brand, Sublimed Flowers of Sulphur; **"Tiger"** Brand, Sublimed Sulphur; "⋘" Brand, Refined Flour Sulphur; **"Fruit"** Brand, Powered Sulphur, **Roll** or Stick, **Virgin Rock** and Crude Sulphur. AGENTS FOR **"Fleur de Soufre"** Extra Fine Sublime Pour Blanchiment (for bleaching and spraying.)

Refinery: BORDEAUX, FRANCE.
Office—624 CALIFORNIA ST., above Kearney, San Francisco, California.
Samples and Prices on Application. Telephone, Kearney 4836.

PIONEER CENTRIFUGAL PUMPS



The most water for the least money
Write for prices

PEERLESS IRON WORKS
SACRAMENTO, CAL.
Agents wanted. Mention this paper.

Best FRUIT LADDER Made

We can guarantee the most durable and practicable ladder for the money. Send for catalogue and price list.

Henderson Mfg. Co.
710 E. 12th St. near 14th Ave., Oakland, Cal.

Redwood Tanks
Fruit Boxes, Egg Crates
Write NOW for prices.
R. F. WILSON
Stockton, Cal.

DUST SPRAYING MACHINES
BAKER & HAMILTON
San Francisco Los Angeles Sacramento

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

Blake, Moffitt & Towne
Dealers in **PAPER**
1400 FOURTH ST., SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake McFall & Co., Portland, Oregon

For **DUST SPRAY** Use
VIGORITE BRAND HYDRATED LIME
MANUFACTURED BY
THE HOLMES LIME CO., Inc.
Mutual Savings Bank Building
San Francisco
Write for Samples and Prices.

LAND PLASTER
(Gypsum)

Nearly every California ranch needs Gypsum. It corrects soil conditions, helps other fertilizers give better results and aid fertility in the soil. Alfalfa, grain, vegetable and fruit crops are greatly increased.

Write for booklet and prices.

PACIFIC CEMENT PLASTER CO.
AMBOY, CALIFORNIA.

Live Stock and Dairy.

DEHORNING THE KIDS.

Written for the PACIFIC RURAL PRESS by B. A. R. STOCKER, Arroyo Grande.

Where goats are kept in an enclosure and horns are not necessary for protection as on the range they are a nuisance. Several goats together may hurt one another, one being generally boss and "bossy." And they may be destructive to fences and slight buildings. Finally a hornless goat is pleasanter to handle and milk.

We find it best to dehorn the kids the first day of their life. If nature intended them to have horns, search will reveal a small bear spot about like a tack head in the place where the horn would develop. If naturally hornless, the whole top of the skull is rounder and there is no bare spot.

The longer you put it off the more the kid will fidget and the harder it is every way. Have some one hold the kid. Smear down the hair with a trifle of molasses away from the horn to leave it nicely exposed. Trim off with fine scissors any hair that may stand up. Now take a small piece of caustic potash in a pair of tweezers, dampen it in half a drop of water and apply to the spot for a few seconds, being careful to do it thoroughly and yet not go beyond the area of the horn. Hold the kid still for a few minutes while this is doing its work, as they will try to rub their heads. In a short time after release, say fifteen minutes, there will appear a tiny cup-shaped hollow instead of the "tack-head," and all is done. If you accidentally get any caustic where it will hurt apply grease at once.

The caustic potash must be fresh, as it gathers damp and slakes rapidly when exposed to the air. If it appears on the second or third day that you have not made a complete success, it can be repeated. Sometimes we get a better scald on one horn than the other. Skill may not come the first time, though it is simple enough if we have good eyesight.

EXPENSIVE HORSE KEEPING.

Whitten for the PACIFIC RURAL PRESS By Mr. LESLIE W. SYMMES.

The following item of the cost of maintenance of horses in public service in Boston and owned by the street cleaning department we believe will be of interest to farmers and stockmen. The department owned 128 head of work horses used for street cleaning work. The net cost for one year, for rent and repairs of stables and yards, veterinary services, medicines, shoeing and feed of these animals amounted to $66,283. The cost per horse per year is therefore $517.83 or $43.15 per month. If horse maintenance were generally as expensive a proposition as this in the cities horse raising would soon be a useless business. Of course these figures do not give us an idea of the actual cost of maintenance in a large city. As a matter of fact, one of the large mercantile houses in the same city gave their cost of maintenance per head at $19, a slight difference from $43.15 per month. It seems hard on the horse to be charged with being such an expensive animal when it can't explain. It would be interesting to hear what the actual maintenance of a farm horse is per month. If any of our readers have any figures on this we should be glad to have them.

GETTING RID OF CATTLE LICE.

Cattle that are kept reasonably clean in the stable and turned loose every day are able to rid themselves of lice except on those parts of the body which the tongue cannot reach. A strong infusion made by steeping tobacco leaves or stems may be used. We have used the following mixture with success: One tablespoonful of creolin in a quart of strong warm soapsuds. Whatever substance is used should be applied several times at intervals of three or four days. The nits will escape, and must be dealt with as they hatch out. Thorough and repeated applications are the secrets of ridding cattle of these pests.

UNIVERSITY EDUCATIONAL BUTTER SCORING CONTEST.

To the Editor: I send report of second entry, scored April 23, 1909, at the University Farm at Davis:

The call for the second entry to the California Educational Butter Scoring Contest brought responses from 24 creameries.

With one or two exceptions all butter arrived in good condition and there was a marked improvement in the appearance of the packages and the care taken in preparing them for shipment. In several instances the interior and exterior boxes were wrapped with burlap and in one case the inner box was packed with ice. We mention this to show that there is a determined interest in this contest, which we hope will be maintained. The excellent body and firmness noted in most entries should encourage those who took pains to cool and pack carefully before shipment. Two or three who competed before failed to send entries this time, while several new ones appeared. We have noticed a little carelessness in filling out the report blanks accompanying each entry. The buttermaker should fill these out each time as completely as possible, for it helps us in rendering a proper criticism. The criticisms should be the "meat" of the contest, hence a full report with each entry is essential.

The scores, as placed by Mr. C. L. Mitchel and members of the Dairy Department, are as follows:

	Score.
Gridley Creamery, Gridley	96
University Farm Creamery (not competing)	95¾
Western Yolo Creamery, Winters	95
San Pasquel Creamery, Escondido	94¾
Bay Views Creamery, Napa	94½
Ceres Creamery, Ceres	94¼
Pozzi Creamery, Tomales	94
Edence Creamery, Petaluma	94
Colusa Butter Co., Colusa	94
Suisun Creamery, Suisun	93½
Pozzi Creamery, Marysville	93
Rose City Creamery, Chico	93
Silva's Creamery, Santa Rosa	92½
Laton Co-Op. Creamery, Laton	92
Homestead Creamery Co., Nicasio	92
United Creameries, Arcata	92
Crystal Cream & Butter Co., Sacramento	91½
Denman Creamery, Petaluma	91½
Elite Creamery, Nicasio	90½
Antelope Creamery, Topaz	90

Four scored below 90, making a total of 24 entries. One or two creameries reported unavoidable embarrassments, such as a sick buttermaker, or a delayed notice of date when entry was due. Consequently in the rush to hold their places, a lower grade of butter was sent to the contest, which explains some of the apparent declines in quality.

The judges were greatly encouraged with the quality of butter sent to this contest. It averages considerably better than the butter of the previous one, though somewhat better quality should obtain at this and the succeeding contest because of more favorable food and weather conditions. Again we call attention to the use of starters and scrupulous cleanliness in the creamery. There

U.S. U.S. U.S.

The Most Perfect

Cream Separator

That Money Can Buy.

The United States 1909 Models

Nos. 14 and 15, like all other sizes, are absolutely unequaled.

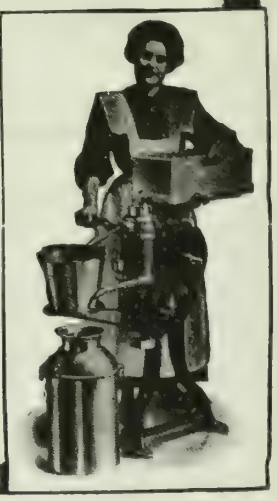
They are **the standard** Separators of the world.

They are entitled to this claim of being **Standard** because they won out in the greatest contest of Cream Separators ever held at any National or International Exposition in 50 consecutive runs, lasting through one month, on the milk of 10 different breeds of cows. The ***De Laval Disc Separators*** and the ***Sharples Tubular Separators*** were entered in this contest and **were beaten.**

The United States Separators are used by a very large percentage of the leading breeders in all the 10 leading dairy breeds of cows.

The United States Separators are used by progressive dairymen and creamerymen everywhere.

The United States Separators have **handsome frames,** cast in **one solid piece.** They have **waist low supply cans.** The **gears** are all **enclosed, dust proof** and **self oiling.** The **bowls** are **most simple** in construction and **easily washed** thoroughly in all parts in from two to five minutes. No long goose neck pipe in the United States to get foul and difficult to clean.



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THOROUGHBRED JERSEY BULL, 5 YEARS OLD.
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is evidently some trouble from old cream and perhaps some carelessness getting cream delivered promptly and putting it as quickly as possible under control. Get the starter can in place as soon as possible. From the reports there is no apparent increase among the contestants of those using starter. Under favorable conditions some have done well without starter, but it is a mistake to continue trusting to chance fermentation. If a creamery cannot secure skimmilk for starter making, the directors had better provide the buttermaker with a cow.

Individual letters of criticism will go forth as fast as possible. The next entries will be called for in June. Let's see who will improve his record most by that time. There is still time to make a reputation.

HERBERT A. HOPPER.

University Farm, Davis, Cal, April 26.

WHO WILL GROW THE COWS?

Mr. Gilbert McMillan of Willowmoor Farm, near Seattle, writes the Pacific Homestead his ideas of how a better and more steady supply of dairy cows could be had. He says:

I am willing to admit that there may be men so situated that they cannot very well raise their calves. Let us then consider what class of farmers could raise these calves to advantage; take the men with from one to three hundred acre farms, partly cleared, and possibly six or seven miles from a city or railroad, who milk from six to fifteen cows, separates his milk and either makes butter, or sells his milk to some creamery. A man situated like this could easily raise two calves for every cow that he milks, and at a good deal less cost than what that calf would be worth by the time it was two and a half or three years old, provided, of course, that it was bred right in the first instance. As most dairies where only milk is considered object to handling heifers, it might be necessary to keep those heifers until they were coming fresh with their second calf, but the milk that they would give for the previous year would more than offset the cost of their keep, and a young cow at this age will bring anywhere from $50 to $80, or even higher where extra milking ability is displayed.

Now, the man who makes this a business may have to wait a little while at the start before he gets his returns, but after he gets established he will have a regular number for sale every year, and derive from them no small income. The first part of the problem to be solved, however, is to get the men who are favorably situated for raising those heifers in touch with the men who are at present knocking their calves on the head. If we could get this business once started, I almost think that this part of the question would settle itself automatically, as the men looking for calves would also be the men with cows to sell: and there would be a double purpose working to bring the buyers and sellers together.

Perhaps one of the greatest obstacles to this plan would be in inducing the milk producers to keep breeding bulls that would insure that their calves would be worth the raising. If we could get them to look far enough ahead to see that these calves would, in three or four years, be the cows that they would have to depend on for their milk supply, the chances are that they would see things in their proper light. There are, no doubt, a good many difficulties in the way of this solution of the cow-shortage problem, but it seems to me that a business could be established along those lines that would be profitable to all concerned, and likewise assist in solving what I believe will be, in the near future, a more acute problem than it is as yet.

The dairymen themselves must, however, do their share—first by keeping sires at the head of their herds that will ensure a profitable lot of dairy heifers; secondly, by taking proper care of their young heifer calves for a few days until the parties who make a business of raising them can be communicated with, and, thirdly, by supporting these men in the marketing of their young cows.

Pure Bred Holsteins
At present we are offering a fine lot of **Young Bulls and Heifers** at very attractive prices. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co. now owned by the
OAKWOOD STOCK FARM
LATHROP, CAL.

COW TESTING IN HUMBOLDT COUNTY.

We have had in previous issues accounts of what is aimed at by cow testing associations. At a recent meeting in Humboldt county Mr. Clyde Mitchell put it in this way:

"There are herds in this valley that have been improved through a system of records to an extent of about 100 per cent butterfat per cow. Mr. Peter Phillipsen of Loleta has been doing very creditable work in a private way this past year and has given very general satisfaction. For instance, Mr. Peter Christianson last year was on the old Richardson place at Loleta and employed Mr. Phillipsen to test his cows. This year he is running the River side ranch at Port Kenyon and has engaged Mr. Phillipsen to come over and test his cows for the coming season. Another prominent Loleta dairyman found that the information which he gained about his three poorest cows paid him for the cost of testing his cows the entire season. Another found that his cows ranged in yearly production from $133 to $28.

"This is simply a business man's proposition. You spend a dollar a cow with the expectation of getting back three or four more in its place. You are simply employing a bookkeeper so you can see what you are doing, so you can dispose of your scrub cows and so you will know from which one to raise the heifers."

The matter has appealed so strongly to the Eel river dairymen that they have organized in this way:

Whereas, the Ferndale Co-operative Cow Testing Association is being organized for the purpose of providing means for the co-operation of its members in testing the milk of their cows periodically, and for the improvement of their diary interests, and whereas, it is proposed by said corporation to engage a suitable person or persons for the purpose as soon as enough subscriptions are obtained to warrant said association to engage such person or persons.

Now, therefore, we the undersigned, members of said proposed association, each for himself and not one for the other, severally agree to pay to the said association the sum of $1 a year for each cow set opposite our names to said association for said purpose, said sums to be paid in quarterly installments in advance, the first payment to be made upon the hiring of said person or persons by said association, or upon demand made therefor by said association. We also agree further to furnish board and lodging for said person for at least one day each month, and if necessary, to convey him to his next place of work. Said persons

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The Fresno Scraper



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shall not work Sundays, but shall be entitled to board and lodging over Sunday at the place where he is working Saturday.

The following list give the names of those who have already signed the contract, and following each name is the number of cows to be tested:

Z. Russ & Sons Co., 200 cows; M. P. Hansen, Alton, 20; L. J. Lindrum, 70; Jacob Hansen, 28; Hans Eskildsen, 75; John Flynn, 18; H. G. Sweet, 55; William Trigg, 35; Rasmus Nielsen, 80; D. A. Francis, 24; A. V. Chapin, 85; C. Decarli, 50; J. Nissen, 40; H. F. Harbers, 20; John Trigg, 55; P. N. Peterson, 35; Julius Moranda, 30; H. A. Tyrrell, 40; B. Crowley, 25; M. L. Clausen, 12; Hans E. Petersen, 35; Jens P. Vinum, 35; Antone Christensen, 35; J. A. Genzoli, 60; W. P. West, 28; J. E. Peterson, 30.

Mr. Fred Wulff, who is a short course student at the Wisconsin College of Agriculture, has been engaged to do testing work for this association.

INTERESTING POINTS ON STABLE MANURE.

We judge from our correspondence that the value of stable manure in California is both overestimated and underestimated—generally perhaps the former. The following measures of value were recently suggested by Prof. C. G. Hopkins of the University of Illinois:

Farm manure always has been and without doubt always will be one of the principal materials used in maintaining the fertility of the soil, but it is an unquestionable fact that the greatest source of loss to American agriculture is in the enormous waste of farm manure.

The value of farm manure for its physical improvement of the soils is commonly fully appreciated, and frequently overestimated by popular agricultural writers, while its value for the plant food which it supplies and for that which it liberates from the soil is something almost ignored.

Manure made from clover hay and heavy grain rations has much greater value than manure made from wheat straw. Why? Is it because they affect the physical conditions of the soil in different ways? No. The great difference in value is due to the difference in plant food and rapidity of decay.

The average of fresh farm manure is about $2.25 a ton either when determined by chemical analysis on the basis of present market values for the plant food contained in the manure, or when determined by the value of the increased crop yields produced when the manure is applied to the fields in ordinary crop rotations.

This means that a pile of average fresh farm manure containing 100 tons is worth $225. If exposed to leaching from heavy rains during only two or three months in the spring the value will be reduced as a rule from $225 to about $150 by the loss of plant food, without much reduction in total weight. Indeed the total weight is frequently increased under such conditions because the rain water that remains in the manure may be greater in amount than the urine that has been washed out. Fermentation and additional leaching during the summer may easily reduce the value to $100 or less.

It should be a plain fact that manure made from animal excrements with straw or stalks for bedding must be deficient in nitrogen, and still more deficient in phosphorus, but rich in potassium, as compared with requirements of the crop; and this is especially noteworthy when the manure is to be used on land already deficient in nitrogen and phosphorus, but well supplied with potassium.

In the case of nitrogen, the difficulty can be overcome by making a liberal use of clover or other legumes in the crop rotation and as catch crops, turning under these crops and crop residues so far as practicable. Legume crops may also be used in pastures to a considerable extent, thus securing nitrogen from the air to balance the deficiency in the manure.

With the phosphorus, the difficulty is greater, because the proportion contained in the manure is less, and there is no such ever-present inexhaustible supply as in the case of nitrogen.

Phosphorus can be purchased in grain, or in other concentrated foodstuffs, to be fed with clover or alfalfa hay, and then applied in the form of farm manure; or phosphorus may be applied in the form of bone meal, which is also a farm product, or it may be obtained from great phosphate mines.

The decaying organic matter may be supplied in farm manure, or in sufficient quantities of legume crops not harvested and removed from the land but turned under as green manures, including the use of rotation pastures, or still better and more easily, and usually more profitably, by a combination of these methods.

But there can be no permanent agriculture for these most common soils by any system under which the phosphorus is removed and sold in grain and bone in larger amounts than are returned to the soil, nor under any system by which the organic matter of the soil is worn out or destroyed more rapidly than it is replaced.

MOSQUITOS AS I KNOW THEM.

Written for the PACIFIC RURAL PRESS by Mr. CHAS. A. CHAMBERS of Fresno. With Apologies to Dr. L. O. HOWARD, Chief of the Department of Agriculture at Washington, D. C., Expert on Mosquitos.

While the grand jury was trying to find the "foci" of a few crap shooters, I folded my tent and silently stole away to the swamps to elude the sheriff and the health officers. While there I took up the study of the mosquito. As it was the most "absorbing" subject, it absorbed all the time.

The mosquito and I have been close chums. We have stuck together through thick and thin. While our methods of bleeding the people have differed, we are by nature the same breed.

Science has risen up in arms against the mosquito. It says they are boot-legging the typhoid fever around over the country, and claims that it is the female mosquito that is dangerous and responsible for all this scientific uproar. It further claims that the male mosquito wears no boots and is perfectly harmless.

The line of science I have been working on is how to determine the sex of the mosquito. To a "tenderfoot" all mosquitos sting alike, but to a scientist, like myself, who keeps his boots on, there is a vast difference. A few sharp pointers will enable you to distinguish the sex of the mosquito. The male mosquito parts his hair in the middle and smokes cigarettes, but he never stings. When he presents you with his bill he don't alarm the neighborhood if you throttle him and try to stand him off. The female mosquito pompadours her hair, and sits on the front gallery nights. She has no regard for curfew or a tender exposed part of your anatomy. She tries to allure you with a little lullaby entitled "Bill Bailey," while she stabs you in the ribs with her stiletto.

I have devoted gallons of my best blood to science and mosquitos. I have watched them open up my veins and help themselves to my choicest blue blood, then float away like red toy balloons with my gore dripping from their chops.

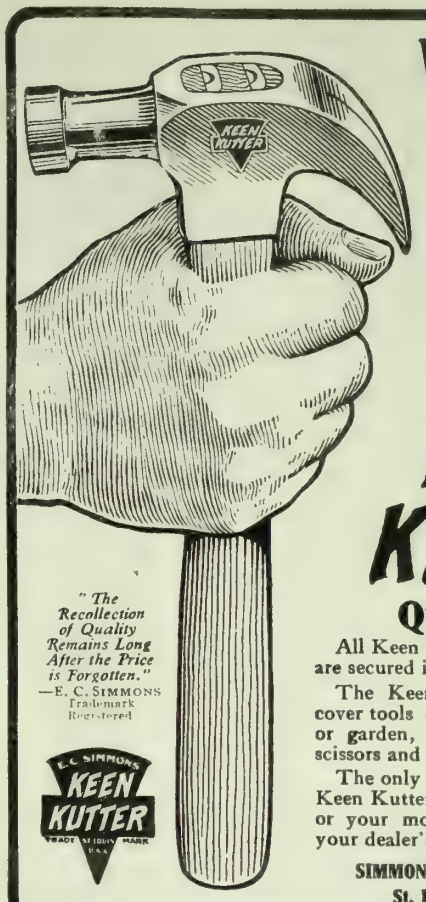
The size and age of a mosquito depends upon the climate and malaria. In New Jersey, we boys used to track them in the snow and shoot them like rabbits, just for fun. While the Jersey mosquito is larger and more vicious than the California mosquito, it is shorter lived. It contracts cold from wading in the snow, and wheezes out its existence at the tender age of sixty years.

Science has never definitely determined the age of the mosquito. Some twenty years ago I carved my name and date on the hull of one and liberated it. Last spring while out turkey hunting I fired at what I supposed to be a flushed gobbler, but on close examination I found my turkey to be featherless, and bore the inscription I had carved on its hull just twenty years ago.

Now, while we are not all scientists, and are liable to be attacked any moment by one of those female boot-legging mosquitos, I would recommend that the Government tie yellow flags to them, so that the unscientific people might dodge or get under cover when they see them coming.

As to the "foci," it's not so dangerous, so long as you keep away from it and don't twist its tail.

The Yolo county fair will be held at Woodland, the third week of August.



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It is secured by the wonderful Grellner Everlasting Lock Wedge which expands the wood in the head and when driven home is forever locked in place.

This wedge is the only perfect and lasting device of its kind and is found only in

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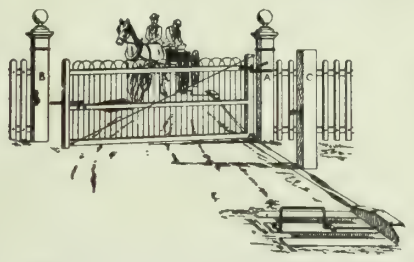
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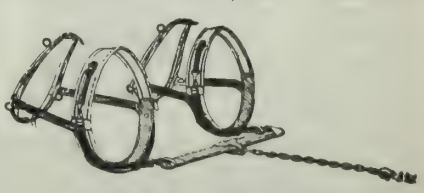
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The Poultry Yard.

THE POULTRY BUSINESS.

Written for the Pacific Rural Press
By M. R. James.

A few hens on a city lot and somebody's "system" and presto! you are on the road to fortune. Or so it would seem to one unfamiliar with the hen, who takes the flaming poultry ads at their face value. Why is it that this industry lends itself to lies and exaggerations more than any other branch of agriculture? If honest old biddy knew how much humbuggery was floated upon her wings she would blush behind her feathers. There is no doubt about this branch of poultry culture being highly profitable; it requires little space and few fowls. One needs but a fertile brain to bait the "system" or "secret" and enough cash or credit to start it going in some publication and to secure if possible a write-up—and the suckers do the rest.

And truly to the man out of a job, to the woman struggling to support herself and family, "How to make $1500 in ten months from 60 hens on the corner of a city lot," is alluring. Would not such a person skimp on his or her daily rations to save a dollar for this priceless secret or system? Sure! Editor Harker of the Fancier's Monthly, who has even been a faithful guard of the best interests of the poultry industry and who has proved that he holds its interests above his own by rigidly excluding all such ads from his publication, says on this subject in the April issue of the Fancier's Monthly:

"At the present time the poultry interests of this country are simply suffering for lack of an Ananias Club. Other specialty clubs we have in plenty, but this one should have been formed long ago. It is in fact a long-felt want that is now at an acute stage and is getting to be positively painful. The egg-record romancers, the mendacious figurers of fabulous profits, the show falsifiers, the advertisement exaggerationists and the downright plain and simple liars have multiplied so rapidly of late in the warm soil of the feverish poultry fancy that they bid fair to overrun the fair field with noxious weeds, unless we can manage to get them all together into one Ananias Club corner, properly labeled so that the most unsophisticated among us cannot fail to recognize a member at sight." He then passes up the names of some of the most eligible for membership to the club and concludes: "Seriously, though born of exaggeration at its very beginnig fifty or more years ago and cursed with it every since, the poultry interest is solid at heart and will bear the inspection of the most keen-eyed truth-seeker. But it appears to us to be the bounden duty of the poultry press to occasionally take a shot at lying folly as it flies; for, as is well known, the truth is slow-footed while falsehood is equipped with a good pair of wings and is hard to bring down."

When will people discover that there are no secrets or short cuts to wealth in the poultry business and that the same rules for success apply to it as to all other branches of agriculture or to any other legitimate business? That there may be fortunes in exploiting such fallacies is conceded; for many persons will balk at the small subscription price of an agricultural journal where all that is really worth while in the so-called systems and secrets is freely given together with much more of value, and yet spend dollars galore on such things which even in their facts are more or less misleading. For instance: one pays $5 for the secret of making poultry food for 10 cents per bushel, and is told to sprout grains. The value of sprouted grain and the manner of sprouting it have been fully presented in the Rural Press; but that food may be produced at a value of 10 cents per bushel by this means is one of those assertions which Editor Harker calls "plain and simple lies." Again, there are systems selling everywhere from one to ten dollars and tagged with a bond of secrecy, by which laying hens of the past, present or future may be selected. In the Rural Press of April 10 is an article which explains the principle on which these systems are based and which also shows that they cannot be infallible, for the conformation of the hen, which is the test, depends largely upon condition and will vary accordingly. In reality the great secrets of success with poultry are common sense and quick observation, and if these were in the market they would be cheap at any price. They are the secrets through which all the large poultry successes known to the writer have been attained. The person possessing them observes the successes and failures of others and he has a kind of sense that can trace effect to cause.

The profits of poultry keeping are very close on a par with those from other domestic stock. One good cow and fifty good hens run pretty close together in value, profit and expense. Perhaps the hens make a little the better showing under an exceptional market for their products, and vice versa. But there are more, especially among women and city bred people, who could manage the hens than could handle the cow; then one may make a start with a fifty-cent hen and a sitting of eggs, while it would require quite a bit more to even make a start in the milk business. Again, the hens kept in connection with the cow might outstrip her in profits because they would utilize much waste product from the cow. And this brings us to where the hen shows at her best and can make people "sit up and take notice" of her exploits. Where the whole or the greater portion of her food comes from waste products or is raised on the place, as may be the case with the right number of hens properly kept on the city lot or on the farm, she becomes a record-breaker in profits and no other stock can keep in sight of her. This is why the poultry business in connection with the daify, garden, orchard and field is a safe proposition. But where there are no waste products and no opportunity to raise a portion of the feed, and everything for her keep must be bought outright while a person's entire time is required for the work—well, it takes mightly close calculation and good management to secure a fair livelihood from the business, Mr. Philo et al. to the contrary notwithstanding.

POULTRY NOTES.

An Egg Farm in Alaska.—Poultry and eggs, through they have not formerly received much of his attention, becomes a matter of deep concern to the careless consumer or the man on the street when he is compelled to pay $1.50 for three eggs for his breakfast, writes F. E. Becker to the Featherer. We started out to invesigate where these costly little items found on the bill of fare in Fairbanks, Alaska, came from. We found the place where these gold nuggets grow, and we found that the man who is running this hennery has suffered trials and tribulations sufficient to constitute him a member of the academy of immortals among hen raisers. It was out at Mike Balton's place, known as the Fairbanks Chicken Ranch, on the corner of Seventh and Cowles. The ranch itself is only about 150 feet by 150 feet, but even on this area some startling results have been achieved. There are all sorts of yards designed as a summer playground, but in these days of low temperature, when a hen would freeze her toes in about two minutes, the feathered members of the community spend their time in a three-story furnace-heated log cabin where the electric lights get them up in the morning and where sand baths are on tap constantly without extra charge. There are over 300 residents in the colony and no members in the hospital, despite the fact that the thermometer has been registering fifty below zero for the last three weeks. They are a happy family according to all reports, and are willing workers, the output at this, the worst season of the year, being four and five dozen eggs per day. This is considered a fairly good record, keeping in mind the climatic conditions and the fact that all the chickens are not the kind that lay eggs. The ranch is the result of several years of failure that did not discourage, and expenditure of money on the part of Balton that he knew would come back to him some day. He is now about to reap his reward. During the coming season he will raise about 3000 chickens for the market and expects to winter about 800. Last year was the first that showed any pecuniary gain in the venture, the ranch representing an expenditure of about $7000 and the profit for the year being $1500. It will be much greater this year. Mr. Balton knows quite a lot about chickens. He learned it from the book of experience. He knows how to feed them and to keep them clean and healthy. He has all sorts of feed, and ingenious feeders and watering contrivances. He has mixed grains, ground foods, oyster shells and a machine for crushing pebbles for the bipeds with the eccentric diet. He has pure blood White Leghorns and Black Minorcas, he has motherly-looking Plymouth Rocks, some of which are already getting ambitious and want to sit even with the mercury in the tube out of sight. Through these long winter nights the chickens stay on the roosts until the electric light is turned on in the morning, and none of them evince surprise at the sudden sunrise. In the summer time when it is daylight continuously, chickens from the outside are so taken with the country that they like to stay up all night and look at it. As a consequence they would die of sleeplessness and have to be driven into the darkened roost a few times before they begin to learn the hour for retiring.

Scratching for the Poultry Raisers.—The State of Missouri stands fourth among the sisterhood of States as an egg-producer, but her poultry raisers get in first as appropriation-getters; and now they have secured a drastic law against the chicken thief which will be a great discouragement to his business, if it does not ruin it entirely.

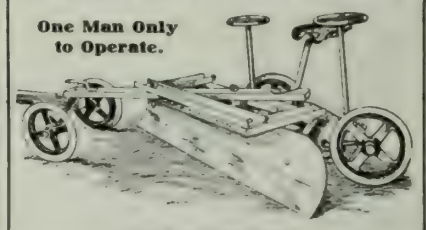
The Wisconsin poultry raisers, on the other hand, have had their very modest request for an approriation in the interests of poultry work turned down with the facetious remark, "Let the chicks scratch for themselves!" The Standard indignantly comments:

"How long will the poultrymen of Wisconsin, or of other States which so shamefully disregard their interests, stand treatment of this kind? It is unfortunate when politicians overlook the fact that the poultry industry is one of our greatest agricultural pursuits; it is unjust when State governments do not expend a proportionate amount of money on poultry as on other agricultural industries, but it is disgraceful when they make merry at our expense, and say that we must scratch for our living! The poultry raisers of Wisconsin and other States should wake up; organize a fighting body, and instead of scratching in the ground for a livelihood, scratch some crosses on the ballots that will show these politicians that the poultry industry has some power behind it."

The Poultry Show at the Alaska-Yukon Exposition will open September 28 and continue ten days. If the full number of exhibits promised by Eastern fanciers materialize it will hold the world's record for the largest exhibition; in any case it will be the largest ever held in the western half of the world. It will give the hen a fine send-off.



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ROCKLIN, PLACER CO., CALIFORNIA.

The Home Circle.

The House of Memories.

There's a little house in a little street,
A little way from the sea,
And, oh, when I'm weary of all the world,
It's there that I fain would be.

For the world is full of sorrow and care
And the darkness lies before,
And the little house is full of the dreams
That were ours, but are ours no more.

In the little street, in the long ago
In the little house by the sea,
We dreamed of the days that have had no dawn,
Of the years that shall never be.

But you were young and I was young,
And we dreamed and had no care;
And dearer and better than life has been
Were the dreams that came to us there.

And so when I'm weary of all the world,
Of its sordid hopes and its pain,
I think of the little house that was ours
And sigh to be there again.

'Twere heaven enough if we found our dreams
And dreamed them again, maybe,
In the little house, in the little street
A little way from the sea.

—*Pall Mall Gazette.*

There Is Always Something.

"Well," she said, "did you see him?"

"Yes," he groaned, "I saw him Mehitabel, if he were not your father, I would say"——

"Hush!" she whispered.

"For two cents," he groaned again, "I would quit college and go to work and"—

"Hush!" she whispered again. "Think of your career!"

And as she spoke those mystic words he grew awed and silent and he gathered his features together into an assemblage of solemnity and thought.

"After all," he said, "love can get along on very little money."

"Yes, Charles. Yes," she breathlessly exclaimed.

"Yes," he said, "I have been studying the matter."

And as he emphasized the word he coughed modestly behind his hand and drew a memorandum from his pocket.

"Now, in the first place," he saiad, "we must have a house. In the suburbs, you know. Say ten rooms, vines on the porch and all that sort of thing."

"And a little conservatory," she breathed.

"And a little conservatory," said he.

"And a pergola, Charles?" she asked, clasping her hands.

"A pergola, of course," said he.

"Wont' that be beautiful," she sighed. And sighing again she added, "but, Charles, the rent!"

"No," said he, "the furniture comes first."

"Dear Charles," she whispered, "how clever you are!"

"Yes," said he, "the furniture comes first, and so I looked over the advertisements of the installment people; but—well, they all want a deposit down and—and"——

"I know, Charles," she murmured, patting his hand.

"But all at once," said he, "it came to me like a flash! Like a flash!" he made a gesture with his hand to show her how a flash comes, and continued: "I said to myself, 'We will rent a furnished cottage, and there's the house and there's the furniture, both provided for with one stone'!"

And looking at her with a downward glance he seemed to say, "Mehitabel, admire me." And looking at him with an upward gaze, she seemed to say, "Oh, Charles! Oh, Charles!" But gradually she grew reflective again.

"Of course," she hesitated, "there's still the rent"——

"Forty dollars a month," he said. "Ten rooms. We'll sublet five of the rooms to five really nice people and charge them $2 a week each. There's company for us, if we want it, and there's the rent!"

Whereupon she clasped her hands and languished.

"Next," said Charles, "there's the food."

"I'm an awfully light eater," she breathlessly exclaimed.

"Take eggs," said Charles, ignoring the interruption. "What is more simple and what more nutritious than an egg?"

"I can boil them, too!" she cried, and she looked around as though for an egg to boil.

"Simple," said Charles in a learned manner, "and nutritious. Various as well. You can boil them—soft, medium or hard; you can poach them, fry them—one side or two; scramble them; make them into omelettes—herb omelettes, Spanish omelettes, corned beef omelettes; you can use them to trim the hash and the spinach and the salad. Give me an egg!" cried Charles, making a grand, beckoning gesture for that absent egg, "and I defy the world!" And after emotion had spent itself, he shortly added: "Chickens!"

"Chickens, Charles?" she asked. "Chickens?"

"Yes," said Charles; "we'll keep chickens!"

"Why, Charles!" she exclaimed. "Why, this is wonderful! Why"——

"Wait!" said Charles, holding up his finger. "Chickens eat corn."

Her countenance fell.

"We'll grow it!" said Charles, beaming with triumph; and, silencing her admiration, he resumed: "Next comes the milk."

She looked at him expectantly.

"The milk," he said in all due modesty, "bothered me for a time. Yes, I'm willing to confess that the milk bothered me at first, but here is how I solved that: In every suburban section of any size the residents are always to a certain extent going away and coming back. Now, many of these must have cows—cows that have been long in the families—cows to whom the families are attached. In a word, pet cows. Well, then! We will keep these pet cows for their owners whenever they go away. And there," he cried in trembling tones, "and there's the milk and butter and cheese and eggs and chickens and fricasees and Baltimore style and fried and soup, and everything else you want!"

"How will the cows be fed, Charles?" she asked.

"On our grass!" he beamed.

"And the vegetables"——

"We'll grow them!"

"And the fruit, too, we could," she laughed.

"And the fruit, too!" said Charles. "Now, as for clothes"—he began, frowning.

"Oh, I have a lot of clothes," she said.

"So have I," said Charles.

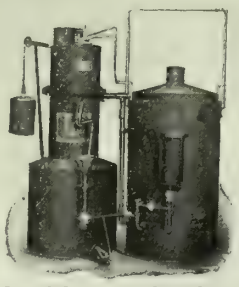
"Somehow," she breathed, "I always knew that love could get along on very little, but I never thought"——

"Tomorrow," he said, "or next day I shall begin looking for a house, and when all the arrangements are made we will find a minister, and—I wonder how much the minister's fee is?" he muttered.

"I think," she said, "it's generally five or ten dollars."

And as for Charles, he thought long and earnestly, but at last he despaired.

"Hang it!" he said. "There's always something."—New York Evening Sun.



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is most cheaply made by The Pilot Motor-Feed Generator

The Pilot is made by The Acetylene Apparatus Mfg. Co., of Chicago, the largest manufacturers of Gas Machines in the world. The Pilot is "approved" by the National Board of Underwriters. It took the gold medal and highest award at the California State Fair. It now furnishes gas for three Town Lighting Plants, many Summer Resorts and large Educational Institutions, and has displaced those most dangerous of so-called illuminants (coal-oil and gasoline) in many hundreds of Hotels, Stores, and Country Residences in California. Send postal for full particulars, list of Pilot users, catalogue, etc. Have an attractive proposition for reliable Agents.

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An Instantaneous Cure.

During the cattle plague of 1866 a farmer who had lost a number of his cows grew so depressed that he fully persuaded himself he had also contracted the disease. The medical man whom he consulted tried in vain to laugh him out of his fears, but subsequently, being fond of a joke, pretended to agree with the patient's views, and solemnly told him if he would attend to his instructions he would be cured. He then gave the farmer a prescription, which he directed should be taken to a neighboring druggist, but when the latter opened the envelope and read the contents he was as much startled as the farmer. For the prescription was as follows: "This man has the cattle plague. Take him into the backyard and shoot him, according to act of Parliament." Needless to say, the cure was instantaneous.—Dundee Advertiser.

How to Know a Goose.—"Mother, mother!" cried a young rook, returning hurriedly from its first flight. "I'm so frightened; I've seen such a sight!"

"What sight, my son?" asked the rook.

"Oh, such great white creatures, screaming and running and straining their necks and holding their heads ever so high. See; there they go!"

"Geese, my son; merely geese," calmly replied the parent bird, looking over the common. "Through life, child, observe that when you meet one that makes a great fuss about himself and tries to lift his head higher than the rest of folks, you may set him down at once for a goose."

The minister had just begun giving the class a lesson on the Prodigal Son. At the finish, to test what attention had been paid to his preaching, he asked: "Who was sorry that the Prodigal had returned?" The most forward youngster in the class breathlessly answered: "The fatted calf!"—Home Herald.

A truly eloquent parson had been preaching for an hour or so on the immortality of the soul. "I look at the mountains," he declaimed, "and could not help thinking, 'Beautiful as you are, you will be destroyed, while my soul will not,' I gazed upon the ocean and cried, 'Mighty as you are you will eventually dry up, but not I!'"—Everybody's.

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San Francisco Business College
733 Fillmore St., San Francisco, Cal.

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"Oh, I don't know. Somebody always claims to have predicted it."

Knicker—Did he give his son a college education?

Bocker—Yes, he bought him a phonograph with a yell in it.

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Lectures are given by professors from the University of California, and a course of study for High School graduates and for young women who have left school is also offered.

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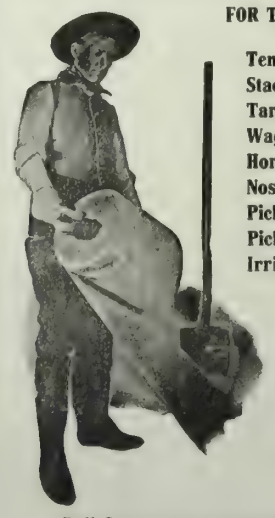
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Khaki Suits for Men and Women

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Tent Catalogue Free.

THE WM. H. HOEGEE CO., Inc.
138-40-42 South Main, Los Angeles.

THE MARKETS.

San Francisco, May 5, 1909.
(Unless otherwise noted, quotations represent prices paid to growers.)

WHEAT.

No further advance has taken place, all values remaining exactly as last quoted. Trading here remains rather dull, and the Northern markets have also quieted down somewhat, as buyers generally show greater unwillingness to pay the prices asked. Locally the only strong demand is for choice milling wheat, which is scarce and firm. The price is limiting the demand for the lower grades, on which the market shows a tendency to easiness.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	1.80	@1.90
Northern Club	2.10	@2.15
Northern Bluestem	2.20	@2.30
Russian Red		2.10
Turkey Red	2.00	@2.20

BARLEY.

The arrivals of barley have been rather large for the last two weeks, and as there is no unusual demand there is some tendency to lower values. Brewing and shipping barley are still held at the comparatively high figures formerly established, but feed grades are lower. There is hardly any movement of Chevalier at present.

Brewing	$1.62½@1.65
Shipping	1.62½@1.65
Chevalier	1.70
Good to Choice Feed, per ctl.	1.57½@1.60
Common Feed	1.52½@1.56¼

OATS.

Offerings of oats are still very light, no supplies of any consequence arriving in this market. The surplus in the North is practically cleaned up, and some stock has been brought in from Canada. The local demand, however, is very limited, and the prices are unchanged.

White, per ctl.	$2.15	@2.25
Gray	2.10	@2.15
Red, choice		2.15
Common	1.95	@2.10
Black	Nominal	

CORN.

Arrivals here are of little consequence, though some large lots are being shipped from the East to various parts of the State for feed. White Egyptian is easier, but California small round yellow has made a sharp advance. Bulk lots of mixed and white corn are also a little higher.

California Small Yellow	$2.00	@2.10
Western State Yellow		1.80
Mixed, in bulk		1.70
White, in bulk		1.77
Egyptian White		1.95

RYE.

There is no longer any rye to be had on the Coast, but some dealers are offering to make sales to arrive at even higher prices than before. Business, however, is small, as no large supply is required by this market.

Rye, to arrive	$2.00	@2.10

BEANS.

The bean market still shows decided strength and prices generally have reached a higher level. Stocks in the growing districts are unusually small, and the total supplies are considered smaller than last year, when there was scarcely any carryover. Supplies of whits beans are especially small. Bayos are higher and very firm. A heavy demand has been felt during the last week or two for pink beans, and large shipments have been going out from this State all month. The remaining stock is very small, and present prices are considered low. A good steady inquiry is reported for other varieties.

Bayos, per ctl.	$5.25	@5.50
Blackeyes	3.50	@3.65
Cranberry Beans	4.00	@4.50
Garvanzos	2.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.50	@5.75
Large Whites	4.50	@4.75
Limas	4.15	@4.25
Pea	Nominal	
Pink	3.25	@3.35
Red	Nominal	
Red Kidneys	3.65	@3.80

SEEDS.

The demand for seeds has fallen off greatly in the last few weeks, and there is very little movement at present. Alfalfa is steady at about the former prices, with only moderate stocks on hand, and brown mustard is a little higher. Several varieties are lower.

Alfalfa, per lb.	18	@19 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.	3¾	@4¼c
Canary	4	c
Flaxseed	4	c
Hemp	4	c
Millet	3	c
Timothy	5¾	@6¼c
Yellow Mustard	6	@6½c

FLOUR.

A little export business is again reported from the North, but the movement in that direction is not large. Little is being shipped from San Francisco, and the local demand remains quiet. Prices are firmly held at former quotations.

Cal. Family Extras	$6.40	@7.00
Bakers' Extras	6.40	@6.65
Superfine	5.20	@5.50
Oregon and Washington	4.85	@5.75

HAY.

The arrivals of hay at San Francisco continue to decrease, the falling off in the last week amounting to nearly 600 tons. At the same time the demand is very moderate, and local consumers are able to fill their requirements at about the same prices as before. New crop is beginning to figure rather prominently in the arrivals, and considerable quantities are expected within the next week. The crop in most parts of the State, where cutting has not been commenced, is badly in need of rain, though most districts will produce as much hay as last year with continuation of dry weather, and the total crop will be much larger than last year. A readjustment of prices on a lower level is accordingly expected in the near future.

Choice Wheat, per ton	$22.00	@24.00
Other Grades Wheat	17.00	@22.50
Wheat and Oat	20.00	@22.50
Tame Oat	19.00	@23.00
Wild Oat	18.00	@21.00
Alfalfa	13.00	@17.00
Stock	7.00	@10.00
Straw, per bale	50	@ 90c

MILLSTUFFS.

Bran is rather weak, with a slight decline on the best grade, as the demand locally is not very active at present. Prices on shorts and middlings are still maintained. Mixed feeds are higher, and other feedstuffs are steady at former prices.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.00	@35.00
Mixed Feeds	30.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	33.00	@34.00
Shorts	31.00	@32.00

VEGETABLES.

The supply of onions is quite sufficient for all present requirements of this market, and prices show no further advance, though everything is held firmly as before. Asparagus is coming in larger quantities again, and as the canneries are taking only a small portion of the surplus, prices are much lower. Choice lots still find a ready market, but considerable unattractive stock is offered, and is hard to dispose of. Peas are also plentiful and lower. Rhubarb is very firm, and the best lots command high prices. Choice string beans, which are now arriving from nearby points, are also firm.

Onions, Oregon, per ctl.	$ 2.35	@ 2.50
Australian Onions	4.00	@ 4.25
Bermuda Onions, per crate	1.40	@ 1.50
New Green Onions, per box		65c
Garlic, per lb.	8	@ 10c
Green Peas, sack	1.00	@ 1.50
String Beans, per lb.	15	@ 20c
Cabbage, per ctl.	2.00	@ 2.25
Tomatoes, per crate	1.00	@ 1.25
Cauliflower, per doz.	65	@ 75c
Celery, doz.	40	@ 50c
Asparagus, extra coice, box	1.00	@ 1.50
Asparagus, common to choice	50	@ 85c
Rhubarb, per box	1.25	@ 2.00
Turnips, per sack	1.00	@ 1.25

POULTRY.

Prices show a general revision this week. Receipts show some increase over last week, mainly in Eastern poultry, two cars arriving Monday. Arrivals of California stock remain considerably below normal. The Eastern arrivals consisted mostly of large hens, and these have been moving off rapidly at advanced prices, though ordinary stock is neglected. Old roosters are easy, and broilers are a little lower, though fryers are in demand at good prices. Pigeons, squabs and ducks are lower.

Broilers	$ 4.00	@ 5.00
Small Broilers	3.00	@ 3.50
Fryers	8.00	@ 9.00
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons	1.00	@ 1.25
Squabs	2.00	@ 2.50
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

Butter has been inclined to easiness most of the week, with little outside demand, but a marked falling off in receipts for the last few days has caused renewed firmness. Extras are quoted as last week, but firsts are ½ cent higher.

California (extras), per lb.	24 c
Firsts	23½c
Seconds	22½c

EGGS.

The egg market is in rather an abnormal condition, as prices show a continued firmness which is by no means justified by the immediate demand. The production is now quite heavy, and a large surplus is going into storage all the time, though prices are exceptionally high for storing. Extras are quoted on the Exchange at the same figure as last week, but there is an easier feeling on the street. All the lower grades are 1 cent higher.

California (extras), per doz.	26 c
Firsts	25 c
Seconds	24 c
Thirds	22 c

CHEESE.

A lively shipping demand a few days ago took up most of the surplus, but the market is quiet at present, and there is little movement aside from local stock. Y. A.'s are decidedly firm, the fancy grade being held 1 cent higher, but flats are a cent lower than last week. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	14½c
Firsts	14 c
New Young Americas, fancy	17 c

POTATOES.

Potatoes have taken another jump. Supplies are sufficient for present requirements, but are in strong hands, and both river and Oregon stock is held at 25 cents above the last quotation. A small lot of Salinas stock is still on the market, but it is held at $3.00 per cental. Oregon seed stock brings about $2.00. New potatoes are also higher, and sweet potatoes are unchanged.

River Whites, per ctl.	$ 2.00	@ 2.25
Oregon Burbanks, per ctl.	2.25	@ 2.50
Sweet Potatoes, per ctl.	1.60	@ 1.65
New Potatoes, per lb.	2	@ 2¾c

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Best Tree Wash.
T. W. JACKSON & CO., Temporary Address, 42 Market St., San Francisco.

FRESH FRUITS.

Strawberries are now arriving plentifully from Watsonville and other points in this vicinity, in addition to considerable crated goods from around Los Angeles. The demand, however, is steadily increasing, and prices show little decline, though the less attractive lots are hard to move. Cherries are also beginning to arrive in fair volume, though prices are still held rather high. The remaining lots of cold storage apples receive very little attention.

Strawberries—		
Longworths, per chest	$ 8.00	@11.00
Large varieties	5.00	@ 7.00
Cherries, drawer	1.00	@ 2.00
Apples, fancy, per box	1.25	@ 1.50
Apples, common	50	@ 1.00

CITRUS FRUITS.

Oranges have been moving well all week, though the small sized fruit receives most attention. The prices are higher. Prices on lemons have also been advanced at shipping points, but quotations here are unchanged and the demand is moderate. Limes are still plentiful.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.00
Standard	1.00	@ 1.25
Limes	4.50	@ 5.00
Oranges—		
Fancy Navels	2.25	@ 2.75
Choice	1.75	@ 2.25
Tangerines	75c	@ 1.25
Grape Fruit	2.50	@ 2.75

DRIED FRUITS.

Jobbing and retail markets in the East have been fairly active for the last month, though as a rule low prices have prevailed. There is little disposition at present, however, to buy beyond immediate requirements, and few inquiries of any importance are now being received by the local packers. The statistical position of prunes is quite strong, but owing to the general desire of holders to dispose of their stocks prices show no advance. They are still moving well in the East, however, and a shortage of some sizes is reported in that quarter. Peaches continue quiet, and there is very little movement of apricots, but with this market practically cleaned up and no large stocks held elsewhere, prices are still very firm. Quotations on fruits generally, as given by local packers, are the same as last week. Raisins are also unchanged in value, with packers offering 1½ to 2 cents for sweatbox stock. The larger interests in the East have done little to encourage the Raisin Day boom, but a fair retail movement has taken place all over the country. There has been some tendency in the trade, however, to take advantage of the growers' advertising to work off old stock, though this may help to put the market in better condition.

Evaporated Apples	5	@ 6¼c
Figs, black	3	@ 4 c
Figs, white	3½	@ 4 c
Apricots	7½	@10 c
Peaches	3¼	@ 4½c
Prunes, 4-size basis	2	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Nuts show little feature. The last almond crop has practially all been marketed, and quotations are largely nominal, as little stock is held by the larger local interests. There is a good demand in some quarters, but it is difficult to get supplies. Walnuts are plentiful, but steadily held at the prevailing prices.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

While the dry weather is reported to be having a bad effect on the coming crop in some sections, the general report indicates considerably larger production than last year. With the market closely cleaned up, the first offerings should bring good prices.

All grades nominal.

HOPS.

So far there is very little doing in this market. Little old stock is offered at the prevailing prices, and prices are weaker than before. A few contracts are being made at 9 to 11 cents, but in general there is little interest in the new crop.

Hops	5	@ 7 c

WOOL.

Wool continues very active and firm, and the spring clips are bringing satisfactory prices. All grades are 1 cent higher than last week, and a large lot of year's staple has been disposed of at Red Bluff at prices varying from 21 to 24 cents. Local dealers have received cable advices that the London market opened last Tuesday at an advance of 5 per cent on Merino wools.

Red Bluff, choice, f.o.b. S. F.	17	@19 c
Year's Staple	21	@24 c
Middle Counties, free	14	@17 c
Southern, free	13	@14 c

Defective wools, 2 to 3c. lower.

MEAT.

Dressed meats and live stock are generally inclined to weakness, with increasing arrivals. Hogs are in moderate demand, with prices steadily held, but dressed beef, mutton and lamb are lower, and live ewes and lambs also show some decline.

Beef: Steers, per lb.	7½	@ 8 c
Cows	6½	@ 7 c
Heifers	6½	@ 7 c
Veal: Large	6½	@ 7½c
Small	8	@ 9 c
Mutton: Wethers	7	@ 8½c
Ewes	6	@ 7½c
Lambs		9 c
Spring Lomb	9½	@10 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	4½	@ 4¾c
No. 2		4½c
Cows and Heifers: No. 1		3¾c
No. 2		3¼c
Bulls and Stags	2	@ 2¼c
Calves: Light	5	@ 5½c
Medium	4½	@ 4¾c
Heavy	3¾	@ 4¼c
Sheep: Wethers		4¾c
Ewes	3¾	@ 4 c
Lambs: Yearlings		5 c
Spring Lambs		5½c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾	@ 7 c
Common Hogs, lb.	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

Los Angeles, Cal., May. 5.—Another record breaking sale at yesterday's auction, 161 cars of citrus fruit being sold. That the market does not break under such an onslaught is remarkable and must mean that demand is increasing. The best brands are bringing very good money, but the average is no better than a week or two weeks ago and not up to prices received at this time last year.

To get at the average price received for average goods, neither the high values received for the brands of shippers who specialize nor the very low prices on tramp cars must be considered. There is a very wide range between the two, and the medium is found in certain extra choice or orchard run brands put up under regular commercial pack and shipped direct. There are enough of these brands appearing in auctions every day to determine what an average price would be. Summing up all of the different prices re-

ceived at the different auction points, this price will be found to be about $2.50 a box. Now when freight of 83 cents a box, icing charges of 20 cents a box and auction charges of 5 cents are deducted the net to the shipper can be determined. The picking and packing expense is not far from 50 cents a box, and thus the grower's returns on fruit sold at this time of the year for $2.50 at the other end can be figured, less than $1 a box net, yet growers have been refusing offers of 1¾ cents per pound for their fruit, a net price to them of $1.15 per box delivered at the packing house.

Shippers are asking from $1.65 to $1.75 per box for their navels, but they are getting no orders at this price, and in consequence are either floating their product or holding it for better times.

The end of the navel crop is now in sight. There will be navels going out all this month, but all except a few scattering cars will be gone by the 15th.

St. Michaels and seedlings are now in their prime and with navels out of the way the demand should be very good for these varieties. As with navels the prices being received for seeds and mikes are not up to the asking prices at this end. The best seeds hardly bring over $2.30 delivered and the asking price up to now has been $1.65 per box. Rather than accept any lower price the shippers have been selling at auctions and the returns have been about 80 cents a box to the grower. If the shippers would quote seeds at $1.50 per box it would put new life into the market, bring larger returns to the grower and the jobber would be interested in keeping prices up at the other end. The best mikes are quoted up to $2 at this end, but prices now received at auction do not justify any such price.

It seems to be settled that Valencias will sell at $2.25. This is the lowest opening price for years and was no doubt made because the crop as a whole is heavy and is particularly heavy on young trees that had to be relieved at once. More Valencias are now going out than ever before at this time of the year.

The lemon market is very dull, the output is heavy under the circumstances and there is no relief in sight until the bulk of the goods now in storage has been shipped. Many look for a good market this summer and are going to hold onto all their good keeping stock for July and August demand. Lemon prices run all the way from $1.50 to $2.50 for immediate shipment.

The citrus fruit shipments to date have been 19,290 cars of oranges and 2777 cars of lemons, as against 17,546 cars of oranges and 2224 cars of lemons to same time last season.

WICKSON'S FRUITS.

"California Fruits and How to Grow Them" is the title of E. J. Wickson's noted book on fruits which has just been issued in a fourth edition. The Frisco fire of 1906 destroyed all material used in printing earlier editions. Early in 1908 arrangements were made on the part of the PACIFIC RURAL PRESS with the Krukeberg Press of Los Angeles for the present enlarged form printed in the elegant style and fitting ornamentations which show horticultral conditions to date, to better advantage than in former issues. Professor Wickson is a capable, painstaking and conscientious worker, and has handled problems pertaining to fruit and fruit culture methods in a manner helpful, particularly to beginners, in the fruit industry, and those in fruit sections anywhere on the Pacific Coast. Frequent reference to the subjects treated will be made in our columns. For price and further particulars of the book address PACIFIC RURAL PRESS, San Francisco, California.—*N. W. Horticulturist.*

PUBLISHER'S DEPARTMENT.

Attention of homeseekers is called to the advertisement of Canadian Railway lands by R. A. Berry & Co. of Berkeley.

New advertisers in this issue are Sugarman Bros., the pipe dealers, who have recently moved back to their old location on Howard street, San Francisco. Look up their advertisement.

In our stock department will be noted the announcements of stock for sale by Elijah Hawkins of Riverside, the Swiss Goat Dairy of Pasadena, and J. E. Dickinson of Fresno. These parties are advertising Short-horns, Jerseys and Toggenburg goats.

A WOMAN'S IDEA OF SUMMER COMFORT.

To every woman, especially the woman who keeps house, the topic of summer comfort in the home is one of never-failing interest.

This is particularly true where comfort in the kitchen is concerned, as it is in this one room that the most trying part of the work is done, such as cooking, baking, ironing and heating water for wash-day purposes. Even in cool weather such work is not altogether welcome, but it becomes drudgery when the mercury is trying to jump through the top of the thermometer, aided by a hot stove that diffuses its almost unbearable heat through the kitchen.

But such days are past. With the New Perfection Wick Blue Flame Oil Cook Stove, kitchen drudgery becomes kitchen comfort, for this wonderful stove is so constructed that it not only produces quick results, but does it all without perceptibly raising the kitchen temperature.

All this means real comfort to the woman who works in the kitchen, especially when considered with the added advantages in the saving of time; in the doing away with all carrying of coal, wood and ashes; in having a stove that can be turned on or off, high or low, as required: and in not having to keep it lighted when not in use.

Then there is the saving of fuel to be considered: and it is here also that the New Perfection excels. Although equipped with three burners it has but one oil reservoir, thus reducing three separate filling operations in one.

Besides all this, the "New Perfection" is the only oil stove built with a cabinet top. Its commodious top shelf is particularly useful for warming plates and keeping food hot after it is cooked. In addition there are two drop shelves on which may be set the teapot or coffee pot and small cooking utensils. Also has two racks for holding towels.

Altogether the "New Perfection" is a stove of wonderful utility. Its extremely handsome appearance sets off any kitchen to full advantage. It is superior to the hot coal range no matter what the point of comparison may be—or whether regarded as a summer stove only or as a stove for year round use.

Another household article of unusual convenience is the Rayo Lamp, a scientifically constructed lamp that will adorn any room—whether library, parlor, dining room or bedroom. The Rayo Lamp gives a mellow steady light that does not tire the eyes. Its center draft burner of the latest design and its fine porcelain shade make it a lamp of combined usefulness and beauty.

The New Perfection Wick Blue Flame Oil Cook Stove and the Rayo Lamp constitute two household articles that will meet any woman's idea of home comfort. In the thousands of homes in which they are already used they are making things cheerful because of their absolute safety, great simplicity and wonderful convenience.

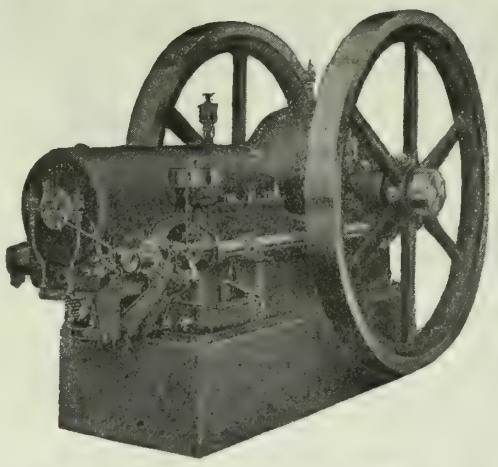
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Nothing is more satisfactory than to be able to secure honest goods at fair prices. Nothing is more satisfactory than to deal with a merchant whose guarantee on some particular line of goods is an absolute protection because the manufacturer of the goods stands back of the merchant. This is the case in dealing with those merchants who handle Rex Flintkote Roofing.

This roofing has been on the market for many years, and it is worthy of note that the merchants who handle it and whose endorsements have appeared in these columns are all enthusiastic believers in the quality of Rex Flintkote Roofing and in the fairness of J. A. & W. Bird & Co., the manufacturers of this celebrated prepared roofing. We advise you to ask your dealer about Rex Flintkote when you need roofing. He may tell you there are cheaper roofings, but he cannot say there are better or more durable ones.

We advise our readers to send for "Rex Flintkote" booklets to J. A. & W. Bird & C., 00 India St., Boston, Mass., and note how this firm does business.

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The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

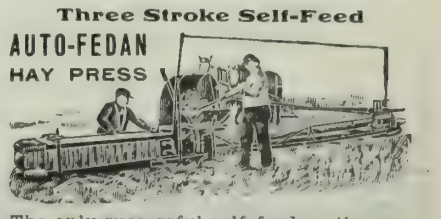
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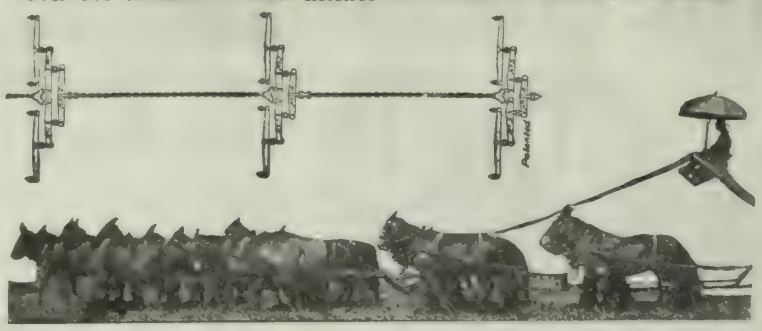


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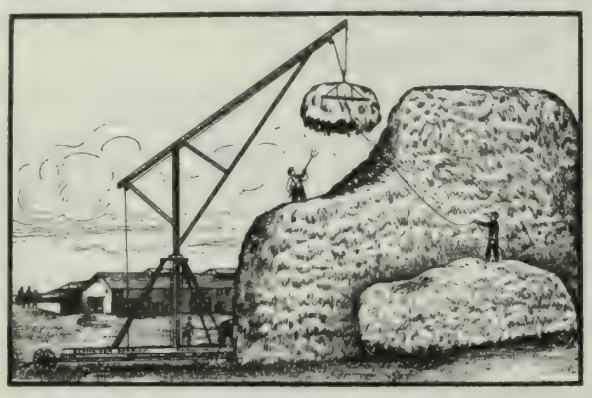


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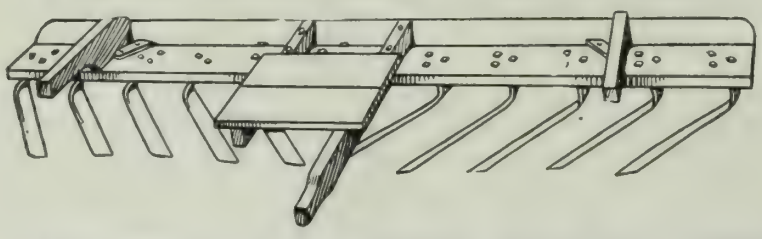
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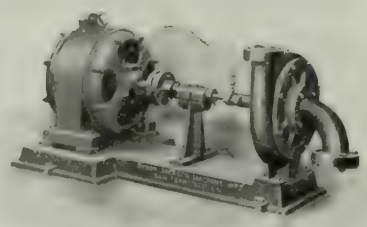
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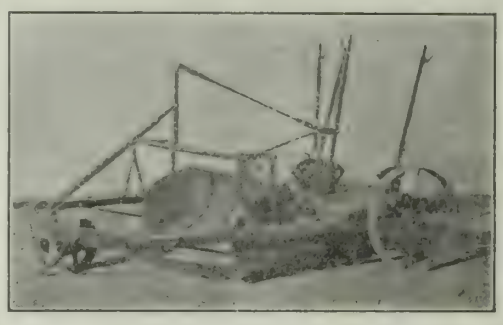
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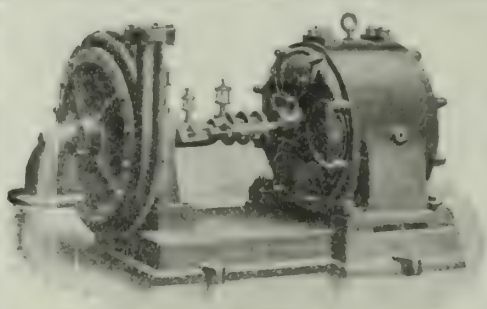


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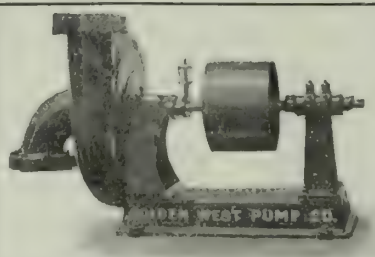
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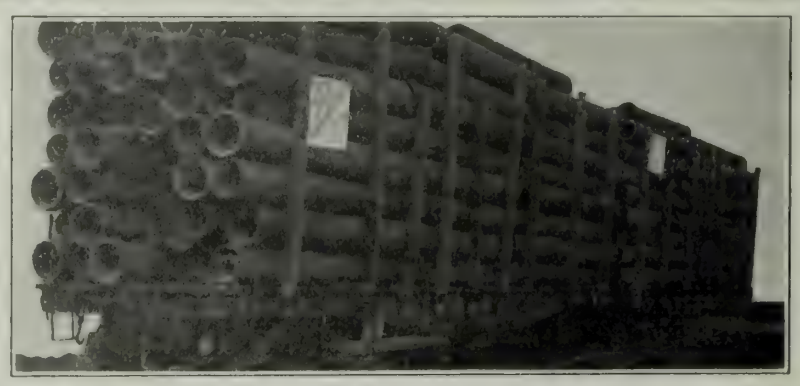
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 20. SAN FRANCISCO, SATURDAY, MAY 15, 1909. Thirty-ninth Year.

Successful Co-operation.

Written for the PACIFIC RURAL PRESS
By Mr. WM. M. BRISTOL.

It has been said that farmers cannot stick together in a commercial undertaking—partly because they do not know enough about business, and partly because they let personalities interfere in their co-operative ventures. These statements seem, however, to be nullified in the case of the orange growers of California, for they have stuck together more than a dozen years in as successful an undertaking as the commercial world has recently seen. And there are no present signs of disintegration in the California Fruit Growers Exchange. This is doubtless due, in a large measure, to its democratic form of management, as well as to the fact that large numbers of the growers were business men before they came over the Rockies. The story of this great organization has been frequently told, but the work of the local association — the unit of membership in the general organization —is not so well known.



Co-operative Association Packing House at East Highlands.



Interior View of the Gold Buckle Packing House.

The views on this page are of the building and plant of the Gold Buckle Association — until recently the East Highlands Fruit Association — of San Bernardino county. This association was organized in 1897, and has had a successful and constantly expanding career. Its commodious packing house is now equipped with a complete pre-cooling and ice-making plant — the first installed in California by a co-operative association. Of the 1200 acres of oranges in the East Highlands district more than 800 are owned by the members of the association, about twenty in number. The establishment represents an investment of about $100,000, the stock being issued in the ratio of one share per acre. The investment of more than $100 per acre in marketing facilities seems, at first glance, unnecessarily large, but the completed plant is now almost through its second season, and the results are more than satisfactory.

The paraphernalia and methods of an orange packing house are familiar to most readers, but the relations between it and a modern refrigerating plant may be of interest. The decay of fruit in transit during the late spring and summer, even when cars are iced and re-iced, has made it plain that the most careful and systematic practices must be followed if California's orchard products are to reach Eastern consumers in attractive condition. The recent investigations of Government experts have demonstrated that much of the decay may be prevented by careful methods of picking and packing; but it has already been amply proved that thorough cooling of the fruit as soon as possible after picking is destined to be of the greatest value and service in its delivery to the consumer. Two of the transcontinental railroads are now building great pre-cooling plants, chiefly for oranges—the Southern Pacific at Colton, and the Santa Fe at San Bernardino. It is plain that fruit which is to be cooled at these plants must first be packed ready for shipment; that, after the car arrives at the plant, the cooling must be done in a few hours, by the introduction of cold air into the car, or the fruit must be unloaded into cooling rooms. The first method will not permit of the thorough and gradual cooling which is believed to be best, and the second must inevitably involve a great amount of handling, to say nothing of the confusion which will result when the railroad employes attempt to replace the fruit in the cars in the order the shippers desire.

At the East Highlands establishment the carefully picked oranges are packed as quickly as possible after leaving the trees, and the boxes go immediately into the cooling rooms. As soon as a room is filled, the temperature of the air is reduced to about 37 degrees, that temperature being thereafter maintained as long as it is desired to keep the fruit. It has been found that nearly 48 hours are required to reduce the temperature of the fruit in the center of the boxes to that of the air in the room and do it without danger of injury. It goes without saying that where oranges are cooled so thoroughly and so soon after leaving the trees, they have no opportunity to lose their freshness and are in the best possible condition to start for the Eastern market. It is not considered necessary to begin pre-cooling before April, the first oranges so treated this year having gone into the rooms on the 12th of that month. It has been demonstrated that pre-cooled oranges may be shipped without ice until the season is well advanced, practically all of the navels having gone this year without it. It has further been proved that pre-cooling almost invariably eliminates the need of re-icing in transit. Every car of pre-cooled oranges so far sent out under ice by the Gold Buckle Association has reached the most distant point without re-icing, and with a portion of the initial ice still in the bunkers.

The greatest present need of the California fruit grower is to be able to place his fully ripened product before the Eastern consumer in the pristine condition in which it leaves the trees. The members of this East Highlands co-operative association—a bunch of farmers, if you please—have solved the problem. Were a commission man to appear before them with the time-worn plea that growers cannot successfully market their own crops, he would simply get a quiet smile—and a glass of ice-water. Co-operation of growers in the packing, shipping and selling of oranges has long since passed the "to be or not to be" stage. Feuds and personalities, if such there be among the growers, are muzzled and left at the hitching post when the members of an association assemble for business.

Co-operation has not eliminated the middleman —there must needs be distributors, and they are worthy of their hire—but the day of their autocracy in the California orange market is forever past.

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E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., May 11, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.01	42.07	43.50
Red Bluff	.00	30.56	23.90
Sacramento	.00	21.75	19.52
San Francisco	.00	25.57	21.67
San Jose	.00	18.26	12.55
Fresno	.00	9.79	9.28
Independence	T	8.00	9 12
San Luis Obispo	.00	31.37	19.93
Los Angeles	.00	19.07	15.37
San Diego	.00	10.23	9.76

The Week.

There is an old agricultural exhortation to "sell the crop when it is ready." It is generally supposed to be an appeal against undue holding because of the doubts and expenses which pertain thereto. But it is a rule which works both ways, and therefore proverbially good. When markets are bare and the outlook for large products uncertain, there is always a danger of selling too soon by those who do not realize the situation. "Sell when the crop is ready," is therefore a suggestion against selling too soon and against holding too long. So far as we can judge, conditions warrant holding to the advice in both its phases: in other words, we believe the producer who seizes both the head and tail of the beast this year will make the best catch. There is a danger now of contracting grain, hay and other forage too low, and the danger of setting figures which cannot be realized may come later. We trust our readers will succeed by not doing either.

The later spring rains did not come, and the time of usefulness in them has passed, except in very late districts. There promises to be, in the larger parts of the State at least, a scant yield of hay and grain and an early ripening of dry feed. These things, in the face of our increasing animal industries, would mean serious losses were it not for the yielding capacity of our growing irrigated alfalfa acreage, and this safeguard will be drawn upon in a way to secure high prices for those who are fortunate to have such acreage. In a way it will be the same with grain and mill feeds. All these things have for a year sustained a very high range of values, and the outlook is certainly for their maintenance. This should be considered now by those who are offered selling contracts. It is merely a gamble now to say what prices will be a little later or during the course of the next year. When the bulk of the product is harvested, however, there may be a little clearer sight of the available supply, and then will come the danger of holding too high. Then will be the time to follow the general wisdom of the elders: "When the crop is ready sell—if the price is good: let the other fellow speculate."

It will be a year when a man will have to look out for his stock even more carefully than he does for himself, for hay promises to cost more than hot cakes, and not nearly so durable in digestion. Even coarse wild hay on land which drowned out last winter may be worth attention this year: it can be put through a cutter, fortified with a little millstuff, and made a sustaining ration. First crop alfalfa and foxtail will hardly be wasted this year as it often is. Of course land uncovered from overflow can be made to yield considerable sorghum, which can be cut young for hay and serve an excellent purpose for cows. Sorghum and Indian corn, squashes and beets can be put on land which has been too wet to plow seasonably, or even a small area which can be wet down from wells or by pumping from ponds or streams can be cropped profitably this summer, because it will be such a saving not to have to buy feed. A man can do a great deal in these and other lines if he thinks hard and makes up his mind to do new things.

We mention these matters because they are suggestions for saving money and making new enterprises pull through. We know there are many newcomers who can be helped to content and effort by such hints to help themselves. On the whole, there will be large production this year. Fruits as a rule promise well, either in amount or value, and the totals will be satisfactory. There is ample moisture below, and that counts with trees and vines which are properly cultivated. It is the common field crops grown by rainfall which will be short in amount, and yet fair in aggregate value, perhaps, because of high prices.

In the matter of good prices, fruits are likely to show marked improvement over last year. Figures show that the Eastern depression, which gave us slow and scant buyers last year for the products which we must sell at a distance, has disappeared. Think about diamonds: they do not sparkle in the gloom. According to a telegraphed report from the New York customs office, the luxuries imported into this country during April indicate a return of prosperity. During the month diamonds, pearls and other precious stones aggregating an appraised value of $2,418,242 were imported through New York. This is six times the quantity imported during the same month last year, and is more by nearly half a million than the value of the precious stones imported during April, 1907. As the Eastern people are thus laying in their spring diamonds freely, they may be looked upon as in better condition to buy our summer and autumn fruits and wines, and thus will be removed a slackness of demand which has troubled our high-class crops of the last two years.

Thinking about our fruit products going east, it is timely to note a measure of the greatness of this traffic. The report comes that the heaviest train that ever went over the mountains from Sacramento to Reno took the trip one day last week, when 55 cars, 35 of them loaded with oranges and 8 with lemons, were hauled up the grade by five locomotives. Fast time was made all the way. The Southern Pacific is apparently making every endeavor to get its fruit trains across the continent in quicker time than in past seasons, and we expected that it would not be behind the Santa Fe in saving time on the overland fruit route. The effort which the former road is making with orange shipments this season augurs well for the swifter transportation of deciduous fruit a few weeks hence, as it has most of this movement to accomplish.

A most energetic campaign is still being made before Congress for more protection for our promising lemon industry. The effort is, however, handicapped by the wretched symbolry into which this splendid fruit has been inveigled. Our people have been prevented from using the best argument in favor of protection, to wit, the lemon itself. With President Taft, for example, our representatives could only present oral arguments, for to have handed him a lemon would have laughed down the whole proposition. The issue against our lemons is being made by the Atlantic seaboard traders, who want a chance to import lemons and to flood the country with them at low prices, without thought of American investments, enterprises and labor. They neither make investments nor hire labor. The last outbreak is a petition from the fruit dealers of Baltimore, who ask Congress to reduce the duty on lemons to the cubic foot basis, which would mean a duty of about eight-tenths of a cent per pound. The California delegation is aroused at the demands of importers and is working hard to secure a duty that will fully protect the lemon business, and if in the end they can hand a lemon to these selfish traders we shall not object so much to the symbolry of the fruit.

We do not think for a moment that the Government desires to put the California lemon growers in a tight place, but even so broad a man as Mr. Powell, who is doing such good work for California fruit shipping, does sometimes get a very narrow notion. The report is that a number of the thinnest citizens of Chicago have announced their desire to take examination for a vacancy at present existing in the Department of Agriculture. This department for months has been in search for a real thin mechanic assistant to aid the operation of refrigerating cars for the experimental precooling of fruits for shipment from California. Because of the amount of machinery in the car and the limited space in which the assistant must work, a man of slender physique is necessary. In the announcements sent out for the examination the Government carefully warned all stout men not to apply. Only thin men would be considered, the announcement said, and also they must engage to stay thin. The Secretary of Agriculture proposes, if possible, to see through everything that goes on in his department.

There will be a good chance next week to see what is going on at the University Farm at Davis, in Yolo county, about which we have so frequently spoken. The new dormitory, which has just been completed, will be dedicated with appropriate ceremony on Saturday, May 22, and will be made the occasion for a great basket picnic and outing on the grounds of the University Farm. Plans are completed to make it one of the most enjoyable and instructive gatherings of that character ever held in northern California. The grounds are admirably adapted to such a purpose, and a very large attendance is anticipated. The railroad company has made a reduced rate for the round trip for the occasion, and there ought to be a general interest to see just what the University Farm offers in the way of practical instruction in agriculture.

There will have to be a little extra effort put forth to make the California State Fair a good one this year. There will be the great diversion of the Alaska-Yukon exposition at Seattle, which will attract many Californians, but with a new pavilion furnished by the last Legislature, and the earnest effort which may be expected from President Jastro and his associate directors, it only needs the attention of our citizens to make the Sacramento event a great success. There may be an advantage to the legitimate sport of speed contests by the destruction of the gambling joints by the anti-

racetrack legislation. The very word anti-racetrack shows how low the real speed contests have fallen in public esteem, which is not the fault of the racetrack, but of the men who clustered abominations around it. It was feared that the Wright law would prevent the railways from promoting the exhibition by free carriage of exhibits, but that has been averted by the decision of the State Attorney-General, who holds that "property that is being transported from various points in this State to one central point, for exhibition purposes only, does not come in competition with similar property, and for the time being is not a commercial commodity." This is a very fortunate conclusion, for such property is not at the time commercial, but educational.

Queries and Replies.

Better to Grow Right Than to Reclaim.

To the Editor: I have seen two orange properties which I am thinking about buying. One of them is badly infested with "black scale" and the other had some "purple" scale. Will you kindly tell we which is considered the more detrimental to the orange tree and the means of getting rid of them? Also, is an orchard that has been cut back, having a large trunk and a medium amount of branches, as desirable as one which had developed naturally. Both groves have been neglected, but their owners are trying to put them in condition again.—Buyer, Los Angeles.

As between the black and the purple scale, the latter is considered the greater evil, because it is more difficult to overcome it by the fumigation process, which is the only satisfactory treatment for either of these pests.

Orange trees of the right variety which have been developed naturally into good form are unquestionably better than neglected trees started anew from cutting back, although the latter may finally become very productive. You should not think about investment in orange property without endeavoring to inform yourself more fully concerning the problems involved. It is particularly necessary in the bringing up of neglected property that one should not only give personal attention to the property, but should understand from past experience just exactly what is the best thing to do.

Unprofitable Almonds and Figs.

To the Editor: Can you tell me what is the matter with my almond trees? They are about twelve years old and for about the last six years have been very full of bloom and always set well, but when they are about a half inch in diameter they nearly all fall off in, say two or three days, from no cause that I can discover. I have also a small patch of figs set out from cuttings. Some of them do fine, while some bring out hundreds of small green figs before the leaves come out in the spring, which ripen about June, but are worthless. Can you tell me what is the trouble and what is the remedy?—Grower, Fresno.

The trouble with your almonds looks like lack of pollination. Do the dropping nuts have kernels, or only rubbish in hollow pits? If so, graft some of the trees over with Drake's Seedlings or Texas Prolific scions. Your fig trouble is curable also by grafting. Work out all the worthless trees with scions from trees which bear well if the variety suits you. You say the poor figs ripen, which show that they do not need pollination, but are simply a worthless kind.

Kaffir Corn.

To the Editor: Will you kindly give an estimate of how many bushels of seed and about how much fodder per acre should be produced by a crop of Kaffir corn on unirrigated land close to the Sacramento river. I am not looking for exact figures, merely wish to get some idea of what it should produce under ordinarily favorable conditions. The land has been used formerly for wheat and barley, and the soil is rich.—L. H. R., San Francisco.

The amount of Kaffir corn will vary greatly, according to the richness of the soil, amount of moisture, character of the season, etc. Perhaps good crops might average from 30 to 40 bushels of seed to the acre. When the crop is grown for seed and allowed to fully mature, the stalks are of very low value, not nearly so good as ordinary Indian corn stalks. You should not, therefore, count on very great production of corn and fodder from the same plant, but when the Kaffir corn is cut younger, before the heads develops more fully, it does produce nutritious forage, and two to four cuttings a year can be made from the same roots, if the moisture remains in the soil sufficiently long.

Grafting Olives—Apple Borers.

To the Editor: Is there any kind of fruit that can be grafted on olive trees successfully? If so, let me know through your valuable paper. What time of the year do the worms bore in young apple trees, and how should a fellow handle himself to stop them?—Subscriber, Sonoma County.

We know of nothing but olives that can be successfully grafted into olive trees. The common flat-headed apple tree borer, which is probably the one you have, starts in in the early summer from eggs deposited on the bark by a small copper-colored beetle. This beetle always seeks wood which has been injured by sun-burn, and both the sun-burn and borers can be prevented by the use of whitewash or some sort of wrapping which prevents the direct rays of the afternoon sun from reaching the bark of the trunk or main limbs. You should apply such a coat of whitewash without further delay. Beyond this there is nothing you can do. The whitewash will prevent further sun-burning and probably the entrance of more worms. If the burning has not extended over too great an area of the bark the tree may be useful for a long time to come, but some trees are so thoroughly sun-burned that they should be taken out and new trees planted, to be carefully protected from planting onward.

Summer Growing Legumes.

To the Editor: I understand there is a pea or bean that is sown early in the summer for the purpose of fertilizing the soil, and early in the winter is plowed under. If you have a knowledge of such I would like to share it.—Reader, San Francisco.

We never heard of a summer grown legume found satisfactory on dry lands for plowing in as you propose, although some experiments are in progress along that line. Chief summer growing legumes are cow peas, soy beans, etc. The main trouble is to get moisture enough for summer growth of legumes, except on moist river bottom, or on irrigated land, and they are generally not satisfactory on irrigated upland, because they suffer from dry air, although there may be moisture enough in the soil. We hope to know more about this matter later, because certain plants will be under trial this summer at the University Farm.

Pruning Peaches in Thinning.

To the Editor: Kindly inform us whether you think it all right to cut off portions of fruit wood from peach trees where they were left long last winter and have far too many peaches on for the trees to carry.—Orchardist, Fresno County.

It is certainly all right to cut back peach trees as you suggest, and to thin the fruit on the wood which you retain. This is practiced in some parts of the State, and we never heard of anything but good results therefrom. It is necessary also to hand-thin the fruit on the remaining bearing wood.

When Is Fruit Set?

To the Editor: A question arose lately of much interest to several parties, as to the period when fruit is supposed to be set, particularly the apple. Some say that the fruit was set two months ago, just as the buds first began to swell; others say it was set a week ago, when the trees were in full bloom; while some others say the fruit is not set until after the June dropping, or in other words, after the fruit has shed or thinned itself, which would bring the date to the latter part of June or the first of July in this locality. I will thank you for a conservative answer in this matter.—Reader, San Bernardino.

There are different uses of the term "set". We presume there might be a botanical meaning which would apply as soon as the petals have fallen, and this may have some significance in entomological practice also. There is no such thing as setting before that time. Horticulturally the fruit is not set until after the spring drop from lack of pollination or conditions unfavorable to its proceeding along its regular way. We do not think the term is capable of definition without statement of the sense in which the term is used. The horticultural significance is, of course, the most widely used and the most important.

Alfalfa Meal and Mealfalfa.

To the Editor: Many inquiries have been made here by farmers, and I am one of the inquirers myself, to know what "alfalfa meal" and "mealfalfa" is, how it is made, its use, and value. Please kindly enlighten us.—Farmer, Inyo County.

Alfalfa meal is ground alfalfa hay. The grinding requires power and machinery of greater cost than can be commanded in farming operations; consequently alfalfa must be ground in a mill, as flour is. Grinding does nothing to the nutritive content of alfalfa, but is believed to render it somewhat more available. There is a danger, however, that the alfalfa meal will be made of stemmy alfalfa, and then unground alfalfa hay of good quality would be superior to it. There is now a new article called granulated alfalfa, and this is alfalfa hay put through a machine like a hay cutter, which works it up into very small fragments. Such machinery is made by the manufacturers of ensilage cutters, and can be operated with the same power required for grain threshing.

Alfalfa and Morning Glory.

To the Editor: I am contemplating putting in 100 acres of alfalfa in this county, on a piece of land that, while it seems to be well adapted to it in every respect, is quite thickly covered with wild morning glory. I do not know whether the alfalfa could be successfully cultivated under such conditions—whether the alfalfa would kill out the morning glory, or whether the morning glory glory would grow so thickly as to kill the alfalfa, or make the hay of a very poor quality and largely decrease the yield. I would like information on these points.—Subscriber, Santa Clara County.

We should not hesitate to put alfalfa on good alfalfa land with satisfactory water supply, even if the land were occupied with morning glories. The alfalfa will put up a better fight against morning glory than any other plant we know of. We apprehend that the alfalfa will not allow the morning glory to make enough growth to interfere with the hay. It will be to the advantage of the alfalfa to have as early a start as is safe in the spring, because it grows at a little lower temperature than morning glory, and for the same reason an autumn starting of the alfalfa would be desirable, if the rains come early and the frosts are not too early or sharp.

Horticulture.

SEBASTOPOL BLACKBERRIES AND GRAVENSTEINS.

To the Editor: An area of ten miles square surrounding Sebastopol produces annually 1700 tons of blackberries, or perhaps one-half of the entire output of the whole State. At this season the white blossoms look like Southern cotton fields. One of the most extensive berry growers is Mrs. Laura E. Barlow, who has at present 45 acres in blackberries, and intends adding 50 acres more after the next rains. The almost universal variety is the Lawton, which is perfectly adapted to the soil and climate. The season of the Lawton is longer than that of the Wilson and other varieties. All berries do well here in this light sandy soil, with a subsoil of clay which holds the moisture sufficiently. It is very necessary to keep the top soil well worked and loose, and it should be harrowed twice after each plowing. Mrs. Barlow's berry orchard yields 125 tons or about 3 tons to the acre, and it is her intention to devote 100 acres to blackberries.

Early plowing is very important, and in this orchard four plows are started about the first of March, so as to get over the ground quickly the first time and prevent drying out. Arrangements will be made this season to ship a carload a day from this orchard to Salt Lake and Ogden in iced cars.

The principal pruning is in winter, when the laterals are cut, and any weak canes taken out. In the summer the shoots are topped back and when the side shoots come out they are again cut back, there being three prunings during the summer.

The boys of the Boys and Girls Society of San Francisco come up each season and pick the crop. They camp out in tents and are in charge of the superintendent and other officials, the most important of which in the eyes of the boys is the cook and his or her assistants. Last year this picking numbered 140 besides the officers. They have a play-ground and daily drill and exercises and attend Sunday service, returning to the city healthy and bronzed from their outing.

Sebastopol berry growers have recently incorporated. They will also handle apples, cherries and peaches and have already an established business in northern California, having bought out Cable & Roof, formerly large shippers from this section. The association is now building a new warehouse 150x50 feet and will conduct an extensive shipping business. Mr. Cable has been appointed manager.

The Sebastopol Grevenstein.—The Gravenstein is considered the finest of apples, and Sebastopol claims to be its home. Orchardists here freely admit the excellence of other apples, especially yellow varieties, in other localities, but when it comes to the Gravenstein, there are no concessions made and Sebastopol will give no quarters. The Gravenstein is a handsome striped apple, juicy, of a delicious flavor and is a good keeper. It is also early, free from worms and a fine shipper, so that from all accounts it approaches perfection. In fact it must be the fruit that caused the original trouble in the Garden of Eden.

These apples are shipped from Sebastopol to New York, Chicago, Victoria, B. C., Seattle, Montana, Texas and Mexico, and command the highest price in San Francisco. About three-fourths of the trees planted in this section in three years are of this variety. Much testimony as to money returns has been already published, such as that from N. A. Griffith, near Sebastopol, who in five years has banked $22.500 net profit from his 25 acres of 14-year-old trees, and H. Hawes, another orchardist who shows a net return of $2.819.25 from five crops off of two acres, being an average of $563 per year. According to such returns ten acres of Grevenstein apples means affluence. Three buyers have been already enquiring for this season's crop, which, by the way, will be light; probably not above three-fourths of average. But growers appear happy, and say this suits them as well as heavily laden trees and lower prices. This season the later varieties seem to promise better than Gravensteins.

Mrs. Barlow has 75 acres in apples, 25 acres of which are Gravensteins, which, it is expected, will produce about 1500 boxes, 45 pounds to the box.

Hunt, Hatch & Co. and Earl Fruit Co. handled large quantities of Gravensteins last season.

A. J. L.

MENDOCINO COUNTY APPLES.

To the Editor: I was sorry to see the discouraging report you gave Mr. Henry Hazlitt of Idaho concerning apple growing on the Mendocino coast. Of course, my knowledge of the business is confined to my own neighborhood, which is in the southern coast section of Mendocino county, but I see no reason why conditions should be very different anywhere along the coast until one reaches the fog belt in Humboldt county.

In this section there are not many apples grown for market, yet there are enough to prove that it can be done, and I have never seen handsomer apples than some which grew within one-quarter mile of the ocean; the orchard in which they grew is a small one, but well sheltered, and produces fine fruit; one tree in this orchard produced in one season 24 boxes of four-tier apples, which sold at the tree for $.50 per box. Of course, an orchard on the coast, to be a success, must be sheltered from the northwest winds; but when so situated and in fair soil and properly cared for, will produce apples which compare favorably with any I have seen, both in looks, flavor and keeping quality.

We have a few trees on this place, in a sheltered situation within 300 yards of the ocean, which bear well; one tree of Baldwins were as handsome as I have ever seen last year, and we had Bellefleurs measuring 13 inches in circumference. At this date, April 29, we still have good sound Baldwins, Kings, Wagners and Rome Beauties which have been kept in a simple board storehouse all winter, with no especial care or protection.

As for codlin moth, it is much easier to control along the coast than in the interior, and most orchards very near the coast are entirely free from it. In fact, I see nothing wrong with the Mendocino coast as a future commercial apple growing section.

P. H. Tock.

Fish Rock, Mendocino County.

[We are glad to have these important statements.– Editor.]

Citrus Fruits.

NOTES ON ORANGE VARIETIES.

It is interesting to note the advance of Thompson's Improved Navel in esteem for shipping. It used to be held that this very highly finished variety was weak in shipping, but a report from New York during the last week in April says: "Thompson's Improved variety had the preference with the trade, and this brand of oranges seemed to carry better than the rest. A few cars from Highgrove sold to average above $3." At this time the top sale was at $3.40 (which may also have been for Thompson's for all we know) and the conditions of the trade were poor selling owing to very large receipts of fruit and very bad weather for selling.

At the same time there comes a tribute to seedlings, good seedlings selling up to $2.75; also for bloods and Mediterranean Sweets, which sold up to the same mark. These facts indicate that it is a question whether the present concentration on Navel and Valencia should be allowed to proceed too far. There are characters in others varieties which may be worth retaining.

Speaking of varieties, there comes in the Rural New Yorker a note on the King orange, which was exalted and dropped nearly 30 years ago in this State, as follows:

"A new orange of great promise so distinct in character as almost to rank as a species rather than a mere variety, is the King, now appearing in fair numbers in fancy markets. It is nearer the Mandarin or kid-glove than the ordinary sweet-orange type, but possesses features not found in either. The fruits average large, flat in form, and are dark in color, with very rough and warty rind, which clings to the flesh more closely than in the Mandarin or Tangerines, but less so than with ordinary oranges. It has a peculiar and agreeable odor. The flesh is tender, sweet and richly flavored, with abundance of deeply colored and syrupy juice. These oranges are so good in quality that they sell for better prices than others, notwithstanding their rather forbidding appearance. The trees are thorny, rather tender and slow in growth, and the seeds quite numerous, but the rich flavor overbalances these defects, so that the variety is likely to grow in commercial importance. This very distinct orange was introduced to American cultivation about the year 1880, through the enterprise of a California woman, Mrs. S. R. Magee of Riverside, who imported fruits, seeds and later trees from Saigon, Cochin China. It has failed to attain commercial importance in California, but thrives exceedingly well in the warmer parts of Florida, and, when grown so as to be reasonably free from sunburn and thorn scars, brings the highest prices of any citrus fruit in northern markets. Growers have undertaken to breed out the excessive thorniness of the tree, its greatest defect, by continuous bud selection from the smoothest wood, and with some appearance of success."

From the California point of view the King seems hopeless. It is loose textured, ugly, seedy and full of waste. We imagine the favorable judgment it is receiving in New York is small in extent and amateurish in character. The fruit has a long way to go before it can reach any standard commercial points. We are getting clearly established a commercial type in California. It is of course susceptible of improvement and ideals are still beyond attainment, but it seems a very far cry to talk about anything desirable from a King foundation.

CARE OF AN ORANGE GROVE.

Mr. C. O. Cowles, who recently sold his 8½-acre orange grove near Lindsay for an average of $4000 an acre, has received numerous letters asking him to explain how he cares for his trees, and has answered publicly in the Lindsay Gazette:

"Really, the grove has had probably less of cultivation, fertilization and expense put in on it than some similar properties. As to fertilizer, up to the last year it has had a ton of commercial fertilizer per acre each year. Last year this was changed to half a ton of commercial fertilizer per acre and a dressing of barn-yard manure in addition to a cover crop of vetch plowed under in the spring. The grove has been plowed well each way, that is, plowed and cross-plowed each spring; irrigated about once a month during the dry season and well cultivated after each irrigation, and has never been fumigated or sprayed. There being no scale or red spider in this district, fumigation and spraying are unnecessary here.

"There is likewise no secret in the pruning this grove has received. Each spring I have removed the dead wood inside the heads of the trees as well as all suckers which may have appeared. I have sent men through the grove three times each summer and had them rub off the suckers which have started while they are still very soft and brittle, leaving very few to be removed at the regular spring pruning."

Mr. Cowles modestly attributes his success to particularly good natural conditions in this way:

"There is certainly no secret or other method of caring for an orange grove which can compensate for or take the place of the natural condition of soil, climate and topography so essential to the highest degree of perfection in citrus culture, and it is to the natural conditions prevailing here to which the greater part of the success of this grove is to be attributed, as is evident by the fact that the returns from the grove under discussion are little, if any more, than the average received from other Valencia groves of the same age in this district, the returns from some having been larger than I received from mine. Briefly, the main thing is to locate your grove where the natural conditions are the most favorable, for it is there that care, cultivation, fertilization and judicial management may be made to count for the most, and no amount of these can compensate for the absence of these favorable natural conditions. Where nature has given us proper conditions and environments we can aid her by doing our part.

but where these conditions are unfavorable we cannot expect the best results no matter how hard or how carefully we may try.''

That may be all true, but it is none the less true that one can have a grove under the most favorable natural conditions and not develop much value. The successful orange property is one based upon constant and intelligent co-operation of human wisdom and effort with nature in her most favoring forms. And the existence of the latter does not detract from the credit due to the former.

The Vineyard.

EXPERIMENTS IN SHIPPING GRAPES.

We have given from time to time notes of the progress of grape shipping experiments conducted with California grapes by the representatives of the Bureau of Plant Industry of the U. S. Department of Agriculture. One of the experts engaged in this work is Mr. A. V. Stubenrauch, who recently gave a review of the work at a grape-growers' meeting at Lodi, from which the following suggestive paragraphs are taken:

The shipping experiments were designed to study the relation of handling to decay while in transit and were carried on during practically the entire Tokay shipping season of 1908, the first shipment having been made on September 12 and the last October 24. In all eleven complete series were shipped through to New York, where they were carefully inspected by department workers and the percentages of decay and loss were determined on the day of arrival, and on the third, fifth, seventh and ninth days after arrival, the fruit being held under open market conditions in a storeroom.

Methods Employed.—The method used was to pack up all the fruit at one time, ship out half the same day it was packed and hold the other half in the packing shed or loading shed two or three days before shipping.

The grapes in cork dust were prepared and packed by the department men. In some cases the picking was also done by the investigators. Extra pains were used in ''culling'' to get out as nearly as possible all the broken or unsound berries, and the greatest possible care was taken in handling and packing to avoid further injury. The method of packing used was to fill in the bunches a layer at a time, then sift in the cork until the grapes of each layer were fully covered and the cork particles were well shaken down between the berries. Tight boxes, holding about the same quantity of grapes usually packed in a crate were used.

The carefully handled commercial pack was put up by the regular packers working under the supervision of the investigators. The instructions given the packers were to use extra care in handling and culling, so that the grapes were put into baskets in as sound condition as possible. In nailing on the covers sufficient cleats were used to prevent squeezing or pressing.

The ordinary commercial pack consisted of crates selected at random from the pack of the same fruit and of the same day as the carefully handled lots.

Notes on Results.—The records of the individual shipments show that the ordinary commercial packs shipped out immediately showed from 0.8 to 13.4 per cent decay on arrival at New York. Of the eleven immediate shipments, five showed less than 5 per cent; one had between 6 and 7 per cent and five were over 12 per cent. The commercial allowance of decay is about 10 or 15 per cent. Below 5 per cent is hardly noticeable and would undoubtedly be rated on the market as sound. Lots showing 10 per cent would be noticed and would be discriminated against if better fruit were available. It is easy to see that the more decay there is on arrival the greater will be the increase after arrival, for the ordinary crate offers ideal conditions for the development of mold. The case is different from that of oranges or apples, where if one fruit decays those next to it in the box need not necessarily be affected. Condensation of moisture usually accompanies mold, and thus berries adjoining a moldy one may be softened and weakened to the point where the skin can no longer resist the spread of the disease. As the decay of mold advances the affected berries burst and the juice runs through and we have what is known commercially as ''leaky'' conditions. Lots showing more than 10 to 15 per cent would be salable only at a discount and on a poor demand may not be salable at all.

Our records show that approximately half of the commercial packs shipped out immediately arrived in excellent condition, while about half were about at the commercial limit. It must be borne in mind that these lots were the ordinary packs of the growers. The crates were selected at random from the packed lots. Some of the best of these lots came from some of the largest and most successful growers. Thus it is seen that it is commercially practicable to handle carefully and pack sound fruit.

Cork Dust Shipments.—The results show that the grapes packed in cork arrived with very much less decay than the carefully handled commercial crates, the average for the immediate shipments being 0.7 per cent on arrival, 3.5 per cent on the third day, 5.5 per cent on the fifth, 8.4 per cent on the seventh and 14.6 on the ninth day after arrival, or about at the commercial limit, nine days after holding under conditions. Even the delayed shipments arrived in excellent condition and held in good condition. These shipments in cork were made to serve as a standard of comparison, and not to be offered as a substitute for the open crate except as a last resort in case it should be found practically impossible to pack in the crate without injury. The results of the first season's work amply showed that by using great care in picking and packing it is possible to ship in the open crate with a minimum loss from decay. It would appear to be wiser to put some extra expense into careful handling rather than in cork filling, and we are not yet ready to recommend the new method except for grapes intended for holding in cold storage or for tender varieties which cannot be packed without injury. For long holding some filling material seems to be necessary. Fortunately, we have found in redwood sawdust an excellent substitute for cork. All of our experiments show that the grapes hold better and longer in redwood sawdust than in cork, and should we ever have to resort to the use of a filler in ordinary commercial shipments we will be able to get it at home.

About Crates.—Aside from extreme care in picking, culling and packing, we would recommend the use of the two-basket crate. Our work and observations show that there is less liability to injury in placing the grapes in the larger baskets, and there are half as many corners to fill. We find also that the pack should be laid in full and firm from the bottom of the basket to the top. We frequently find packers squeezing in a shallow layer of inferior grapes into the bottom of the basket, and topping off with good bunches. Where this is done the decay in the lower layer is very heavy. It appears to be better to make the pack solid to the top, using great care throughout, than to attempt to cover up inferior work and inferior fruit. The use of the larger basket will make it possible to pack more quickly and with less liability to injury. We realize that there are some trade objections to the two-basket crate, but as some of the leading growers are using this crate exclusively it would appear that the market objections can be overcome.

Danger in Squeezing.—We found in our local experimental work that grapes laid in loosely without pressure and without squeezing hold up almost as well as the cork pack. Therefore the nearer these conditions can be approached in practice the less will be the liability to injury and decay. This has special reference to excessive squeezing and pressing. This need not mean that a low pack is desirable. Build up the pack firmly from the bottom of the basket and then use sufficient cleats to prevent the cover from squeezing the fruit.

These recommendations are based upon actual experiments and observations. We feel that there is still much to be learned and with the co-operation of the growers and shippers it is hoped that the investigations can be continued if possible on a broader scale during the coming season.

The Garden.

GROWING PLANTS FOR TRANSPLANTING.

Mr. Dexter Field writes his experience in Oregon to the Pacific Homestead in a way likely to be helpful to others: ''Growing plants for the market is a business of itself and one who will go into the business will find difficulties that he never dreamed of. It seems like a very easy thing to do to take the seed, sow it and let the plants grow until they are large enough to set out, then pull them and they are ready to set, sell or give away, but when one attempts to grow plants and have them in large quantities from December to the next August it is quite another matter. I have sown seed in the beds under the glass and out in the open ground and under many conditions. This season I have been sowing a good deal of seed in flats—boxes 18x20 inches and 4 inches deep, the soil taken from the beds in the green houses and all run through a sieve and I have had better success in having a larger percentage of the seed grow than ever I had the other way. When the seed bed plants get large enough to prick out and I am crowded so I cannot handle them for a few days all I have to do is set the box of young plants where they stand and not grow any taller; this is easily done by putting them in a cooler place. I have found that the young plants are much better rooted by growing them in soil prepared as I have done and having them in the boxes where I can control them better. A good many of the tomatoes and so far all the celery plants we have pricked out in the flats and the plants thus grown are as fine as I ever have grown. We have always had very poor success with peppers until this spring and now they are as fine as one could ask for. Only this week a man came to see how things were done and he was afraid there were secrets about the business that we would not care to tell to everybody, but when he found that we were perfectly willing to answer all his questions and tell him about anything he wanted to know it was a surprise to him. There is room for everybody, and I know from experience that there is much room yet for men and women in the business of growing vegetable plants for the garden; there is a demand all over the country and it is not nearly supplied. I know another thing: the larger part of the people who commence the growing of plants soon quit; they will not stick to it unless success comes to them. A glass house is far ahead of the old style of hot-bed and it is necessary for any one who wants to go into the growing of plants for the market.

''I set some cabbage plants and the second morning there was quite a hard frost and the cabbage plants lived but all the large leaves turner purple and I laid it to the frost.'' This was said to me by a man of Polk county whom I met on the road. Whenever a cabbage plant is taken up and transplanted it interferes with its growth unless it is taken up and reset so as not to break or disturb any of its roots. Whenever the roots are pruned the leaves should be pruned also, but not many think of breaking off all the large leaves when they are setting the plants, but this is what ought to be done, and because it is not the roots cannot support all the leaves while it is getting a new start, so the first leaves die. While they still stay on the plant they are more of a detriment than good, and this is one cause of some of the plants dying, especially when it is quite dry weather when they are set. When the plants are growing in the seed bed or in rows, if they are not quite thick the first leaves will all die when the beds get dry and the plants do not get sufficient food and moisture.

FOREST TREES ON POOR LAND.

Some of our eucalyptus fanatics may find a wholesome hint in this from an Eastern exchange: ''Do not expect too much of timber trees planted on poor worn-out land. In timber tree planting for profit it has been found best to select good strong land, such as would grow good grain crops. The trees will, of course, grow just as well without cultivation on steep slopes or rough land as on level land, provided the soil is good. Little can be expected of thin, poor soils.

AGRICULTURAL REVIEW.

Horticultural Notes.

Harvard College is to lead the campaign against the gipsy and brown-tail moth in Massachusetts.

Shipments of strawberries from the Oakdale distract, Stanislaus county, now average about 300 crates daily.

The berry growers from Newcastle, Penryn and Loomis are shipping a carload of strawberries daily to Portland markets.

The horticultural commission of Santa Barbara county has asked the board of supervisors to purchase a fumigating outfit for use of citrus growers in their fight to eradicate purple and red scale. The growers are to pay the county 3 cents per tree for the use of the outfit.

James Reid and associates, from Pennsylvania, have recently added to their large holdings of land in the Ducor citrus rus district near Porterville, by buying 1400 acres to add to their 3000-acre ranch. The company announces that it will at once commence to develop water and then plant orange trees.

The Coming Fruit Crop.

Grapes promise abundantly.

Pears are an unknown quantity as yet.

The apricot crop is reported light all through the State, scarcely above 10 or 15 per cent of normal, although very good in some sections.

Peaches probably will be a good crop this season, judging from the present appearances of the trees in all sections of California, especially in the southern sections.

Cherry Prospects.

In Placer county there is a good crop.

There is an average cherry crop at Vacaville.

Shipments are going forward from the North.

In the San Bernardino valley the crop is very good.

The quality of the cherries in the North this season is good.

Royal Anns were promising well at Sebastopol last week, while early varieties are light.

The prospects, on the whole, are for a fair cherry season, and prices are starting out all right.

The first carload of cherries for the season left Vacaville on May 7 for the East. Last year the first car was sent out on April 29, and in 1907 on April 5. In San Diego the cherry crop is reported as very large and fine.

The first carload of cherries to go East from California this season was shipped on May 8, by the California Fruit Distributors. It contained 1850 packages and was billed to the California Fruit Distributors, New York. Good prices are expected.

Plus Are Promising.

Prospects are favorable for plums. Burbanks and Red Junes are a little lighter than usual. Clymans are showing light, as also are Wicksons. The outlook is good for a big crop of Tragedys. Grand Dukes and late plums are showing good.

Big Strawberry Industry.

The California Fruit Canners' Association is running its Los Angeles cannery full handed these days, putting up an immense pack of strawberries. The association has contracts for 2,000,000 pounds, or 1000 tons, and besides is buying berries in the Los Angeles markets, using all that is left over from the local demand. Besides this firm, Bishop Bros. will put up about 400,000 pounds of berries, and the three other canneries near there will consume about 1,000,000 pounds, making a total of 3,500,000 pounds, or 150,000 crates. During the past two years small packs have been made the rule, and now that the market is nearly bare and the crop is large, the canneries will stock up again.

Fruit Is Dropping.

Farmers in Wooden valley, Napa county, who raise apricots, peaches, prunes, etc., say fruit is dropping from the trees, and this will doubtless result in a short crop. For lack of late showers hay and grain are light.

Dried Fruit Notes.

A dispatch from San Jose states that the prune growers who still have 1908 crop have decided to hold for 3 cents till July 1. After that it is thought the price will be higher.

The Fresno Republican states that sales are being made by local packers of fancy seeded raisins of 1909 crop for October delivery at 5 cents f.o.b. coast, or a sweat box basis of 2½ cents. Packers are doing some buying in apricots and figs. The prices for 'cots range from 7 to 7½ cents, and for figs from 2¼ to 2½ cents. Peaches are expected to start at 5 cents and up. As a direct result of "raisin day" one firm reports having sent out several cars to Coast points.

General Agriculture.

Stahl Bros. have 40 acres planted to potatoes near Brawley, Imperial county.

It is announced that the Pioneer Land company of Porterville has decided to sell the last of its land there and will dispose of its fine herd of blooded stock at auction shortly.

It is announced that three new egg-buying stores will be opened at Petaluma this season, making a total of 12 stations maintained there by San Francisco houses.

On an experimental plot of ground near Anaheim, owned by J. B. Neff, was grown this season 11 tons of vetch. This experiment was made to find its value as a green manure fertilizer.

C. C. Brown of Sunset Colony, near Yuba City, is planting over 100 acres to alfalfa, preparatory to starting a dairy herd. In the colony are now over 400 acres set to alfalfa.

Carload shipments of onions are now being sent from El Centro, Imperial county. The crop there will make about 80 cars. Prices have dropped recently from 2 cents to 1¼ cents per pound.

The Lemoore Republican states that Frank Blakeley is planting 1500 acres to flax near there, for the Pacific Coast Oil & Lead Works. This is a new crop for that locality, and if it proves successful will be a valuable addition to the products of that locality.

The Ventura County Bean Growers' Association has been incorporated, with headquarters at Oxnard. The capital stock is placed at $500,000, divided into 10,000 shares. The object of the organization is to control the marketing of beans, that the price may not be juggled by outside influences. Following is the list of directors chosen: Geo. C. Power, T. G. Gabbert, Chas. Donlon, A. Camarillo, F. A. Snyder, H. K. Snow, Jr., C. L. Chrisman, D. F. Sheldon, Jos. D. McGrath, John Darling, and R. G. Edwards.

News from around Hanford and Corcoran states that the wheat crop will be the heaviest and best in history. Southern California will have a large grain crop, and in many sections a good hay crop. Of course all irrigated sections will have a good yield of alfalfa, but this will not be sufficient to make much of an

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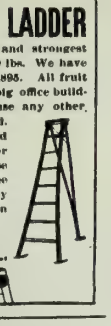
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effect upon the markets, in the way of lowering prices, which went to record prices over last year's shortage. In those sections hit by the dry weather the price of good hay is about $20 per ton.

The crop reporting bureau of the U. S. Dept. of Agriculture estimates the wheat crop May 1 to be short 2,478,000 acres, or 8.1% of the same date last year; the average condition of winter wheat was 83.5, as compared with 89.0 a year ago, and an average of 86.0 for the past ten years, on May 1. The California crop on 864,000 acres is rated at 81, as against 60 per cent a year ago, and a ten-year average of 85 per cent.

In an interview in the San Jose Mercury recently, C. P. Breslan, a local seedsman, stated that the high waters of last winter damaged the onion seed crops grown along the San Joaquin and Sacramento rivers to such an extent that the crop was a practical failure, and as a result his firm has now a practical control of all the onion seed on the market. Last year the price was $1 per pound, but owing to the shortage Mr. Breslan stated that the price will be much higher this year.

Wheat and Hay Crop Varied.

In the Grass Valley region hay and grain will be a practical failure, and as the grasses have grown much, stockmen in that district are predicting shortage of feed next fall and winter.

The dry weather for the past six weeks caused a great variation in the grain and hay crops of the State. In some places the dry weather has been a benefit, but in most cases the reverse has been the case.

In the northern Sacramento valley the grain and hay have been hurt, and a short crop will result. Only those who have irrigated ranches will benefit. In the upper San Joaquin the wheat crop looks well. Around Salinas hay and grain will be a good average, while in San Benito county the crops are said to have suffered.

Hay Pressers Make Rates.

Yolo hay pressers combine on the following prices: Pressing hay and bucking from shock, $2.50 per ton; pressing from stack, $2.15; where wire is furnished, $1.80 per ton; where board and wire are furnished, $1.50 per ton. In all cases wood for the cook house, feed and water for horses must be furnished.

Remarkable Growth of Alfalfa.

On the Kerman tract, in the San Joaquin valley, alfalfa is reported to have grown 22 inches in 20 days, measuring root and stalk, the growths up and down being equal. The plants also stooled remarkably. In the same tract, 160 acres sown March 10 will yield three crops this year.

Eucalyptus Planting.

An 80-acre tract near Angiola, Tulare county, is being set out to eucalyptus trees by the Corcoran nursery.

The Spreckels Sugar Co. has planted 10,000 eucalypts as windbreaks on its ranch in the Salinas valley.

State Forester Lull reports a number of enquiries as to adaptability of land and climate for eucalyptus growing.

A new forest is planted in Colusa county, a number of bankers having combined to set out 600 trees to an acre, on a large tract, as an investment.

J. G. Cohn of Marysville has set out 200 young trees. If they prosper he purposes planting 900 acres. The epidemic has struck San Luis Obispo: Mr. Haynes of that place is setting out 100 acres.

Live Stock and Dairy.

Wm. E. Reavis of Los Angeles has purchased the 500-acre ranch known as the Mose May place, on the Tuolumne river, near Modesto, for $50,000, and contemplates making it a fine stock ranch, raising both horses and cattle.

Bids for building the new creamery at Brawley, Imperial county, were opened May 10. The creamery is to be of cement and fireproof, and will cost about $7000. A De Laval separator with a capacity of 3500 pounds per hour will be installed.

The announcement is made that the State Agricultural Society has engaged Col. George P. Bellows of Missouri to conduct auctions at the State Fair for those who wish to sell stock on exhibition. The terms for selling animals will be $3 per head. A catalogue will be printed giving the necessary data relative to the stock to be offered, but not over ten head will be sold for each exhibitor. All entries must be made prior to July 15.

The expert in charge of the contests of the National Milk Show, in progress in Cincinnati, states that for the second time in its history pure milk has been found. The first time that milk was found germless was at Chicago in 1906, the second being the one at Cincinnati, and the milk came from San Francisco. The particularly remarkable part of the pure sample is that the milk was sent in two bottles, was on the road eight days, and stood at its destination without being iced for several hours before being tested.

Sale of Sheep at Petaluma.

A shipment of 117 rams was made from the Meacham stock farm at Petaluma last week, to a buyer at Golconda, Nevada. They were German Merinos, a comparatively new breed, which is taking well with buyers. They are large-boned and square-built, carrying plenty of mutton, and have as well a good long staple, the kind of wool mostly in demand of late.

Another good breed on this ranch is the Frankel, a cross of American and French.

Miscellaneous.

A new fireproof winery is to be built on the Gaddini ranch, near Healdsburg, to take the place of the one recently burned. The buildings are to be 64 by 86 feet and 20 feet high, and have a capacity of 500,000 gallons.

The practical organization of the California State Farmers' Union was completed last Friday at Fresno, with the organization of a board of directors. The officers are: A. Sorenson, president; J. H. Dawson, Hanford, vice-president; L. S. Miller of Santa Clara valley, temporary secretary.

Dry in Texas.

Mr. Hanks, a stockman from San Angelo, Texas, was in Petaluma last week, and reports no rain in the Panhandle country for over eight months. But Texas grasses, like the curly mesquite, grow from the root and stand a long drouth, so that the cattle on the ranges are not suffering as yet.

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GRASS VALLEY.

To the Editor: Its pastoral name was given this region by the earliest white settlers because of its meadows of wild clover. The present city of Grass Valley is beautifully situated, flowing compactly over hills encircled with spiral firs and dark pines, contrasted at this season with the white bloom of orchards. Here, at an altitude of 2500 feet, the fruits of the temperate zone are unexcelled. At neighboring heights of 3000 to 3500 feet the apple is represented in 25 varieties and attains perfection.

J. B. Stennett has an apple which, if not a native one, is so well naturalized that it should be called "The California." It is known as the Rodda Seedling, in honor of its discoverer, who found it wild among manzanita bushes, 14 years ago, probably from seed dropped by birds. On being transplanted it throve remarkably. It is a beautiful large red apple, very white within, and keeps the whole year round, from season to season, being therefore an ideal shipper. It matures best high and dry, without irrigation.

The Nevada County pear is said to have the peculiarly fine flavor which distinguishes fruit produced at this height, and without irrigation. An experienced orchardist informed us that his trees which had the northern exposure bore the best fruit.

The John Bree orchard of 12 acres has netted $800 a season for the past five years. From the Bradbury Perkins orchard of 25 acres there were shipped last year 2100 boxes of Bartlett pears, 1000 crates of plums, and 300 crates of Hungarian prunes. J. B. Stennett shipped 1590 boxes of pears, and the Manion brothers 200 boxes of pears and 600 crates of Hungarian prunes off 1½ acres. In all, it is estimated that the aggregate shipments of pears from Grass Valley last season were 18,000 boxes. Berries of all kinds, and cherries, do splendidly here.

This region seems peculiarly adapted to nut culture. The filberts on Mr. Perkins' place are very fine and never fail. The Black walnut is quite at home here, and several report success with the English walnut (or the Persian, which is the truer nomenclature), although the latter is not quite safe from frost in some spots at this elevation. Mr. Perkins is experimenting with a French walnut grafted on the American Black. Manion Bros. have fig trees that produce two crops of very fair fruit.

J. M. Hales, near Grass Valley, took a prize at Sacramento for grains and grasses. He showed timothy grown to a height of 8½ feet, and redtop grass nearly as tall. Mr. Hale relates that he was offered $100 a pound for the seed, but lacked appliances for cleaning and preparing it. He also received the diploma given by the S. P. Railway Co.

Tokay grapes are thought to have even a better flavor here than the Loomis and Lodi grapes. Many here prefer the Muscat, which does equally well. Zinfandels grown at Grass Valley and at the Chicago Park colony, a few miles out, cannot be surpassed.

There are several dairy ranches in the vicinity of Grass Valley. That of J. F. Marshall, at Union Hill, is the most notable. The ranch contains 600 acres in a chain of beautiful meadows watered by ample streams. There are 60 cows—crossed Holsteins and Jerseys. The meadows at this elevation—3200 feet—produce the good old timothy of our Eastern boyhood, and it grows here waist high, and with it the old familiar red-top clover in great luxuriance. Another good old Eastern crop—the beautiful snow—is produced at Union Hill in the winter, and the merry sleighbells are heard in the land. The cold, however, is never intense.

Mr. Marshall believes in and practices up-to-date sanitary dairy methods. His cool, spacious cellars are cement throughout, and in the hottest weather the milk is cooled by a spring of 41 degrees, or 7 degrees lower temperature than the average mountain spring. The city of Grass Valley affords an ample market for this dairy, there being 150 customers, including an ice cream parlor with a bill in the season of $120 a month.

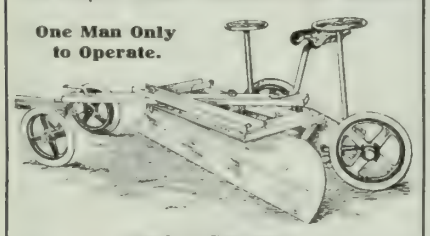
Of course, mining is the transcendant interest of Nevada county. Among the mines close to Grass Valley are the world-renowned Gold Hill mine, where the first gold quartz in California was discovered, in October, 1850, which when crushed in a hand-mortar yielded $500 a ton. The Empire mine has been in constant operation, without cessation, for 55 years. Then there is the North Star, 2400 feet in depth, abandoned years ago, but which since its reopening in 1884 has turned out nearly $2,500,000. For 15 years Nevada county has contributed between three and four millions per year to the world's currency, and it is estimated that the county's total output to the present reaches $210,000,000.

It is stated somewhere that the production of gold is the most stupendous of economic forces. Then Nevada county is the most forceful county in the State, for no other section of equal area in the world has produced so much gold in 60 years. Hitherto the fruit industry has been handicapped and overshadowed by mining, but the fine fruit, soil, and grand climate are now attracting many Easterners.

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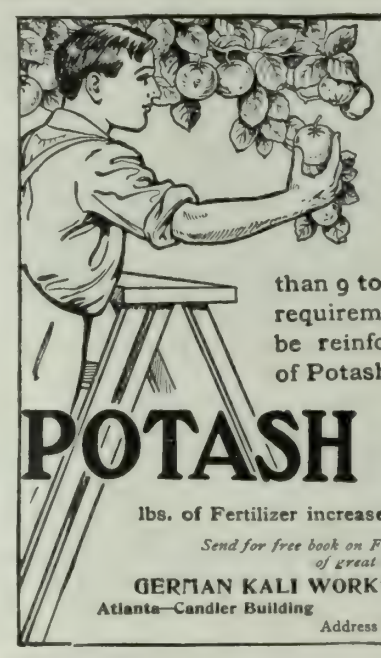
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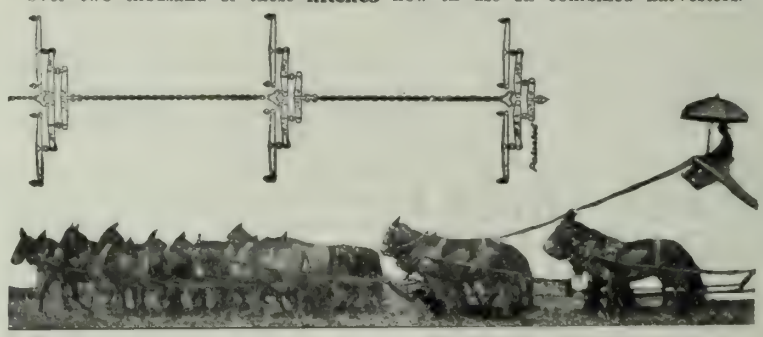
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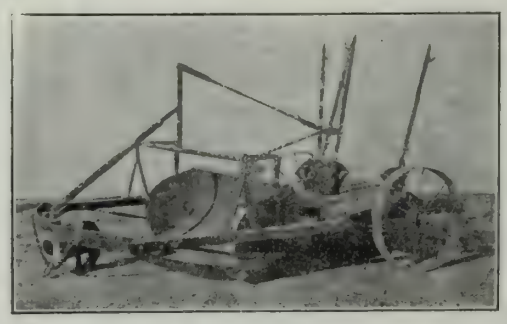
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Live Stock and Dairy.

THE MAKING OF MILK AND ITS RELATION TO DAIRY FORM.

Whitten for the PACIFIC RURAL PRESS
By Mr. LESLIE W. SYMMES.

In the previous discussion of the making of milk by the dairy cow we followed the course from the time when the food was consumed to the important functions of the blood to the udder.

The udder in the dairy cow is an important organ, for it directly performs the work of making milk, which is the dairy cow's specialty. With the exception of the water, the udder is generally considered to produce as the direct product of its own action all the constituents of the milk. The casein, the fat, and the fat sugar are elaborated or, we might say, made in the udder; the only constituent that is thought not to undergo any change is the water in the blood. However, it is from the blood that the milk is made, for the action of the udder is to so change all the constituents that the milk really becomes the peculiar product of the udder.

The exterior or outward appearance of the udder is familiar to us all, but not so the interior construction; so to better understand this construction let us follow the course of the small opening which exists at the end of the teat. This opening at the upper end of the teat swells into a cistern or milk reservoir, where the milk accumulates to a certain degree between the times of milking. The milk is prevented from passing out of this cistern through the teat by a small muscle known as the sphincter muscle, which holds the milk in the udder until relaxed by the stimulation of milking. From this cistern a canal extends farther into the udder, branching many times, and at the end of each branch there is a lobe or cluster of tissue very much like a bunch of grapes. What is known as the lobe is similar to the bunch, the lobule resembling one grape and what are known as the alveoli the seeds of the grape. These alveoli are lined with small cells, in which the milk is made. The fat peculiar to milk is produced within these cells, and likewise the water, salts, etc., that enter into the composition of milk.

The milk being secreted in these millions of small cells which compose the udder, passes into the main branch and finally reaches the milk cistern, where it accumulates until milking time begins. The four quarters which make up the whole udder are each constructed in the above manner, and they act somewhat independently of each other.

Besides the organs of the dairy cow performing the work of digestion and secretion, there is another equally important feature—the brain, the spinal cord, and the numberless nerves connected with the nervous system. These control the action of most of the organs of the body, and have a decided influence over the amount of work that they may accomplish. The nervous system is represented by the brain and the spinal cord, with its branches. The spinal cord runs through the vertebrae and sends out branches which connect with the various organs of the body. Temperament is the feature connected with the nervous system that has special application to the dairy cow. Temperament in man has been divided into four classes, but the two divisions, nervous and lymphatic, are most in evidence in cattle, and they are notably characteristic of two classes of cattle, dairy stock and beef animals.

In an animal of nervous temperament the nervous organization is strong and well developed. Such an animal is able to stand more labor than would be expected of it from its physical appearance. The animal of lymphatic temperament is sluggish in disposition and inclined to fatten or become fleshy.

The common idea of nervous temperament is not that to which we have referred. Generally when reference is made to an animal's having a nervous temperament it is commonly supposed to mean that it is irritable and excitable, which actually indicates the lack of nervous control. The term, when properly used in reference to dairy cattle, means an animal that is full of nerves, one that has strong nerves, which give tone to the verious organs of the body. The animal of nervous temperament is one that is sensitive and active, giving all regions the greatest vitality and all the organs the greatest productive powers.

Summing up, then, and considering the cow simply as a machine for making milk, we find that the food is manufactured into blood by the stomach and its accessories, and the blood in a general sense is made into milk by the udder, so that the two main manufacturing centers of the dairy cow are the stomach and the udder, and it is around these that what is known as the dairy type has evolved its peculiarities. But as the dairy cow is more than a mere machine, as she has vitality and recuperative, we find that the nervous system as expressed in the nervous temperament is what enables her to maintain her enormous productive powers in these centers.

From the previous discussion we can understand that there are four main centers of activity when she is performing her function; the digestive system, the milk secreting system, the circulating system, and the nervous system. It is because of extreme activity in these centers that the dairy cow inclines to a given type. She tends to become wedge-shaped and lean because of the unusual activity in the regions mentioned. Certain portions of her organization have an undue amount of work, which tends to their development in an extreme degree, while the other portions, because of their inactivity and lack of nourishment, do not develop to the fullest degree. This results, in the case of unusual performers, in a type that is inclined to be narrow in front and wide and deep behind. While it does not necessarily follow that a cow, to be a good dairy animal, must be of this type, yet because of the work she does, most of them tend toward it. The relation of type to performance has been closely studied and experimented with. When a cow is milking freely, if she possesses good dairy qualities there is likely to be a lean appearance over every region of the body, showing that she is an animal of nervous organization, and further, that she utilizes all her foods for the making of milk, and not for filling out her form.

In a good dairy cow there is a feminine look that is very characteristic. There is no thickening of the neck, or a crest on the neck, or any heaviness of the forequarters indicating the slightest masculinity, but all of these parts are light, clean-cut and in every way indicative of feminine character. The size of the dairy cow comes into the discussion of type. This has something to do with her performance, but there is no distinct advantage in having a cow very large if there is not along with it characteristics which indicate enlarged dairy qualities.

In judging dairy cows, the perfect score gives the greatest number of points to the body, which includes the chest, barrel, back, loin, and navel. Of this the chest and barrel are considered the most important. The chest should be deep, low, and the girth large with full fore flank, for which is allowed ten points in the scale of points. The barrel should have the ribs broad, long and wide apart, with

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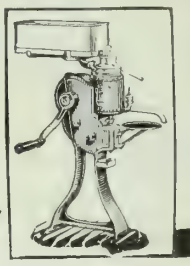
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a large stomach, for which is also allowed ten points. These then are considered important indications of the dairy powers of the cow. The udder, however, is one of the most important parts to look at in sizing up a dairy animal. It should be long, attached high and full behind, extending far in front, and full and flexible. The quarters should be even and free from fleshiness. An udder with the above qualities is allowed twenty points, in the scale of judging on points, which is the largest number of points allowed on any one part of the animal. From the knowledge of how the milk is made and what the different organs of the cow's body have to do with its manufacture or elaboration, I believe we can appreciate and grasp an idea of what to look for and what to get in buying or judging our dairy cows.

A MARIN COUNTY DAIRY.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

Forty-seven years' devotion to a pursuit, when crowned with financial success and the realization of sound ideals, makes such a record public property, and it is up to its possessor to tell us how he did it. This being the opinion of the PACIFIC RURAL PRESS, its representative called on Mr. T. B. Roy, pioneer dairyman of Marin county, this week and elicited the following instructive facts:

When Mr. Roy acquired his land at San Geronimo the only building upon it was a house erected there in 1849. His first herd of cattle contained cows that had been driven across the plains from the East, and others of the Spanish stock, and both roamed hill and vale freer than the herds of Abraham, for at that time there was not a fence between San Francisco and Cazadero. Five years later, he sold out his primitive stock and began to work out the conception that the best results are only obtainable from high breeding. From the first he selected Jerseys as the richest butter-makers, showing the courage of his convictions by investing a small capital in high priced animals. It is a favorite maxim with Mr. Roy that the bull is half the herd. He purchased one held at $250 and paid $185 for a cow that afterward made three pounds of butter a day, and $135 for a growing heifer calf. This was the nucleus of a herd which today numbers 100 as pretty Jerseys as ever gladdened a dairyman's heart. They are certainly beauties, varying in color shades from darkest brown and dun and fawn and gray to creamy whites, but all with the unmistakable Jersey eye and face and the unfailing white nose-ring. The great majority are registered, and not a single individual in the herd has more than a thirty-second of any other strain. Their size and weight for Jerseys are especially notable, which their owner accounts for by liberal feeding and also by the fact that they are never bred until the completion of their second year. Their pasture consists mostly of alfilerea, burr clover and wild oats, along with a liberal supply of oat hay, bran and middlings, chopped feed and oil cake, the latter being the Mexican cocoanut cake, which retains a large quantity of oil. Perhaps the feeding lesson most obvious in this herd is the comparative nutritive importance of meal and grain, as they receive little or no vegetables or roots. At all events, the result in size, vigor and large percentage of butterfat in the milk are too marked to be overlooked, the minimum percentage of fat being 5.2 and in individual cows reaching as high as 7 per cent or double the quantity required by some city ordinances. The fact that the butter from this dairy receives in San Francisco a premium of 5 cents a square above market quotations tells the tale.

From July to April linseed meal is also fed. At the present season, with no other feed than the pasture described, the average butter return for each cow is 1½ pounds per day. A very noticeable feature is the gentleness of this herd of Jerseys, a breed naturally of a sensitive, nervous organization and easily rendered

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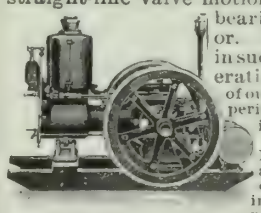


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Mrs. Alice Millward	"	100.00
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J. M. O'Brien	"	110.00
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J. F. Pacheco & Co.	"	60.00
Joseph Munyon	"	37.50
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A. Hendren	"	48.00
Jose Cananas	Oxnard	200.00
Jesus Saenz	Palms	30.00
Frank S. Herr	Pasadena	300.00
W. W. Grove	Paso Robles	150.00
J. R. Bonetti	Petaluma	340.00
Rafaelli Bros.	"	40.00
Chas. McIntosh	"	50.00
R. A. Giggey	"	125.00
D. W. Sweeney	"	20.00
Bernard Fumasoli	"	175.00
G. Dellamarie	"	105.00
Daniel R. Stewart	"	75.00
John R. Denman	"	27.00
A. Sartori	"	17.75
J. B. Purvine	"	25.00
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J. Connihan	"	20.00
Florence G. Kite	Redding	125.00
A. Warmoth	Red Bluff	25.00
Andrews & Tait	"	200.00
O. Hanson	Rio Vista	100.00
Geo. Minges	Ripon	130.00
A. Chambon	Riverside	100.00
M. F. Cunniff	"	100.00
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John Kaelin	"	30.00
Harry C. White	"	500.00
Carl Nielsen	Salinas	250.00
G. L. Martella & Son	"	100.00
Wm. Wilson	San Diego	200.00
Siro Tonini	"	150.00
H. D. Allen	"	35.00
T. T. Reno	"	135.00
John Bradley	"	100.00
Lewis A. Serrano, Jr.	"	70.00
Cook Bros.	San Luis Ray	35.00
D. M. Mello	San Luis Obispo	105.00
Frank V. Mello	"	22.50
Valentine Canett	"	60.00
Flood Bros.	"	22.50
P. S. O'Rourke	San Francisco	100.00
N. Hanson	"	50.00
Harry Hanson	"	70.00
M. F. Tonini	Santee	30.00
J. M. Kalar	San Miguel	200.00
Jess P. Nielsen	Santa Cruz	60.00
Peterson Bros.	Santa Rosa	100.00
A. A. Rowell	Selma	50.00
Mrs. F. A. Schell	Sonoma	100.00
L. S. Ghisletta	Stony Point	60.00
J. M. Ahrends	Stockton	30.00
D. R. Beach	"	180.00
Lewis W. Haight	"	150.00
Peterson & Emmington	Suisun	23.00
Lewis Hildreth	Taimage	90.00
Wm. Richardson	Tomales	100.00
Jno. M. Cerini	"	100.00
James McIver	Truckee	90.00
Geo. Vogelsang	Tehama	75.00
Wm. Humphreys	Tudor	150.00
Albert Flifiet	Turlock	50.00
Joe Enos	"	30.00
E. H. Whiting	"	50.00
G. Alexander	"	100.00
W. D. Adams	"	40.00
Manuel F. Preiva	"	100.00
Joe Lewis	"	50.00
C. J. Wideberg	"	35.00
Joe R. Fernandez	"	30.00
Joe Joseph	"	27.90
Frank Deas	"	42.00
Jno. F. Silvera	"	100.00
Jno. S. Gabriel	"	100.00
Herman A. Reinan	Ventura	100.00
O. A. Wadleigh	"	100.00
A. B. Hauser	Volta	150.00
E. Pedrotti	Waddington	24.00
Ulrich Campaul	"	15.50
Horace Pedrotti	"	30.00
F. A. Emery	Winsor	50.00
H. C. Stohlman	Yuba City	250.00
H. G. Heidrothing	"	75.00
E. C. Smelser	"	100.00

REFERENCES.

National Bank of California, Los Angeles.
Security Savings Bank, Los Angeles.
First National Bank, Oakland.
Or any reliable bank in the State.

For further information address **California Mutual Live Stock Insurance Association**, 608-9-10-11 First National Bank Bldg., Oakland.

M. L. WRIGHT, President and General Manager.

fractious by shouting and rough, abrupt movements. This herd is only milked in stanchions in cold or wet weather. The writer stood in the midst of 60 milked in the barn yard. All behaved with the utmost decorum, several marching up voluntarily to the milkers in their turn. The sire of the herd, whose portrait we hope to present soon, is also a remarkably tractable animal, permitting petting at close quarters. He is a bovine gentleman with manners worthy of his high lineage.

A visit to the dairy proved an agreeable transition on a warm May afternoon. This branch of the business is in charge of Ralph Roy, son of the proprietor and a graduate of the Agricultural College of the State University. The motive power for the revolving churn, which needs a capacity for 225 pounds of butter, is derived from a spring reservoir in the hills. The cutting machine for squaring the butter will hold 264 pounds.

This dairy neither sells nor buys milk, using the product of its own herd, all in butter. It churns every day throughout the spring season, and always three times a week, making about 120 pounds six days a week.

The cows of this herd average from 350 to 365 pounds a year, or about 1 pound per cow, being over twice the average of the general run of ordinary cows throughout the State. The product is expressed every evening to San Francisco, where, as before indicated, a sure and highly profitable market awaits its coming. The butter costs the dairy nothing after delivery at the station, there being no commission to pay, and express charges paid by the buyer, with a premium to the producer, as before mentioned.

LIFTING A DAIRY HERD.

Mr. H. Peterson, a progressive California dairyman, gives Hoard's Dairyman a sketch of his herd's performances in 1908: "It is not so good as it was in 1907. Our pasture was not so good nor has the price been so good, but as long as I can figure out a fair profit, I will keep digging for better. My alfalfa was very poor on account of the cold and dry spring, I bought some second crop alfalfa in the shock and paid $5 a ton.

"The following is a yearly report of the herd:

	Lbs. milk.	Lbs. fat.	Test %
Best cow, Topsy	7860	314.8	4.1
Poorest cow, Smokee	1980	168.6	5.3
Average ten best caws	6047	280.34	4.6
Average ten poor	4506	213.8	4.7
Total lbs. of cream			10,887
Total lbs. of fat			4,070.5
Average price per lb			27.2c
Am't received for 12 months			$1,143.54
For home use, 365 lbs			98.55
100,000 lbs. skimmilk at 30c per cwt.			300.00
Milk sold			2.55
Cream sold			2.45
10 head Jersey heifer calves, $15.			150.00
Total income from 20 cows			$1,697.09
Expenses feed, 50 tons hay at $6.			300.00
Pasture			100.00
Milking and care for 20 cows			260.00
Total cost			760.00
Gain			937.09

"Now does it pay to dairy? If not, why not? The prices are all net at the farm. Topsy gave in 1905, 318 pounds fat, in 1907, 319 pounds and in 1908, 314 pounds. If Smokee is worth $35 with a record of 170 per year on the same feed and care, what is Topsy worth? I hope to raise up a herd in time that will come close to the 300-pound mark on hay and pasture."

GRANULATED ALFALFA.

Prof. H. M. Bainer, of the Colorado Agricultural College, writes to the Breeders' Gazette about new forms of alfalfa for feeding. Alfalfa is now being successfully pulverized not only by companies which are organized for the purpose, but also by individual stock men and farmers. The object of pulverizing or granulating is not only to make the same amount of hay go farther, but it also puts it in better condition for feeding all classes of farm animals. Hay which is very stemmy and which is largely wasted when fed whole can be pulverized so that there will be very little waste to it. Experiments show conclusively that pulverizing good alfalfa hay makes it feed equal to one-quarter more of the whole hay of the same quality. Pulverizing the hay on a small scale as is necessary by the farmer is not an easy proposition. In the first place, the process requires a great deal of power. It requires special pulverizing machinery. In some instances the hay has been pulverized by first chopping it in an ordinary feed cutter and afterwards running it through the feed grinder. This is usually a very slow process and often does not pay unless fed to hogs or poultry and then only in small quantities. Special cutters, which cut the hay in short lengths of one-eighth to one-fourth inch, are manufactured by various companies. The hay is very much improved by running it through one of these cutters, but it is not so well pulverized as it should be. The Colorado Agricultural College has one of these cutters manufactured by the Silver Mfg. Co. and is very well pleased with it and its work. There is very little waste to the hay in cutting it, especially when the work is done inside a building or on the outside when there is no wind. The machine requires about as much power to run it to capacity, which is about one ton per hour, as it takes to run an average size thresher, or an engine of 12 to 15 horse power. It takes two men to operate the cutter, one to pitch the hay to it and the other to feed it.

EUREKA Harness Oil



Ever compare the pulling power of a trace, dry, checked, brittle, with that of a trace, soft, pliable and full of "snap"? **EUREKA HARNESS OIL** will keep a whole harness soft, black, and in best possible condition for years. All that's necessary is an occasional application of the oil.

Ask your dealer for "Eureka" Oil.

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Are glad to notify the public who were their customers before the fire that they have established their **Pipe Business** once more at the old stand, **559 Howard St., San Francisco.** Send us your specifications. Every one is guaranteed a square deal. Castings come with the pipe.

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Farmers, Liverymen, Express Companies, Trainers, all classes of horse owners, know they can depend on

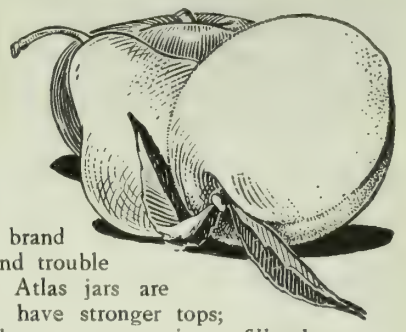
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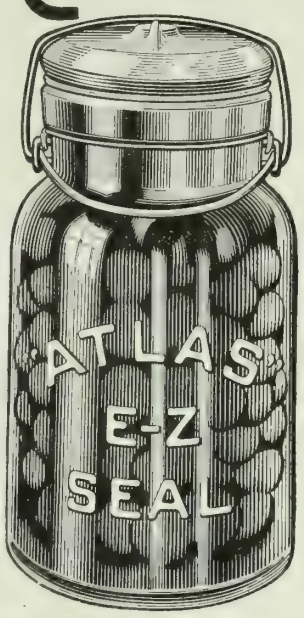
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is an especially good one. Machine-made and therefore perfectly smooth at the top—No danger to the hands and no particles of glass to fall inside when using the E-Z Seal Jar. It has a wide mouth and takes in large fruits without cutting or crushing them. The

ATLAS SPECIAL MASON

also has a wide mouth and is an equally good jar, but closes with a screw cap.

If your dealer cannot supply these jars, send $3, and we will express prepaid thirty (30) quart size ATLAS E-Z SEAL JARS to any town having an office of the Adams or U. S. Express Co., within the States of Pennsylvania, New Jersey, New York, Delaware, Maryland, Virginia, West Virginia, Ohio, Illinois, Indiana or Michigan, or we will quote delivery prices in other portions of the United States by freight or express.

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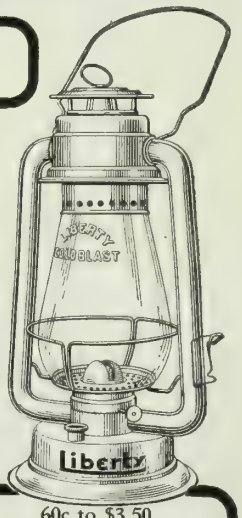
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CRAFT'S DISTEMPER AND COUGH CURE.

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JOHN LYNCH, breeder of Registered Shorthorns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

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The Poultry Yard.

SYSTEM IN THE POULTRY BUSINESS.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

The great need in the average poultry business is system—not any of the advertised "systems," but just system, pure and simple. How few poultry keepers know exactly how they stand with their fowls! We hear a good many say, "Them hens are eating their heads plum off." They know this to be a fact; yet is the hens were brought before the bar of justice to answer for their cannibalistic feat they would be acquited for lack of exact proof of their guilt. Any person who keeps poultry should know whether it is paying or not; and this should be learned by exact figures, not by "lumping" it or guess work. Quite a few who keep accounts do so in a manner so inaccurate as to be almost more misleading than no account. They jot down tomorrow what should have gone down to-day—skip a day here and there and fill in with guess work. In even published egg records how common to see: "Sold such a number of eggs besides what were used in the family, etc." That is no record at all. How many eggs from a given number of hens in a given time, and the market value of eggs during that time—that is the point to get at in an egg record.

We know that in the many small details of poultry work it is not always convenient to set down the items at the right moment; pass-books and pencils have a way of losing themselves; we put it off till a more convenient season and it escapes us altogether. The following method will obviate these little difficulties. On the wall of the poultry house or of the feed room or where the eggs are put each evening as they are gathered, paste two blank sheets of paper for each month. Head one "Expense Account" and the other "Egg Record." Note every cent paid out for the poultry on the expense sheet under proper date; set down the number of eggs laid each day just as soon as gathered in the evening. With things so handy you just can't forget. Here is a sample of one of the most simple and convenient forms for an egg record:

EGG RECORD.

May, 1909.

		2	9	16	30
Sunday					
		3	10	17	31
Monday					
		4	11	18	
Tuesday					
		5	12	19	26
Wednesday					
		6	13	20	27
Thursday					
		7	14	21	28
Friday					
	1	8	15	22	29
Saturday					
Total for week.					

As readily seen, the space above the dotted line in this form is used for the day of the month to correspond with the day of the week; the space below for the number of eggs laid that day. Another such a form may be kept for a record headed "Poultry Sales," where every fowl sold or used on the table may be duly credited. These forms are easily made, requiring only a sheet of blank paper, a rule and pencil and a few minutes' time. The totals in the egg record may be quickly added at the end of each month, the number of dozens multiplied by the average price of eggs per dozen for that month; this added to the value of the poultry sales for the month gives the gross receipts from the poultry and credits them with every egg or fowl produced, not simply for those sold direct. The difference between this amount and the sum of the expense account tells the story of your profit or loss for the time, and you know to a cent how you stand each month. At the end of the year there is little trouble in finding where you are in the poultry business. The monthly balances, however, are the more important. If they are on the sunny side you are encouraged to keep right on; if not, you can call a halt and hunt out the mistakes and leaks before they swamp you. If the hens are eating their heads off you are not able to prove it. But be just to the hen and find out why she is eating her head off—it may be she has little else to eat. Perhaps the vermin are eating her, head and body; or she is crowded in unwholesome quarters; or she is short on green feed or has too little meat, or not enough grain; or is too old and too badly run down—or something. Anyway there is sure to be something wrong, and the sooner you find it out and remedy it, the better it will be for your poultry business.

Questions and Answers.

WATER GLASS.—A new reader of the RURAL PRESS writes from Berkeley: "Can you tell me where to buy and how to use that water glass they talk so much about? My hens are laying fine now and I would like to preserve some eggs for the time I won't get so many."

Sodium silicate or water glass may be had from almost any drug store. The usual formula for this egg-preservative is one part of this syrup-thick liquid to nine parts of pure water which has been boiled and cooled. Pack very fresh clean eggs with the small end down in a clean sweet wooden tub or keg or stone jar, the latter preferable; then pour over them the mixture and cover to the depth of two inches. Put a tight lid on the vessel and set it in a cool dark place.

In a late government bulletin are given experiments which were made with larger proportions of water glass. In the first, one part of sodium silicate was used to five parts water. This made a strong solution in which only absolutely fresh eggs would sink (an excellent test for freshness). The eggs in this were all preserved with good flavor.

In the second test eight parts of water were used to one of water glass. All the eggs were preserved in this, but their flavor and poaching qualities were found inferior to the first.

In the third test ten parts of water were used to one of water glass. The eggs were all preserved, but their flavor and poaching qualities were inferior to either of the other two methods.

RELATIVE VALUE OF WHEAT AND BARLEY.—An inquirer from Anderson, Cal., asks: "Can you tell me the relative value of whole barley dry as compared with whole wheat dry as an evening feed for laying hens?"

The nutritive ration of wheat is 1:7.2. That of barley is 1:7.9. In other words, there is in wheat one pound of protein to seven and two-tenths pounds of carbohydrates; in barley there is one pound of protein to each seven and nine-tenths pounds of carbohydrates. Protein is the nitrogenous matter which supplies material for the lean portions of the flesh, blood, skin, feathers, albumen of the egg, etc. Carbohydrates, the starch, sugar, fats, etc., furnish heat and energy to the animal economy and form the larger part of vegetable foods. It will be seen that wheat is slightly better than barley as a laying food, but in the matter of relish there is a big difference, and what a fowl most relishes does it the most good even when all other things are equal. The tough and rather indigestable hulls of both oats and barley are probably one cause of the fowl's decided preference for wheat. Corn, which has a much lower protein ration (1:9.7) than barley is usually relished even better than wheat by fowls. By feeding rather more meat and green food either corn or barley is all right for laying food.

THE LANGUAGE OF FOWLS.

A French savant has become convinced that barnyard fowls have a real language, and that the curious sounds they are continually uttering are perfectly understood by one another. This naturalist has for some time kept a phonograph hung up in a coop in which several cocks and hens are confined. He has caused, as it were, the fowls to talk about all sorts of things by agitating them in one way and another—by letting them become hungry and then feeding some of them while others "complain"—and in many ways has induced them to utter all the sounds of which they seem to be capable. These sounds the phonograph has faithfully recorded, and Prevot du Haudray, the scientist in question, declares himself to be able to demonstrate from them that the chickens have a means of communication which may properly be called a language.—Tit-Bits.

CULTIVATING A GOBBLER'S DOMESTIC HABITS.

Out east of town is a turkey gobbler "sitting" contentedly on a big bunch of eggs, with good prospects. The owner of the eggs was unable to get a turkey hen to do the mothering, so he secured the gobbler. To make the gobbler content the owner is serving him with a ration of whisky soaked corn, keeping the gobbler so jagged that he is unable to walk off and leave the "setting."—Denton correspondence Dallas News.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

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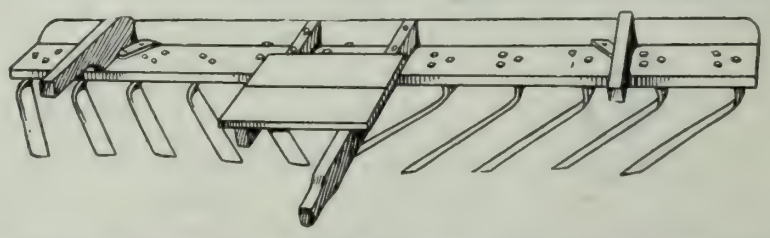
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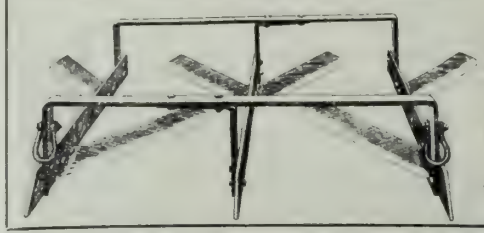
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The Home Circle.

The Brighter Side.

Did we think of the light and sunshine,
  Of the blessings left us still,
When we sit and ponder darkly
  And blindly o'er life's ill,
How should we dispel the shadows
  Of still and deep despair
And lessen the weight of anguish
  Which every heart must bear!

The clouds may rest on the present,
  And sorrow on days that are gone,
But no night is so utterly cheerless
  That we may not look for the dawn;
And there is no human being
  With so wholly dark a lot
But the heart, by turning the picture,
  May find some sunny spot:

For, as in the days of winter,
  When the snow-drifts whiten the hill,
Some birds in the air will flutter
  And warble to cheer us still;
So, if we would hark to the music,
  Some hope with a starry wing,
In the days of our darkest sorrow
  Will sit in the heart and sing.

—Phoebe Cary.

A Wild Flower Corner.

A wild flower corner in the garden! The very words bring a whiff of the wildwood; while the quest of the wildings to corral in our corner adds zest to stroll or outing. We shall find these wild beauties more difficult to transplant than their cultivated sisters. Like all wild things, they are a bit shy in the handling; but, once firmly grounded, they will flourish and reproduce themselves with little care. Our California poppy will show fresh and green in the midst of drouth-shriveled weeds; yet it does not bear transplanting well, and will not survive it unless the tap-root is intact. This flower, by the way, in its flame of gold is the queen among our wild flowers. It is amazing that any plant breeder should try to produce it in colors. There are gorgeous poppies in every brilliant hue, but this one stands alone in its satiny sheen of gold—fit symbol of the Golden State. We will have a bank of golden poppies in our corner, and in its front a bit of lawn where baby-blue-eyes peep through trembling grass and tiny white star flowers; and we must have a border of wild sweet Williams. This fragrant beauty is not indigenous to all localities in the State, but the seed may be bought from the seed companies; also the seed of the black-eyed-Susan, which we shall need to trail over a low background of rocks. In the cool shady spots of our corner we will have the waving ferns and the delicate plant life which hides beneath them. The rule in this kind of gardening is to give every flower and plant its natural setting—to make the corner look like a bit of Nature's own garden. And its keenest pleasures lie in studying this scheme, and in hunting out the hidden beauties of mountain, canyon, forest and field. This corner should appeal to the young folks of the rural districts. The country children know better than any the secrets of Nature's garden—where to look for the silver-leaf fern, the dainty wood violet, and all the shy things which hide from the city dwellers.

Wild gardening is becoming very popular in the East, along with the trend "back to Nature". A landscape gardener who makes a specialty of it says in the New York Sun:

"No one who loves wild flowers can visit England without realizing how much we Americans throw away. Not miss, but actually throw away, by chopping down and rooting up our native trees and flowers to plant the imported, the cultivated. The sight of their flower-carpeted parks and daisy-starred meadows made me long to get back home. I didn't care about painting landscapes any more. I wanted to get back to Ohio and get my father to allow me a corner of a wood lot to make beautiful. I began with that corner of a wood lot the next spring. It is of hard timber, straight tall trees making a deep shade in summer, with here and there an open space where the sunlight pours down like molten gold. That spring I went out with my packet of seeds, my trowel and fork. I grubbed and planted for three days. There were about twenty acres, with a well-worn country road winding through it. My father offered to straighten the road. He had never been in England, so I forgave him. When June came, and those flowers began to show in great sheets, my father was with me.

"A person who has a wooded tract, even though it be ever so small, much less than an acre, can make of it a dream of beauty by growing a few species of wild flowers by the thousand. In England we see such bits of forest carpeted by bluebells and wood hyacinths. Neither of these varieties are expensive in this country; but if one uses native wild flowers, about the cheapest way is to find a field covered with the variety you want. On a day when the sun is under a cloud or there is a slight drizzle of rain, take a wagon and go after your flowers. Don't aim at variety. Concentrate on one thing. You will be sure to get a sprinkling of other things, because the bulbs and seeds are in the soil, and will show when your turf is set. For those who have only a small plot in which to plant wild flowers, the wild border is the best. In such a border one should be careful to plant wild flowers blooming before May in the shady spots. Along with these early bloomers plant plenty of ferns to take their place later in the season; in the sunny spots plant robust flowers, such as goldenrod, asters, black-eyed-Susans, bouncing Bet, California poppy. For the background use wild shrubs, perennial sunflowers, or any vigorous high-growing plants. Whatever you may use, don't let any mulch show. Do all in your power to obscure the idea of cultivation. Wild gardening has only just begun to take the fancy of the American, but within a few years I look to see every bare hillside in New England a bank of spring bloom, and all our roadsides bordered with flowers and trees."

Helps and Hints for the Home.

(This department is open to questions and suggestions.)

When the housewife has only an ordinary round steak for dinner and is at a loss what good thing to get for the hungry boys at work in the fields, try this:

Menu.—Steak a la Philadelphia broil, with either tomatoes or onions; mashed potatoes and any vegetable handy as a side dish; lettuce or cabbage salad. Dessert: Pudding, warm ginger bread with wine or jelly sauce.

The Philadelphia Broil.—Prepare the steak by trimming off all skin and fatty or stringy portions, and pounding tender with the edge of a common plate; have the skillet very hot over a clear hot fire; grease it with a bit of fat beef or drippings; lay in the steak, just enough to cover the bottom without crowding; brown on one side; turn without piercing; season with salt and pepper. In a minute lift it into the hot platter waiting for it in the oven; cover the steak with bits of butter and close to the oven door. Now pour a spoonful of butter or sweet drippings into the skillet and fry the large pieces drained out of a can of tomatoes; place them around the steak on the platter and pour the juice around (not over) the steak; or fry slices of onions, wiped out of cold water, to a light brown, season and lay around the steak, garnish with parsley and serve hot on hot plates. This is considered a delicious dish by epicures, as the flavor of a round steak is finer than that of any other cut. Fried mushrooms may be used instead of the tomatoes or onions, and friend sausages with a sprinkling of orange juice are excellent. The point is in cooking the steak. If the skillet is not hot enough the juices will run out and the steak be tough and tasteless. The steak should be cut even and at least a half inch in thickness.

Lettuce or Cabbage Salad.—Mix smooth with olive oil or butter the yolks of two or more hard-boiled eggs; add a teaspoon of prepared mustard, a tablespoon of sugar, a level teaspoon of salt and pepper, either black or red, as relished, and a half teacup of good cider vinegar; mix all well together and, just before serving, stir in a quart of shredded lettuce or chopped cabbage; turn out into a salad dish and garnish with parsley or nasturtiums and the sliced whites of the eggs.

To have lettuce deliciously crisp without ice, gather early in the morning, if home-grown; two or three hours before serving wash well, shake the leaves and place them in a pan or crock; cover with a wet cloth and set in a cool place in the wind. By keeping the cloth wet the lettuce will become as crisply fresh as if kept in a refrigerator.

The Pudding.—Cream a half teacup of butter with a teacup of sugar; add a teacup of molasses (not syrup), a tablespoon of ginger and a pinch of soda, a half teacup of sweet milk or water; sift in enough flour with two teaspoons of baking powder to make a thick batter; now beat in two well-beaten eggs and last add a teacup of seedless raisins which have been previously washed in hot water and dried. Pour into a large bread pan well greased, with a thick greased paper in the bottom. Bake in a slow oven and be careful that the cake does not dry or burn. It should be not more than two inches thick when baked. Keep it warm, cut in squares and serve on plates with sauce.

Wine or Jelly Sauce.—One cup of sugar and one even tablespoon of flour sifted together with a little grated nutmeg; into this stir a pint of boiling water; boil rapidly a few minutes, stirring meantime. Now add a tablespoon of butter and either a large spoon of jelly or a half teacup of wine.



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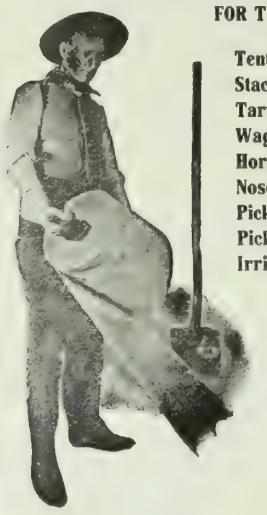
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THE MARKETS.

San Francisco, May 12, 1909.
(Unless otherwise noted, quotations represent prices paid to growers.)

WHEAT.

This market continues in about the same condition, regardless of fluctuations in the East. There is no interest whatever in futures, and only moderate buying of the cash grain, as the bulk of the business is now done in the North, though the local millmen have taken a little more interest this week. Northern bluestem and Russian red are higher, and low grade California grain shows some advance. White Australian is practically nominal, with no transactions of any consequence for some time.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.00	@2.20

BARLEY.

Barley is still coming in freely, but with comparatively light supplies on hand, and a steady though moderate demand, prices have been maintained at the former quotations. Chevalier is practically nominal, and there is little movement of brewing and shipping grades.

Brewing	$1.62½	@1.65
Shipping	1.62½	@1.65
Chevalier		1.70
Good to Choice Feed, per ctl.	1.57½	@1.60
Common Feed	1.52½	@1.56¼

OATS.

While the demand is decidedly light, the small supply is steadily diminishing, and all offerings are firmly held. Prices on white and gray oats remain as formerly quoted, but all grades of reds are higher. Blacks continue nominal, with nothing offering.

White, per ctl.	$2.15	@2.25
Gray	2.10	@2.15
Red, choice	2.15	@2.20
Common	2.00	@2.15
Black		Nominal

CORN.

Liberal arrivals of the Western grades are reported in the interior of the State, but very little is coming into this market, and buyers take little interest. Western yellow, sacked, is easier, but other grades show no change, being firm at the advance last noted.

California Small Yellow	$2.00	@2.10
Western State Yellow		1.75
Mixed, in bulk		1.70
White, in bulk		1.77
Egyptian White		1.95

RYE.

The requirements here are small, and at the present range of values buyers are inclined to hold off as much as possible. No spot offerings are quoted, and Eastern stock is held at former figures.

Rye, to arrive	$2.00	@2.10

BEANS.

Firmness is still the feature of the bean market, all varieties being strongly held. White beans are especially strong, with limited supplies, though top prices are easily maintained on all other varieties. Limas have been moving off rapidly, and stocks have been reduced to small dimensions. The high price of white beans is expected to bring a larger acreage of Lady Washingtons in some sections, where they may take the place of other varieties. The former inside price is no longer quoted on Garvanzos.

Bayos, per ctl.	$5.25	@5.50
Blackeyes	3.50	@3.65
Cranberry Beans		Nominal
Garvanzos	3.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.50	@5.75
Large Whites	4.60	@4.75
Limas	4.15	@4.25
Pea		Nominal
Pink	3.25	@3.35
Red		Nominal
Red Kidneys	3.75	@4.00

SEEDS.

The local seed market is featureless, with no buying of any consequence, and little change is expected for some time. Some varieties are a little easier, but the prices in general remain steady.

Alfalfa, per lb	18	@19 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.	3¾	@4¼c
Canary		4 c
Flaxseed		4 c
Hemp		4 c
Millet		2¾c
Timothy	5¾	@6 c
Yellow Mustard	6	@6½c

FLOUR.

There has been no further advance, but prices are very firmly held. Milling operations are unusually quiet, and the buying is in small quantities. A large proportion of the local supply is being purchased in the North at present.

Cal. Family Extras	$6.40	@7.00
Bakers' Extras	6.40	@6.65
Superfine	5.20	@5.50
Oregon and Washington	4.85	@5.75

HAY.

Arrivals of hay have been still smaller than last week, and with light receipts for two succeeding weeks the market is extremely firm, and higher prices are quoted. This condition appears to be only temporary, and a decline is expected as soon as new hay can be shipped in any quantity. Heavy shipments of the new crop have been delayed, but are expected during the next week. The crop as a whole appears better than was expected, and with a continuation of cool weather the production should be fairly large. Rain at this time would do more harm than good, as considerable hay has already been cut.

Choice Wheat, per ton	$23.00	@26.00
Other Grades Wheat	17.00	@23.50
Wheat and Oat	19.00	@23.50
Tame Oat	19.00	@23.00
Wild Oat	15.00	@21.50
Alfalfa	13.00	@16.00
Stock	7.00	@10.00
Straw, per bale	50	@ 95c

MILLSTUFFS.

Millstuffs remain rather quiet in this market, though there is some demand all the time, and the present limited production serves to keep prices steadily at the present level. Miscellaneous feedstuffs are in about average demand, with prices unchanged.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		Nominal
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.00	@35.00
Mixed Feeds	30.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	33.00	@34.00
Shorts	31.00	@32.00

VEGETABLES.

Oregon onions are no longer quoted, as the supply is about cleaned up, and the last of the Nevada stock has also been disposed of. Bermudas are weak and slow of sale, though Australian offerings continue to find a ready market at former prices. New red onions are now arriving from the river districts, and sales have been made at the appearing quotation. Southern summer squash is now offering freely at the price quoted. Supplies of asparagus are lighter, and as the canners have been taking up the surplus during the week the price is firmer. Rhubarb and string beans are lower, with liberal arrivals of both articles, but green peas are steady as before.

Onions, new red, per ctl.		$2.00
Australian Onions	4.00	@4.25
Bermuda Onions, per crate	1.25	@1.50
New Green Onions, per box	50	@65c
Garlic, per lb.	8	@10c
Green Peas, sack	1.00	@1.50
String Beans, per lb.	7	@9c
Cabbage, per ctl.	2.00	@2.25
Tomatoes, per crate	1.00	@1.25
Cauliflower, per doz.	65	@75c
Celery, doz.	40	@50c
Asparagus, extra choice, box	1.50	@1.75
Asparagus, common to choice	75c	@1.25
Rhubarb, per box	75c	@1.75
Turnips, per sack	1.00	@1.25
Summer Squash, per box	1.00	@1.25

POULTRY.

No Eastern stock whatever arrived in the early part of the week, and only two cars came in later. Receipts of native poultry have been somewhat heavier since last report, but in the absence of large offerings of Eastern stock prices have been well maintained, all descriptions being as last quoted. Offerings have been disposed of without difficulty at the appearing quotations, and good solid stock of every description is in demand, especially large young roosters, fryers and fat hens.

Broilers	$ 4.00	@ 5.00
Small Broilers	3.00	@ 3.50
Fryers	8.00	@ 9.00
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons	1.00	@ 1.25
Squabs	2.00	@ 2.50
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

Arrivals of butter have again increased, and considerably more is coming in than is required by the current trade demands. The market, however, remains rather firm, with an advance of ½ cent on extras and firsts and 1 cent on seconds. This is due partly to a continued shipping movement, which has taken up most of the surplus from week to week, though considerable stock is now moving into storage.

California (extras), per lb.	24½c
Firsts	24 c
Seconds	23½c

EGGS.

The activity of the large storing interests caused a further advance a few days ago, extras reaching 27½ cents. Few handlers are willing to store at such a figure, however, and with continued heavy arrivals the expected break took place. Extras, firsts and seconds are now ½ cent below last week's quotations, while thirds are a little higher. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras, per doz.	25½c
Firsts	24½c
Seconds	23½c
Thirds	22½c

CHEESE.

Supplies of flats have been larger than the local market could absorb, and some stock is being sold for shipment North. With Oregon cheese fairly plentiful, however, the market tends to lower prices, flats being quoted at a decline of 1 cent. Young Americas are also lower on larger arrivals. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	13½c
Firsts	13 c
New Young Americas, fancy	15½c

POTATOES.

Oregon Burbanks are quite plentiful at the moment, with large arrivals during the week, and the tone of the local market is easier than for some time past. Stocks remaining in Oregon, however, are small and rapidly diminishing, and there is no likelihood of any decline. River stock is firm as last quoted. New potatoes are higher, but sweet potatoes show a sharp decline.

River Whites, per ctl.	$ 2.00	@ 2.25
Oregon Burbanks, per ctl.	2.25	@ 2.50
Sweet Potatoes, per ctl.	1.25	@ 1.50
New Potatoes, per lb.	2½	@ 3¼c

FRESH FRUITS.

Steadily increasing arrivals of strawberries have weakened the market considerably, and all varieties are now comparatively cheap, with some pressure to sell on the part of receivers. A few raspberries are offered, and meet with ready sale at high prices. Cherries are lower, but the shipments are still moderate and the market is well cleaned up. Apples are held at former prices, and are meeting with a fair sale.

Strawberries—		
Longworths, per chest	$ 5.00	@ 8.00
Large varieties	4.00	@ 5.00
Cherries, drawer	75c	@ 1.35
Apples, fancy, per box	1.25	@ 1.50
Apples, common	50	@ 1.00

CITRUS FRUITS.

The citrus market shows less feature than last week, and oranges at present receive little attention. Quotations remain unchanged, but there is a feeling of easiness. Fancy lemons are higher, but other descriptions show no change.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.25
Standard	1.00	@ 1.25
Limes	4.50	@ 5.00
Oranges—		
Fancy Navels	2.25	@ 2.75
Choice	1.75	@ 2.25
Grape Fruit	2.50	@ 2.75

DRIED FRUITS.

Some interest is now being taken in new crop stock, and some goods have been sold in the Eastern markets by Coast packers. Sales of seeded raisins are reported on a sweatbox basis of about 2½ cents. Apricots have been offered at 7½ to 8½ cents for orchard run in bags, July delivery, and it is reported that packers are offering 7 cents for apricots and 2¼ to 2½ cents for figs. No offers on peaches are quoted. So far there is little doing in futures, as the trade is taking little speculative interest and growers are inclined to hold off in hope of better prices. Spot business is rather quiet, with a firmer feeling in apples and figs, which are closely cleaned up. Peaches are inclined to easiness, though there is not much stock offering. Prunes are strongly held, and the moving fairly well. There is a better feeling in raisins in many quarters, though the Eastern market remains rather quiet and no improvement has occurred in the price.

Evaporated Apples	5½	@ 6¼c
Figs, black		4 c
Figs, white		4 c
Apricots	7½	@10 c
Peaches	3½	@ 4½c
Prunes, 4-size basis	2	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

Prices are quite firmly held on both almonds and walnuts. Almonds are quiet, owing to the shortage of stock, but walnuts are now moving off well, and the supply is not excessive.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Honey is entirely nominal at present, this market being cleaned up, and all interest is now centered on the new crop.

HOPS.

There is still considerable old crop stock left in the hands of growers, and buyers are taking very little interest either in spot or future offerings. Most of the stock now on hand will not bring over 5 cents, though higher prices are asked for the best lots. Few contracts are being made for new crop, prices on which are unchanged.

Hops, per lb.	5	@10 c

WOOL.

Wool remains firm at the prices last quoted, and the market is quite active, with the spring clips moving off rapidly. Outside markets are in better condition than for many months.

Red Bluff, choice, f.o.b. S. F.	17	@19 c
Year's Staple	21	@24 c
Middle Counties, free	14	@17 c
Southern, free	13	@14 c

Defective wools, 2 to 3c. lower.

MEAT.

Plentiful supplies of beef are now coming in, but prices have so far been pretty well maintained. Supplies in other lines are sufficient for current requirements, and prices stand about as last quoted, dressed mutton being slightly weaker.

Beef: Steers, per lb.	7½	@ 8 c
Cows	6½	@ 7 c
Heifers	6½	@ 7 c
Veal: Large	6½	@ 7½c
Small	8	@ 9 c
Mutton: Wethers	7	@ 8 c
Ewes	6	@ 7 c
Lambs		9 c
Spring Lomb	9½	@10 c
Hogs, dressed	9½	@11½c

LIVESTOCK

Steers, No. 1	4½	@ 4¾c
No. 2		4½c
Cows and Heifers: No. 1		3¾c
No. 2		3¼c
Bulls and Stags	2	@ 2¼c
Calves: Light	5	@ 5½c
Medium	4½	@ 4¾c
Heavy	3¾	@ 4¼c
Sheep: Wethers		4¾c
Ewes	3¾	@ 4 c
Lambs: Yearlings		5 c
Spring Lambs		5½c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾	@ 7 c
Common Hogs, lb.	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

WE SEED FORTY ACRES TO ALFALFA ON OUR

California Improved Farms

In the Sacramento Valley near Arbuckle, California

We are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. We offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land.

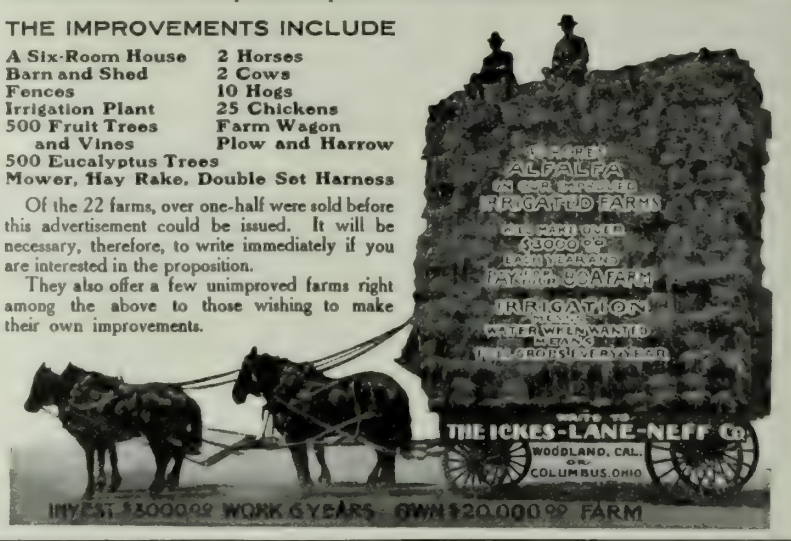
THE IMPROVEMENTS INCLUDE

A Six-Room House	2 Horses
Barn and Shed	2 Cows
Fences	10 Hogs
Irrigation Plant	25 Chickens
500 Fruit Trees and Vines	Farm Wagon
	Plow and Harrow

500 Eucalyptus Trees
Mower, Hay Rake, Double Set Harness

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



Special Citrus Market Report.

Los Angeles, Cal., May 11. —Still the fruit goes out in great quantities, and the end is not in sight. Over 200 cars a day of oranges is an unprecedented output for May, and it is no wonder that prices are not to the tip top, and it is a wonder that we have not had a slump before this time. Yesterday in New York city there were sold 71 cars of citrus fruit, and it is said that this is the heaviest sale ever held in one city in one day. The average price for extra choice and orchard run navels remains about the same as for the past week, $2.30 per box. The creme de la creme packs run far and away ahead of this price, and then also there are many brands that sell below $2.30 and this is conceded to be the average for the very fair quality of commercial pack.

Lemons have gone to the demnation bow-wows. Witness the sales in Monday's auction. Hardly anything over $2 a box delivered, and some brands sold for less than $1 a box. Poor judgment to ship some of the lemons now selling. Better have a "Lemon Day" out here in California and work off some of this poor stock; it won't hold up to the other end of the line.

Seeds, sweets and mikes are low in sympathy with navels and it does not seem as though there would be any reaction until there is some let up in shipments. All of these varieties are of desirable sizes and should bring more money than they are now doing. Some Valencias are moving, but it is not believed that

many have gone out except on orders. In fact it would be rather poor policy to send Valencias rolling with the 2500 cars of navels that are now out and unsold. The Exchange reports that they have 1600 cars of citrus fruit out at this time and for a guess 250 of these are lemons. The independent shippers probably have over 1000 cars out, and until there is a breathing spell on shipments there can be no clean up of this immense amount of fruit.

Cash prices for navels are down to $1.50 for very good extra choice grades. Some sweets and mikes can be had at that figure, though most of the stock is being held up to $1.75. Seeds can be bought for $1.25 up, a very good lemon, crued fruit, being available at $1.75 to $2 cash. Valencias are selling for $2 cash. The citrus fruit shipments to date have been 20,607 cars of oranges and 2938 cars of lemons, as against 18,519 cars of oranges and 2354 cars of lemons to same date last year.

A SPRING PROBLEM SOLVED.

In the spring we all feel young and vigorous, men and animals. Many of your herd have just freshened; all feel rejuvenated after the long winter confinement with its monotonous round of dried feeds. Your cows will respond to the call of nature and nature's fare by giving their greatest flow.

What are you going to do to get the most profit out of this bounteous gift of nature? Are you going to continue to take your whole milk to the shipping station to be sold for table purposes or to the creamery, where your cream is considered the only thing of value and you get but small pay for it? Remember that all your neighbors will also be experiencing the benefits of the "flush" season and that in consequence the shipping stations and the creameries will be flooded with supply. That means that prices will drop to the lowest figures of the year so that the benefits of your increased production are to a great extent withheld from you.

There is one way in which you can get the utmost profit out of your milk this spring; that is, by installing a U. S. Sep-



arator, skimming the cream from the milk at your home, selling the cream at a fair profit to the creamery and feeding the warm skimmilk to your calves, pigs and poultry. Or, if you choose, you can make your own butter and retain all these other advantages. If you have not learned the advantage of feeding skimmilk to your stock, a few months subscription to an agricultural paper will show you many instances where this is being done with great profit.

The new model, 1909 U. S. Separator, is probably the one best fitted for your needs, whether you have five cows or a large herd. This model, which is being widely discussed among dairying experts, does not differ greatly from the older models made by the Vermont Farm Machine Company except in one particular, and that is in the bowl and skimming device. Even here the principle of skimming is unchanged, but greatly intensified. It is reported that this new bowl, while being easily washed and simple in construction, is doing the work of a bowl about twice the size in the older style machines. All dairymen who have used or seen a separator will recognize that this means far less effort on the part of the user, if run by hand.

The low supply can, the fast clean skimming, the easy running and cleanliness of the newest model U. S. Separator is already becoming well known. Another fine feature of the U. S. machines (and this feature is not confined to the latest models) is that the crank can be placed on either side of the machine, and that when fitted for power, the crank may be used when the power gives out, by simply going to the other side of the machine. It would be a good idea to send for Catalog 148 which the Vermont Farm Machine Co., Bellows Falls, Vt., will gladly send on request.

PUBLISHER'S DEPARTMENT.

Among the new advertisements in this issue are those of the Pear-Blight Remedy Co., Weissbaum Pipe Co., and S. Thompson of Riverside, who offers orange seed. Also the California Mutual Live Stock Association give in detail losses recently paid by them.

On our first page of this issue we print a series of articles of interest to fruit growers, written for the RURAL PRESS by W. M. Bristol of East Highlands. The articles yet to be printed cover such subjects as raising an orange grove on foothill land, alfalfa in the orchard, pruning the orchard, and saving the water in the south.

A SUBSCRIBER FOR THIRTY-EIGHT YEARS.

The following letter received from Mr. G. R. Wales of Milford, Lassen county, is one greatly appreciated. It is this expressed good will from subscribers who have read and known of the work of the PACIFIC RURAL PRESS for over a third of a century that spurs us on in efforts to publish a better and still better paper. From Mr. Wales we quote:

"I have been a subscriber to the RURAL PRESS ever since it first came out and I enjoy reading its pages as much or more now than I ever did. Don't think I could get along without it for a single year, and I have many clippings of articles of value to me taken from it. I have resided here in Honey Lake valley ever since the fall of 1861. We crossed the plains that summer from the State of Iowa and reached here the 20th day of Auust, after many narrow escapes from the Indians and other dangers incident to a trip like that. With best wishes for the success of you and our beloved RURAL PRESS, I am sincerely, G. R. WALES."

The Kings County Fair for 1909 will be held at Bakersfield the week commencing September 6. The Tulare, Hanford and Fresno fairs will follow in order named.

PREPARE NOW FOR YOUR EASTERN TRIP

Over the

SUNSET ROUTE

LOW RATES

For Round Trip Tickets.

IN EFFECT

May 15, 16, 20, 21, 22, 31.
June 1 to 4, 14 to 19, 25 to 27, inc.
July 1 to 7, inc.
August 9 to 13, inc.
September 7 to 10, 13 to 15, inc.

RATES

New York	$108.50
Washington	107.50
Boston	110.50
New Orleans	67.50
Chicago	72.50

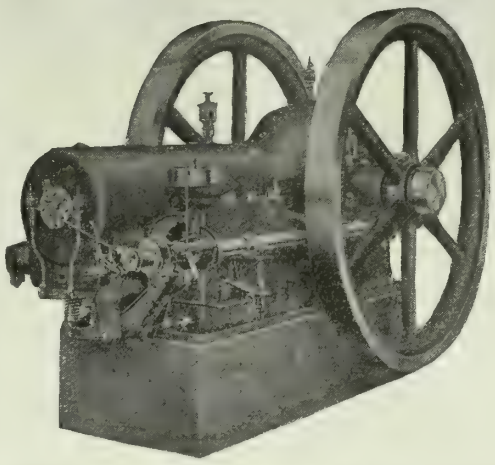
Many more rates on application. Choice of routes. Stopovers and long time limits.

Ask about our personally conducted excursion parties leaving for New Orleans, Chicago, St. Louis, Cincinnati, and Washington, D. C.

HIGH CLASS EQUIPMENT —OIL BURNING LOCOMOTIVES—DINING, OBSERVATION, AND SLEEPING CAR SERVICE.

Southern Pacific

THE FIELD ENGINE



Here's Value for Your Money.

This engine is built right—operates right—and sells at a price in reach of all.

Operates on gasoline, alcohol, distillate or gas; 4 to 30 H. P. in stock — Stationary or Portable.

CALL OR WRITE FOR CATALOGUE F.

HENSHAW, BULKLEY & CO., Agts.

San Francisco.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of al kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,

President John Crouch Land Company.

CANADIAN PACIFIC RAILWAY LANDS SOUTHERN ALBERTA, CANADA.

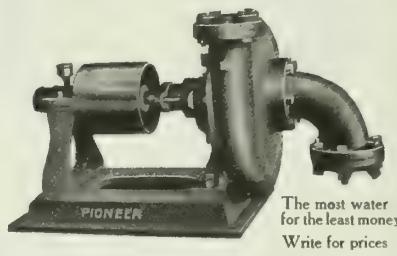
In the celebrated winter wheat belt. Rich land, yielding from 30 to 60 bushels wheat and 80 to 100 bushels oats per acre. Railroads now building through the tract we are offering for sale. Price, $14 to $17 per acre. Small cash payment and annual installments.

Join our next excursion, last week of May, 1909. Write for map and literature.

R. A. BERRY & CO., Agents.

Center and Oxford Sts., Berkeley, Cal.

PIONEER CENTRIFUGAL PUMPS



The most water for the least money

Write for prices

PEERLESS IRON WORKS

SACRAMENTO, CAL.

Agents wanted. Mention this paper.

CALIFORNIA FRUITS AND HOW TO GROW THEM

By E. J. WICKSON, A.M.

REVISED EDITION, 500 PAGES. HANDSOMELY ILLUSTRATED.

Price $3 per copy, postpaid.

A COMPLETE COMPENDIUM ON FRUIT GROWING.

State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

"I have had occasion to consult Prof Wickson's 'California Fruits' on many subjects and have found what I wanted in every case. The book might well be styled an Encyclopedia of California Horticulture."—L. Lathwesen, San Jose.

Send In Your Order Today to

PACIFIC RURAL PRESS, Publisher,

667 HOWARD STREET,

San Francisco, Cal.

Pear and Apple Growers,

PEAR BLIGHT

has already developed to an alarming extent in California this season.

WE CAN CURE THIS DISEASE

We invite your personal investigation of orchards treated

WITH OUR REMEDY

We positively guarantee that our Remedy does not in any way injure the Tree or Fruit.

SAVE YOUR ORCHARDS BY USING OUR REMEDY

WRITE US FOR PARTICULARS.

PEAR-BLIGHT REMEDY COMPANY

VACAVILLE, CALIFORNIA.

CALIFORNIA STATE LIBRARY

THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 21. SAN FRANCISCO, SATURDAY, MAY 22, 1909. Thirty-ninth Year.

Saving Water in the South.

Written for the PACIFIC RURAL PRESS
By MR. WM. M. BRISTOL.

Water saved is water earned. So has the old maxim concerning the penny been paraphrased by the irrigators of southern California. The era of dry years through which the region recently passed was a blessing in disguise, for, in the effort to find water to tide their orchards and alfalfa fields over the seven lean years, they not only learned lessons in water economy but discovered underground sources of supply more bountiful than they had hoped. Prior to their time their reliance had been chiefly upon surface streams and artesian wells—the former, because of their elevation, being used largely for the higher orchard lands, and the latter for the lower lying alfalfa fields. During the first few years of the pumping regime the lifting of water by artificial means was regarded as a temporary expedient; and the orchard which was wholly dependent on an underground stream was not considered satisfactory security for a loan. Today it is apparent to all that the underground stream is, naturally, the last to go dry; and the improved pumping machinery which has come into use has made the subterranean supplies of immense and practical value.

In order to comprehend fully the nature of the underground streams and reservoirs, it is necessary to understand, in a broad way, the nature of the surface of the country, as well as its underlying formations. Without going into geological technicalities, it may be said that the crust of the earth is composed of rock in place—bedrock—and that this vast mass, heaved and distorted by countless prehistoric convulsions, is largely covered to varying depths by the eroded and disintegrated portions thereof—soil, sand, gravel, and boulders. The term "bedrock" is commonly used to designate any rock in place. Where sedimentary rock has been formed overlying a gravel deposit, as in the Dakota artesian region, this later formation is sometimes colled "false bedrock." In southern California there are practically no rock formations sufficiently regular and continuous to produce artesian conditions, aretsian water here being found only under clay or hardpan strata. The vast rock masses which are exposed in the mountainous region have been churned, as it were, out of all semblance to their original formation. This churning process, however, has not left them in the best possible condition to receive and retain the water which falls upon them. By millions of devious crevices this water percolates downward, a portion emerging from springs on the mountain sides, and another portion finding its way into the underground reservoirs of the valleys—from springs issuing from the bedrock below the surface of the debris and soil deposits.

For a number of years after the need of more water became apparent it was believed that the yield of the springs on the mountain sides could be largely increased by tunneling. Enormous sums were expended in this way, but probably ninety per cent of the money so invested was thrown away. The water which saturates the heights slowly drains out through the countless veins. A drainage tube, if you please, has its orifice on the wall of some canyon. The perennial moisture of the spring induces a growth of vegetation, which assists in the disintegration of the rock and the accumulation of a deposit of soil. In time the point where the water emerges from the rock becomes hidden under this deposit, such a place being designated, in the Spanish tongue, as a cienega. The casual observer sees in this springy place a promising water prospect, and prepares to run a tunnel, believing the mountain to be fairly bursting with the precious liquid. The story of the multitude of tunnels run in bedrock in southern California in quest of water may be summarized in the single word "failure," and for this reason: The alluring cienega is simply due to the spring, and the spring is simply the outlet of the crevice which is draining the mountain in a slow and measured way. The tunnel merely intercepts the stream a little way in from the surface, and, although an increased flow for a few days may result from penetrating a water-filled pocket, no permanent increase worthy of note has yet been recorded. It should be explained, however, that the tunnel usually collects and saves the water which was formerly lost by seepage and evaporation from the cienega, and in this way a short tunnel is frequently worth its cost.

Since the fallacy of tunneling has become apparent, the more tangible practice of piping the water out from the larger springs is becoming general. In the Plunge Creek watershed, in San Bernardino county, many miles of vitrified pipe have been laid for this purpose, and at great expense, most of the pipe having to be transported for miles on pack animals. But where a miner's inch of water is worth up to two thousand dollars, and where enough water can be saved in a small creek to irrigate two hundred acres of oranges, it is plain that a large expenditure is justified.

Another practical method of saving water is receiving more systematic attention from year to year. The winter flow of the mountain streams is being sunk in the sands of the washes—stored in the underground reservoirs, to be pumped back to the surface during the summer. The appliances for this practice, however, are very crude, few permanent diverting and distributing works having as yet been constructed. The accompanying view, taken in the Santa Ana wash, between Highland and Redlands, where the Government has recently reserved several sections of land to facilitate the practice, shows a pioneer method of diversion. The fact that even the relatively clear water of the mountain streams carries enough sediment to cement the bottom of a gravelly channel in a short time, makes it plain that the washes must be cultivated as well as irrigated, if the water is to be sunk therein. The promising method of sinking water by running it into the wells has been practiced to some extent, and seems entirely feasible.



Storing Water in the Bed of Santa Ana River.

It is doubtless true that some portions of the traditional Great American Desert will always be sterile, but the genius and the industry of the irrigator and of the so-called dry farmer will eventually reduce them to pencil-points on the map of the Southwest.

A FINE PLANT COLLECTION.

Los Angeles correspondence refers to the ornamental horticulture of Mr. H. E. Huntington, who is building a palatial country mansion on the old Shorb rancho, near San Gabriel and is ransacking the earth for rare trees and shrubs for his beautiful grounds of 468 acres. Already the landscape admirably balances with hill and dale, plain, plateau and deep canyons on the edge of the San Gabriel valley, containing the largest collection of old oaks in the south, and to these Mr. Huntington has added $23,000 worth of plants from many lands, while expending $100,000 on the grounds, upon which forty gardeners have been at work two years. And this is but the beginning. Every week shipments of trees and shrubs from Asia, Africa and South America arrive. Huntington has just purchased $6000 worth of trees in China and Japan.

Pacific Rural Press

667 HOWARD ST., SAN FRANCISCO.

Los Angeles Office, 123 So. Los Angeles St.

TWO DOLLARS PER YEAR IN ADVANCE

Entered at S. F. Postoffice as second-class mail matter.

PACIFIC RURAL PRESS CO. - - - PUBLISHERS

Advertising rates made known on application.

E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., May 18, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.04	42.11	44.02
Red Bluff	.08	30.64	24.18
Sacramento	.00	21.75	19.69
San Francisco	T	25.57	21.84
San Jose	.00	18.26	12.69
Fresno	.00	9.79	9.40
Independence	.00	8.00	9 27
San Luis Obispo	.00	31.37	20.02
Los Angeles	.00	19.07	15.44
San Diego	.00	10.23	9.85

The Week.

Weather conditions remain about as previously noted. Temperatures are rather low, and the air, even in the interior, has not fallen to the low per centage of atmospheric humidity which hurries plants unduly toward maturity. At places in the upper Sacramento valley there have been light showers, which have not greatly increased soil moisture, but they have contributed to the kindness of cool moist air to the development of plants under somewhat trying conditions. Last year considerably more was secured from grain fields than was expected, because of the failure of spring rains, and a similar result is indicated this year by conditions which favor a slower maturing. On upland pastures and on the plains, away from showers and from the influence of the ocean air, the feed is giving out early, and there is some movement of stock northward and toward local river bottoms, to fields which have sustained later or freer growth of forage plants. At the same time, there is loss of crops on some low lands by backwater from breaks in river levees, and strenuous effort is being made to get the water into adequate outlets to the bays and the ocean. Such sharp contrasts of scant water in some places and excess in others indicate that California's great problem still awaits settlement. The extension of water storage, of irrigation, of river drainage, etc., are all things to think hard about and to work for, to the end that agriculture may be pursued under more uniform moisture conditions and produce more regular results.

Thanks to the United States Weather Service, we are coming to understand better the great atmospheric envelope, which is one great factor of our agricultural success. A silly Eastern magazine recently undertook to attract public attention to its enterprise by attempting to impeach the Weather Service, and drew upon itself instead a tornado of denunciation, because the public clearly holds this service as one of the best governmental endeavors. If we can make our treatment of soil and water as rational as the Service's interpretation of the firmament above in the interest of agricultural production, we shall take a long advance stride in the development of California.

Having thus disposed of the great agricultural problem of the day, we turn to some obtruding features of the social side of agriculture. President Joseph Graham of the Central New York Farmers' School, at a recent agricultural banquet, declared that the supply of sturdy wives for the agricultural men of the State is running low, and blames the mothers, who, he asserts, are not bringing up their daughters in a manner which will develop them into good housewives for ambitious young farmers. Mr. Graham did not hesitate to shout at a recent farmers' meeting: "There are not enough young women for wives for those young men. When they go back on the farm they will want wives. They will not look at gold bracelets nor diamond rings. They will not see freckles nor high cheek bones. They will long for strong arms and willing hands." In answer to which we simply remark that Mr. President Graham is a horrid old thing. And to talk that way at a banquet, too: ugh!

But what is this? To solve the problem of what to do with the 100,000 spinsters and widows of Massachusetts who can never hope to marry, owing to the scarcity of men in that State, threescore prominent business men and professional women of Greater Boston have formed the Women's Massachusetts Homestead Association, for the purpose of winning State aid in getting tracts of land near large cities, where women can engage in profitable agricultural enterprise. They are to take up the cultivation of small plots of land in the suburbs and raise flowers, mushrooms, strawberries, vegetables, squabs, chickens, bees, and pigs. To achieve this end the association wants the Commonwealth to buy tracts of land wherever available, divide this land into acre lots, and then, through a commission, supply women—particularly spinsters—who would like to engage in such pursuits, with a share of land. A wealthy New York woman has become interested in the project, and it is announced that she is coming to Massachusetts in June to investigate, and that she will spend from $200,000 to $300,000, if the cause appeals to her, in buying land for struggling "old maids."

Now why are these two little Eastern States making such a clatter in this matter, and disturbing the peace of the nation. If the New York young men do not like their own best girls, and if the Massachusetts supernumeraries must go into farming, two problems are settled as soon as stated. Simply marry the New Yorkers who want workers to the Bay State ladies who want to work. If their cheek bones are not high enough they can be raised a little perhaps by massage, and if there must be freckles, they can be hand-painted on to suit the most exacting tastes. But of course the question remains as to the disposition of the too utterly lovely New York maids who enjoy bracelets and diamonds, but that is not hard to settle. California young farmers like that kind. They know that enjoyment of fine things does not necessarily unfit women for the sterner duties of life; nor does the possession of such things prevent a sensible woman from doing well whatever it is necessary for her to do for and with the man whom she consents to help and abide with. We apprehend that Mr. Graham does not know much about girls, nor about young men either. No young man of the proper American spirit will deliberately settle down to slavery, either for himself or for his wife. Both may arrive at something like it, perhaps, later, and do heroically the servitude required. But to claim that young men with the opportunities for higher industrial and social life which this country affords want to marry women who are lower than themselves and will be unable to carry well and enjoy the prosperity which they hope to achieve, is a slander upon young Americans, both male and female. But then, why is Mr. Graham bothering himself so much about the next generation? It does not ask him to do it, nor will it hearken to his counsel. It must work out its own social problems.

We, of course, do not know Mr. Graham, and cannot tell whether he is eligible to the improving treatment which we would commend for him, but suspicion is that he is, and we take our prescription for him from some striking remarks recently made by Col. William Coates, C.B., in a lecture before the Massachusetts Medical Society, on "The Duty of the Medical Profession in the Prevention of National Deterioration." Colonel Coates said: "It is a great waste that so many of the finer specimens of our race remain bachelors and fail to fulfil their natural obligations, when there are two million more women in the country than men. Undoubtedly every bachelor over 30 should be heavily taxed, according to his income, and this tax should be used for the benefit of parents producing large families of healthy children. It must be made easier for the best types of parents to bring up their children." We notice that the loudest talkers about how to bring up children are those who never brought up any, and probably the loudest critics of wives are those who have none. If these critics had wives they would have at least learned to—keep quiet. And so we say, marry New York to Massachusetts, tax Mr. Graham to the limit to encourage the sort of progeny which he seems to desire, and send all the nice girls to California. Of course, the best kind of young men will follow them. That is what we are really figuring on. Let Mr. Graham have the whole bunch of old maids to wait upon him, and then he will keep quiet.

We have spoken quite freely upon the mistake of establishing a general farmer from the East upon a little piece of land, even if it may be suited to some special product which he knows nothing about. A writer for the Pacific Homestead tells a little story which has wide applications: "Recently I was talking with a man from Iowa who came West a little over a year ago and bought a small tract of high-priced land near Portland, Oregon, being told that there was a big speculation in it. This man had spent over forty years of his life on an Iowa farm and had raised stock of all kinds and was a general farmer. He was badly discouraged with his purchase and gave the entire country a bad name. Had he gone out from the city a few miles—perhaps near some small country town—and bought a good sized farm with the same amount of money that he paid for his small tract, and gone to raising horses, cattle, pigs, chickens, etc., as he was accustomed to, he would have undoubtedly been satisfied." We believe this thing often happens. Many men can stand transplanting if they can go on with work which they understand and have a liking for. Few can be successfully transplanted and put on an entirely new job at the same time. We never can forget that bunch of unfortunate Dutchmen who were taken from the lush pastures and deep-bodied kine of the dyked lands of Holland and set to growing olives on mean, dry uplands. They had never heard of the olive, except as they read of Noah and his doves and the olive branch, and even that narrative suggested a menagerie, a windmill-like structure and an expanse of waters, successfully held back. What they found in California was a strange bush refusing to grow on red grav-

elly stretches, and all the water in sight in the water wagon. If they had been given cows and low fences behind high levees, we should have had a new Holland on the reclaimed lands before this time, and hundreds of prosperous families. Some of our promoters need more conscience and horse sense.

California fruit is now getting old enough to give youngsters a good chance to make mistakes in historical allusions, and they seize them with all the appetite of the youthful mind for such things. For example, we read the following: "Few people in this county are aware that it is a historic fact that the first record of any raisins being produced in America shows that raisins were grown and dried in Butte county. The grapes from which the raisins were made were grown in 1873, in the Messilla valley, at Pentz, 12 miles above Oroville. The grapes were dried in the sun during the same year. As far as records go, these were the first raisins to be produced in the United States." As might be expected from such an outburst, the records do not go that way at all. The first raisins to make public record were shown at the State Fair of 1863 by the late Dr. John Strentzel of Martinez, and were made in the Alhambra valley, from the Muscat of Alexandria grape. The report of that year says that all so-called raisins exhibited prior to that time were dried grapes, and Dr. Strentzel had four varieties of dried grapes on exhibition at the same time, to show what a real raisin is. This goes a full decade back of the Butte county claim. As a matter of fact, raisins were actually being produced as a commercial crop in Yolo county by Mr. Blowers and Mr. Briggs, and others also probably, before the date of beginning in Butte county.

Queries and Replies.

Those Colorado Peas Again.

To the Editor: Kindly give me information as to the possibility of growing cow peas or soy beans in Tulare county, or about Hanford, for the feeding of sheep, the same as they do in Colorado, where they have good success in fattening so-called pea-fed lambs and sheep.—Enquirer, San Francisco.

The pea which is used in the irrigated valleys of Colorado for sheep feeding is not the cow pea, nor the soy bean. It is known as the Mexican pea and is a great deal more hardy in withstanding low temperatures than the plants which you mention. It is not likely that you can grow either of these plants which you have in mind during the winter season when you may have rainfall abundant. You may get a satisfactory growth of them on low land with ample water during the summer time, and if this is what you have in mind they are worth trying. The best growth of these plants we have ever seen in California is on the lowlands along the Sacramento and San Joaquin rivers. They do not, as a rule, succeed well on the plains in the presence of dry wind, even though the soil be kept reasonably moist by irrigation. If you desire to try the pea which is used in Colorado, San Francisco seedsmen can secure seed of it for you through their Denver correspondents.

Irrigated Apples and Pears Certainly Bloom.

To the Editor: I am seeking some information which I believe you can give me. It is this: Do the apples and pear trees produce annually a good crop of blossoms in the spring in the irrigated regions of your State?—Reader, Oklahoma.

There is no question but that apples and pears produce annually a good crop of blossoms in the irrigated regions of California. They may in some places produce blossoms more freely than they set fruit and carry to perfection, but this is just as true in the rainfall sections as in the irrigated. The general fact is that wherever trees need irrigation, irrigation is an advantage to them, not only in growth but in fruit bearing, and this is just as true of apples and pears as of other fruits.

The Story of a Bamboo Plant.

To the Editor: In my garden I have a five-leaved bamboo, of which I send you a sample. It grows tall and is about fifteen years old. It commenced to go to seed last June. This year it is all over it. I trimmed some of the canes last year, and those canes still continue to seed. What shall I do with it. Shall I cut it down to the ground, and do you think it would come up again? I would be very glad if you can give me any information how to treat it. It is very tall and has been very beautiful.—Gardener, Santa Cruz.

There is a peculiar story in which your bamboo plant is probably involved. The parent plant of that species was planted in the University garden about twenty-five years ago. Hundreds of roots were taken from it and sent to different parts of the State. Last year the parent plant began to form seed, and all the plants growing in different parts of Berkeley which were grown from the root extensions of the mother plant began to go to seed also. So far as we know, they are all now dead, as is also the mother plant. The bamboo is a grass and it is the nature of many grasses to die as soon as they form seed. The bamboo sometimes has a long period of growth before forming seed, but certain species follow their nature as such grasses and die when the seed is formed, while others are perennial. We had one of these plants from an offset in our garden. We tried last summer to revive it, left it through the winter and spring, hoping that it might go against its nature and start a new growth; but it refused to do so, and it has now been taken out as a disagreeable object. We believe that the only way to get a new plant would be to take one from another generation, and this probably can be had from large propagators who may have started plants from the seed at intervals. If you should continue the effort to make your plant revive, we would be very glad indeed to hear of your success or failure.

Is It Walnut Blight?

To the Editor: I would like to trouble you again with a question, and would be very glad to get some advice. I planted out this spring a number of Franquette walnut trees. They all started and made nice growth, but now on several of them the leaves are turning black and shriveling up. Is that blight, and can I do anything for it?—Reader, Yolo County.

We have seen samples of blight from your locality. One cannot tell by written description whether this is the trouble with your trees or not. Are you sure that they have adequate moisture to continue growth? Blight does attack young trees, even in the nursery, and turns very thrifty growth to blackness. There is nothing to be done for this disease, as all experiments have thus far proved unsatisfactory. The Franquette is supposed to be rather less subject to blight than other varieties. Perhaps you could send a few leaves, in case an examination might indicate the nature of the trouble.

Flat-Headed Borers.

To the Editor: Enclosed find a nest of bugs or borers taken from a prune tree. I suppose they are in different stages, but I never happened to find the bugs before. About half of my neighbors' prune trees are destroyed by them.—Reader, Sutter County.

They are larva and perfect beetles of the commonest fruit tree borer—Chrysobothris femorata. The grub has a broad flattened head; the beetle is a little over half an inch long and copper colored beneath. It is not usual to make such a catch of them. The beetles will now lay eggs on all the sun-burned bark they can find, and the grubs will hatch and bore in. The prevention is not to have sun-burned bark. Use sacks, tree protectors, or whitewash on all young trees.

Oranges on a Leahy Subsoil.

To the Editor: A gentleman who has raised a great many oranges in the United States and is very familiar with oranges growing in Mexico, as he lived there for a number of years, recently told me of a ranch in Mexico, and says that orange trees planted anywhere, with the exception of a few limited areas, will die at anywhere from 12 to 15 years of age, and nothing can be done to prevent it. The reason is that the entire section has a layer of boulders and gravel at a depth of from 10 to 15 feet. Just as soon as the roots reach this layer the trees will die, as most of the large ones are doing now. What do you think of what he has to say about the difficulty of raising orange trees so that they will be older than 12 or 15 years, and how to keep them longer?—Enquirer, Santa Clara.

We would say that the trees might be maintained in longer and still profitable existence by the use of fertilizers and irrigation water. There is doubtless too free drainage through the gravel streak, which makes the upper soil unable to supply the mature tree with all the moisture which it needs for its growth, and it soon dies. The secret of success will lie in overcoming this condition by the free use of irragtion water; at the same time, it would seem to be a plain business proposition not to plant oranges on that sort of soil, but to seek a location naturally more favorable.

Seedling Olives.

To the Editor: We find under our olive trees, Manzanillo and Mission varieties, a good many young trees sprouting from seed. Are these young trees as good to transplant as cuttings, or not? Will the fruit be inferior to that on trees raised from cuttings? I have been raising olives and other trees for fifteen years, but I find myself, like others whom I have asked, unable to answer this question.—Grower, San Bernardino County.

Olive varieties do not come truer to the seed than do other varieties of fruit, and your seedlings would be probably for the most part of a wild type, although possibly some of them might be like their parents and seem possibly better than others. These seedlings are, however, not trustworthy to plant out for fruiting purposes; they are only useful for experiments in the origination of varieties to serve as a stock on which other varieties may be budded or grafted, just as orange seedlings are to be used in the nursery.

Ladybird Larvae.

To the Editor: I send a leaf with plant lice and formidable black and red insects which seem to be a cross between a sow-bug and a beetle, among them. What are the latter?—Subscriber, Merced.

The above is the letter which we suppose our Merced friend intended to write, but probably forgot to do so, for we received only a small square box with a Merced postmark, and no intimation of what is wanted. The black and red creatures are the larvae of ladybirds, and are eating the plant lice—therefore are desirable to have.

A Eucalyptus Fiddle.

To the Editor: Some time ago I read an article which, if I am not mistaken, appeared in the Pacific Rural Press, stating that someone in San Francisco had made a violin of eucalyptus. Will you please be kind enough to inform me the name of the artist, and his address?—Subscriber, Dixon.

We have had a good deal of music over gum tree problems, but we do not recall just this note of it. Perhaps some reader has a better memory than we.

Horticulture.

A TALK ABOUT SUMMER PRUNING.

In Australia the California ways of handling fruit trees have attracted much attention and have doubtless shaped local practice to a considerable extent. Their experts are, however, doing a good deal of original thinking and experimentation, and their conclusions are therefore suggestive. Summer pruning is but little practiced in this State, though the theoretical feasibility of it is generally recognized and therefore our readers are likely to be interested in a discussion by Mr. W. C. Grasby as given in a report of an orchard demonstration.

With Apples and Pears.—We had a chat about summer pruning, and I treated several trees. Owing to the wise hard cutting which the young trees had had each of the three winters since planting they were naturally growing too dense.

In looking at the apple and pear trees I showed, by contrasting the color and vigor of the outside leaves and buds, that more light and air was absolutely necessary in the center. I therefore cut back to the last two active buds all the current season's growth inside the tree, and where there were too many shoots, removed some altogether. The outside laterals and upright growths and leading shoots I did not touch, advising to shorten back the shoots required for main branches fairly hard in the winter, but to leave all others alone for cropping purposes. I endeavored to impress the importance of getting such healthy trees to settle down to fruit bearing, and as the apple trees here usually start to fruit on the ends of the laterals, it is not wise to winter prune them on vigorous trees unless for special reasons.

Objects of Summer Pruning.—The summer pruning of the inside laterals of apple and pear trees serves two purposes. First it is absolutely necessary in connection with such trees as I have under notice to let the light and air into the center of the tree to permit of the proper maturity of leaves, buds and fruit. It will be readily seen that if all parts of the tree are open to light and air this reason does not apply, and the grower need not trouble about the one to follow, because he can shorten back the laterals in later years as they develop the fruiting habit.

Cutting back the laterals of apple and pear trees which are growing too densely in the center, while letting light and air into the tree also causes the tree to do one of two things. In many cases it causes the development of the last bud left on the spur into a fruit bud, the same as would in many cases naturally form on the end of the lateral. If the vigor of the tree is too great for this, one or it may be two new short growths are made with the last bud a fruit bud. These buds may take two seasons to develop. I know quite well that this secondary lateral in our long, late-growing season often makes quite a long growth, thus tending to defeat both purposes of the summer pruning. This, however, only emphasizes the necessity of the work for the first purpose, and also indicates the need for doing the work over again later in the season for both purposes. Light and air the trees must have, and winter cutting only forces fresh, strong growth. Summer pruning is weakening in its tendency; therefore, when the trees are so vigorous that they not only grow like brooms early in the season, but, if summer-pruned in December, make another dense growth by the end of the season, it is not hard to see that the hard winter pruning is not conducive to profit.

If the grower does not see the advantage of summer work, or cannot afford time to do it, the next best thing is to let the laterals absolutely alone in the winter. In any case I advise that the inexperienced should not summer prune the outside laterals. It is not needed for the first purpose named above, and it prevents the experienced pruner in winter from using such as are wanted for extending the tree laterally by removing a more vertical growing shoot and substituting one which will extend the bearing capacity of the tree without increasing its height.

Japanese Plums.—Leaving the apples and years, we had a little talk over a row of Wickson Japanese plums. These, as everyone knows, have the "aristocratic tendency," or—shall I say?—believe in the maxim that "there is always room at the top." The result is that when growers prune them hard in winter they replace each vertical shoot with from two to four, but always in the same direction. I advised to reduce the number of shoots by quite half by cutting out the middle one of each bunch now, and then, apart from seeing that the trees have enough sunlight from year to year, to let them alone, pruning neither in summer nor winter until by their lack of growth they show that it is desirable to shorten the main branches.

It is about the hardest thing possible to show the novice that the way to keep a fruit tree from growing too much is to let it grow as much as it likes. Letting it fruit is the only thing to stop it. Hard cutting in winter only makes it grow harder next season to replace the damage done to it; and while it is devoting its energies this way, it will not fruit freely. My advice is always, never mind the top, for, when necessary, you can always cut it back. If too much fruit sets, the remedy is to thin, and in due time the lesson of judicious, moderate pruning will be learned.

Vigorous Peach Trees.—Coming to a patch of old peach trees which had been reworked and had, as usual in such cases, after heavy winter pruning, grown very vigorously into dense bushes with already over five feet of growth, I was asked to give a demonstration on these. I shocked the owner by proceeding to cut away about a tenth of the tree by bodily removing all inside branches and thinning out the other growth to let light and air into the tree.

Such treatment indeed seems somewhat drastic from one who is continually advising growers that they prune too much. The operation was, however, rendered necessary owing to the too severe treatment which the trees had received last winter; and I explained how this was so. Having in the way described accomplished the purpose of rendering the tree capable of maturing all the wood left, I strongly advised that it should not be touched during the winter.

My final words were in effect: "My treatment is intended to counteract the effects of the severe winter pruning. You might have had a good crop of fruit on those trees, and you have practically none. You now have one open, vigorous, healthy tree; let it bear. After the fruit has set, cut back to base buds all the laterals not bearing fruit and shorten back as may be desirable those which have too much fruit, remembering that as a rule the best fruit is carried near the main branches. In spring also thin out the fruit if it is too thick. Beyond this each season the tree need not be hard-pruned as long as it is bearing good fruit and making growth up to a foot or so each year. By that time you will see how easy it is to deal with peach trees, which can be renovated at any time in one season."

That is not my best advice to men of experience on training peach trees, but it is my advice to the inexperienced, who too frequently, in his desire to follow the advice of the pruning books, grows faggots and gets few peaches. I don't say he will get regular crops of the early sorts in this way, but he will get them better than in any other way open to the inexperienced. Prolific bearing varieties like the Elberta may with advantage have their bearing wood shortened back in winter.

ABOUT ROOT KNOTS.

The investigators are still upon the trail of the specific cause of what we generally call root knot in this State. Director C. D. Woods of the far-away experiment station in Maine gives a short chapter upon it, as follows: Crown gall is a term applied to certain warty outgrowths or excrescences upon the apple, pear, peach, raspberry, etc., forming chiefly on the parts below ground. On the apple these growths are more apt to occur on grafted trees at the union of the root and the scion, but they may form at any place where the roots have been injured by transplanting, etc.

Recently Dr. Erwin F. Smith and his associates in the Bureau of Plant Industry, U. S. Department of Agriculture have demonstrated that crown gall is caused by a specific bacterial parasite. Moreover, they have shown that it is very omniverous in its tastes, being able to cause warty outgrowths or galls on a surprising number of different and unrelated species of plants when these plants are inoculated with pure cultures of the organism. Galls have been produced in this way upon the following named plants: Peaches, almonds, apples, hops, Paris daisy, walnut, grape, radish, tomato, raspberry, etc.

Not long ago the Maine Experiment Station purchased 60 apple trees from a leading New York nurseryman. The package in which they were shipped bore a tag stating that the orchard from which they came had been officially inspected and found free from disease. Three out of the 60 trees, or 5 per cent of the shipment, had well developed crown galls upon them. This experience indicates that every orchardist should very carefully inspect all stock which he purchases for setting this spring. All trees showing evidence of crown gall should be either returned to the shipper or burned, and future orders placed with nurserymen who can and will furnish trees free from disease. Under no condition should trees be planted which show growths of this kind upon the roots, for not only will it result in an unthrifty and unprofitable tree, but it will also infect the soil with the crown gall organism and endanger other plants.

WHO KNOWS THE QUEEN VICTORIA STRAWBERRY.

To the Editor: Will you please kindly give me a complete description of the "Queen Victoria" strawberry, especially in regard to the following points? (1) Runners (whether it sends out runners or is entirely devoid of them); (2) method of propagation; (3) method of fertilization (self or cross, staminate or pistillate) (4) fruit size, form, color, texture and flavor; (5) the plant itself—size and shape of leaves and length of petiole, length of fruit stalk, etc.; (6) characteristics of growth—vigor, productiveness, duration of fruiting season, etc., and (7) any other information regarding the peculiarities of the plant that would enable one to identify it.

We have a strawberry growing at this station that is said to be the "Queen Victoria" variety brought here from California a few years ago, and if possible I should like to verify that statement.

M. C. Merrill,
Superintendent Experiment Station.
Baguio, Benquet, P. I.

We sent the foregoing inquiry to Tribble Bros. of Elk Grove, who have the largest collection of named varieties known to us in California, and received the following answer:

To the Editor: We will have to admit that Queen Victoria is a new variety to us, as we have never heard of it, nor can we find any reference to it from our collection of strawberry publications. We think this may be a new home for an old variety. In our experiments we find this to often be the case. We have found one variety under nine names and eight of those boomed as something "just out" by eight nurserymen.

We submitted the question to Mr. A. T. Goldsborough of Washington, D. C., who is said to be the best authority on strawberry varieties in the United States, and he has no knowledge of such a variety, although there was a late variety called Victoria many years ago and are now listed. We have many other replies in our search for this variety, but the "Queen Victoria" is a myth so far as being any standard variety. Since our receiving so many replies to our inquiries, we are more inclined to think that this is a new name for an old variety.

If Prof. Merrill will write us giving all the detailed description of this variety we will likely find the proper name for it. We would like to know size of flower, shape anad size of calyx in addition to description he asks.

Tribble Bros.
Elk Grove.

CALIFORNIA CHERRIES IN THE OLD SOUTH.

The first shipment of California cherries was received in New Orleans May 7, and as a result hundreds of street-corner fruit stands displayed the luscious fruit for the first time this season. A dispatch says that the first arrival of California cherries is almost an annual event in that city. On Poydras street, among the wholesale produce men, the cherry business opened with a rush. "We sold cherries to-day at $3.50 to $3.75 per box," said one of the leading commission merchants. Daily shipments are expected from the California dealers during the cherry season.

Citrus Fruits.

CURRENT NOTES.

It is pretty dangerous to encourage people to believe there is much value in fruit which naturally falls (except in the way of drying, perhaps), but Mr. B. A. Woodford undoubtedly knew what he was saying when, at a recent meeting in Riverside, he said that over-ripe dropped oranges sometimes sold well. He said he had had a strong prejudice against shipping such fruit until last year, when a large block of it was shipped and it brought within 5 cents a box as much as good standards. He further said, if this is to be practiced, the ground under the trees should be cleared of defective fruit, and then the drops picked up every other day. In this way, fair returns may sometimes be realized.

Whether orange trees should be irrigated during the blooming is a question we have been asked several times, and we are glad to see that our answers have been like that given by Mr. E. L. Koethen in a recent issue of the Fruit World, viz.: "If the grove needs it, give it the water. If it is nice and moist, and can be carried along until water can be applied when it does need it, wait. By need, we do not mean to wait until there is wilt. The trees should be retained in good vigorous growth at this season and that calls for enough water to support it. It is fallacy to suppose that the setting of the crop is determined during the blooming season. The critical period is not while in bloom, but after the blossoms have fallen. After the blossoms drop and the tree takes on that 'tired look' which is so often seen in the citrus orchard, your trees have reached the critical period. Any kind of a shock at that time may and does result in dropping." By this we take Mr. Koethen to mean that it is better to irrigate during the blooming season than to let the tree get into distress and put on a lot of water as soon as the petals have fallen—and we believe he is right.

It is important for Californians to make their friends in other parts of the country know that a tariff on oranges and lemons is not for the purpose of making the price of these fruits rule higher in this country. It is to protect the producing industry from injury by competition with cheaply grown and cheaply transported Mediterranean fruit. It is to place the profits from selling these fruits with American producers and not with a few traders who import these fruits. These facts are stated by the Randolph Fruit Company in a letter to Senator Flint in this way: "The duty upon oranges has thoroughly demonstrated that it does not increase the price to the consumer, but has been the means of developing the California orange industry to a point that we are now supplying the entire American market with oranges superior to any raised in the world, and at prices as cheap as any one could desire. The same condition will prevail in the lemon business if protection is given. At the present time, taken as a whole, this industry in California is not on a paying basis. The present duty barely equalizes the difference in cost of freight to the Eastern market, and the increase asked would only equalize the difference in cost of labor and production."

A possible relation of the California and Florida orange crops which has always been kept in mind more or less in this State is described by Mr. J. W. Sample, one of the Florida visitors who was in southern California last week, as follows: "We want to harmonize the market so that there will be no imperative clash between the California and the Florida output. Our harvesting begins in October, and by the middle of December 65 per cent of our crop has been gathered and shipped. The rest is marketed before March. By coming to a harmonious agreement, it is possible to arrange the shipping so that we will not interfere with the California market, and vice versa. The result will be beneficial to both. Last year our crop amounted to about 4,000,000 boxes. But this year we expect a much larger crop, about 6,000,000 boxes. It is for this reason that we came here, to be in a position to handle in proper manner this huge crop." It will not be possible to delay the shipments from our early northern districts and the coming product east of the mountains in southern California will also be early, but there can certainly be arrangements for more intelligent distribution so that all hands can get a fair profit.

Forestry.

EUCALYPTUS NOTES.

Written for the PACIFIC RURAL PRESS
By A. J. LLOYD.

While at Petaluma last week I was struck with the dark green groves anad belts of eucalyptus that for miles beautify the property of Mr. Frank Meacham north of town, crowning with a satisfying picturesqueness a landscape otherwise rather desolate. A closer inspection resulted in a few observations which may not be very novel to those who have had for years an eye on the tall globulus which has awakened to find itself famous in the land of its adoption.

There are in all 100,000 gum trees planted on this broad domain, their ages varying from 30 to 10 years. The value of shade and shelter from such plantations on a stock farm is sufficiently obvious. Great preservation of moisture in the soil is effected by protecting the carpet of old grass and small leaves from the wind which would otherwise sweep the ground bare, thus leaving a coat of mulching that induces and protects moisture. This guards and sustains the young grass in the spring, and actual observation tells that it doubles the feed. Then, too, absorption is retarded by the shade. There is no doubt that much land now unproductive would grow fodder with such protection. But to come down to the still more direct way in which the shining dollar is derivable from eucalyptus culture: One plantation of ten acres on this property is on gravel soil, worn out at that and farmed to death thirty years ago. It was set in gum trees after two plowings. Today it is one of the best groves to be found, there being trees in it that would produce ten cords of fuel. Another little grove of less than an acre was cut and yielded 250 cords of wood at $6 a cord, or a clear net profit of $1000.

The red gum is of slower growth than the globulus, but is hardier, standing several more degrees of frost. Mr. Meacham's first plantation was made in 1872, while the youngest grove is ten years old. The plants are set eight feet apart, diagonally or alternately, so as to break the wind. Groves are better than rows, as the trees will grow straighter and make better lumber. The best way is in belts 100 feet in width. Mr. Meacham has found best results when set out at a year old from the seed and planted in February or March in well prepared ground. The writer was shown a large tree that had been cut fifteen years ago. Today it is 75 feet high, aand there are four prongs varying from one foot to eighteen inches in diameter. A portion of this land is clay loam and another sandy loam, but there is no perceptible difference in the growth of the trees.

The ground should be first plowed thoroughly to give the young trees a good start. The roots of large trees will spread fifty feet and go deep for moisture. If desirable to stop the roots in any direction dig a ditch four feet deep ten feet from the trees and this will not injure them and the roots will not cross it.

Mr. Meacham has a mower tongue springy and touch as hickory. It wore out the mower and is as good as ever after eight years' use. The wood never checks nor loses weight if cured in the shade and it takes a fine polish. Surely eucalyptus planting means laying up treasure against denuded forests and is a still more immediate benefit where we have no forests to denude.

[There points are interesting. We are apprehensive that the curing is not quite so easy, but that will probably be settled by the work which is now being done with it by the Forestry Service.—EDITOR.]

CALIFORNIA POTATO RESEARCH.

Continuing the potato studies in the San Joaquin valley which were fully discussed in the PACIFIC RURAL PRESS of February 13 and 20. W. A. Orton, pathologist of the Bureau of Plant Industry of the U. S. Department of Agriculture, will soon arrive in Stockton to take charge of experiments to be conducted in the middle river section for the purpose of determining if possible what varieties of potatoes can be developed into resistant tubers. Thus far potatoes planted in the rich delta lands have been subject to a number of ills. To secure a tuber that will prove immune and proof against disease is the aim of the pathologist. About six acres will be devoted to the experiments and about 35 varieties of spuds will be used in the experimental work.

The Vineyard.

A RAISIN SELLING CAMPAIGN.

To the Editor: The problem of disposing of our raisins and prunes is before us, and two points seem plain:

First.—Consumption per capita is below what it would be if people better understood the food value of the fruits and also better understood how to prepare foods which would incorporate raisins or prunes as a part of the viand.

Second.—The consumer is required to pay much more for the fruit than should be the case. In other words, the growers' returns and the consumers' cost are too far apart.

Toward solving the first problem let every girl, in school and out, learn to cook, and so far as California girls go, certainly teach them to cook with raisins and prunes. Let book learning and cooking go hand in hand in schools all over the land. Good cooking will do more to eliminate intemperance than all the lectures ever uttered. A full stomach is God's bullwark against intemperance. Print and circulate by the millions well tried and good recipes for cooking foods containing raisins and prunes.

Now, as to the second problem, the price which the consumers shall pay for the raisins and prunes may be fixed by the growers just the same as is done by manufacturers of breakfast foods and hundreds of other food articles. Put the goods up in small cartons of popular size with a fixed retail price printed on each package. The contents of the package must be A1 and perfect. Then advertise the goods the same as other foods put in packages. The buyer must have confidence in name and brand as much so in raisins or prunes as in wine or pickles or other food. Distribute small samples by the millions, teach people the name of the brand and price they will pay everywhere, never more. The little samples are tasters, coaxers like the peanuts the train boy drops in the car seat to start you going. Start in as if a new soap or patent medicine was being born to the public. Certain raisin brands and boxes on prunes would soon be as well known as certain condensed milk or certain cleaning soaps, and so on. But to be successful the quality must be sacredly guarded; when the brand is placed upon a package its contents must be absolutely beyond question, otherwise all advertising and publicity work will be but a boomerang.

There must be a head and system to the campaign and the growers must bind themselves together to secure the market and maintain quality of product and pack.

The education is a matter of time, publicity is a matter of work and money. A nearly uniform consumers' price can be maintained and increased consumption is a certain result with a properly conducted campaign of advertising.

J. A. SANFORD.

Stockton.

[We are glad to have the discussion go on. No doubt these propositions would work great changes in the consumption of raisins—and the same thing could be done for all of our cured fruits. But who is to do it and who is to finance the movement? Shall it be by organization? We know no other way. How shall the organization be secured? Aye, there's the rub. Let no one think that such a thing is easy, but we have no doubt that it can be done whenever some individuals or organizations will put in the money. Bright thoughts will not do it; it takes hard cash, which has never yet been in sight for the purpose.—EDITOR.]

AGRICULTURAL REVIEW.

Horticultural Notes.

The Citrus foothills colonists are planting apples on their lands in the thermal belt south and east of Bakersfield.

Apples on the flooded Goose Lake district are found to equal mountain apples both in flavor and keeping qualities.

J. R. Foster has imported a lot of pineapple plants from Hawaii and will set out 1500 on his farm in Sutter county.

The annual meeting of the ten thousand vineyardists of the State will be held in San Francisco the latter part of June, when officers will be elected.

Advices from southern California report very good walnut crop prospects, being better than last season's, and the smile of the walnut grower is abroad in the land.

The first arrival of California cherries is a striking annual event in New Orleans. The first day they were on the market this season they brought from $3.50 to $3.75 per box.

The Lodi Fruit Products Company reported on May 13 that they had on hand 100,000 gallons of grape juice, also 23,000 gallons of vinegar stock, only 2000 gallons having been sold.

The highest bid, $12,366, for the apples in the Holohan orchard at Watsonville was not accepted. This orchard comprises about one hundred acres and last year sold for less than $10,000.

From 8 to 13 cars of oranges per week have been going out from the packing house of the San Fernando Fruit Growers' Association. Growers have received about $1.13 per box net for the season's crop.

Shasta county fruit trees are groaning with their superabundant weight and none of the fruit is dropping. The Earl Fruit Company is hiring Indians to thin the fruit on their large orchard near Cottonwood.

H. K. Smith, secretary of the State Horticultural Commission, has taken three colonies of parasites of the codlin moth, which attacks pear trees, to Banning, where they will be placed in pear orchards.

The contracts have been let for the building of the Lodi Co-operative Winery. The frame buildings will cost $10,000. The work must be completed by August 1, when machinery will be installed and the plant will be prepared for handling grapes.

Experiments by the Government thrips investigators have proven successful, and Dudley Moulton of San Jose, who conducted the experiments, states that the pest can be absolutely controlled by thorough cultivation in the fall followed by spraying in February and March.

The pear crop of the Ukiah valley was sold last week to the Earl Fruit Company for a term of five years for $25 per ton, being the best price by $5 per ton ever secured there on a term contract. There are about 167 acres in Bartlett pears in the Ukiah valley, and the output will be about 460 tons this season.

Two boxes of ripe apricots, the first of the season, were shipped from Winters this week. The apricots were raised by L. M. Hartman in the foothills west of Winters and were of the Pringle and a seedling variety. This section always sends out the earliest cots, and they were four days later this year than last.

Placer county makes a good fair fruit showing, but not equal to last season. Cherries are good, except Tartarians, which are light. Apricots, Clyman plums and Tragedy prunes are extremely light. Wickson plums are short, but other plums and prunes are satisfactory. Shipping peaches are fair, but the clingstones, which are grown extensively for canning, fall below the mark this season.

At Santa Ana the annual army of cutworms is reported to have put in an appearance and millions of the pests are hard at work and much damage and loss has already resulted. The destruction is particularly noticeable in gardens and alfalfa fields, where in some instances the crop of garden truck has been almost entirely destroyed. The cloudy, dull weather is favorable to the operations of the pests, and farmers and gardeners are therefore praying for the beginning of real sunny days so that a stop may be put to the ravages of the destroyer.

Another of the series of weighing frauds has been discovered at the customs house of tne New York port, in which the government has been cheated out of many thousands of dollars. As a result of sugar disclosures and the others since brought to light the government has decided to do away with customs weighers and substitute electrical machines. During the fiscal year ending June 30, 1907, 2,298,480 gallons of olives were received at the various Atlantic ports of the United States from abroad. Of this, 1,742,480 gallons came to New York, and the revenue in duties on those which were entered here was nearly $1,000,000.

Heavy shipments of cherries are being made from northern San Joaquin county to various Eastern markets. The crop this season is unusually large and the fruit is of very fine quality. The warm weather of the past few days has caused the cherries to ripen very fast, and a lot of them have to be disposed of to the canneries, which are running overtime to use all of the pick. The orchardists are employing a large number of pickers and packers throughout the Acampo and Langford districts. No break in the prices is anticipated for the next ten days, when they will gradually decrease until the end of the season, when the last lots will again bring fancy prices.

General Agriculture.

The Peris Progress tells of a first crop of alfalfa yielding 100 tons from 50 acres.

The grain crop in Stanislaus county is 10 per cent better than last season, notwithstanding lack of rain.

Prizes amounting to $1800 are offered for the best county exhibits at the State Fair this fall. The prizes are given for general exhibits.

The Tequesquito ranch near Gilroy, belonging to the Spreckles estate, was sold lately to C. J. Emery of Pasadena and Paul Brown of Hollister. It will be cut up in small farms and water for irrigation will be furnished.

Forty-one tons of barley hay have been baled from ten acres near Calexico in Imperial valley. The hay was well dried and much had lodged and could not be cut, so that the actual crop was in excess of the quantity quoted.

The Sierra Water Supply Company has published notices that water will be furnished free to farmers, that the ground may be saturated and the crops saved. This public spirited act will save thousands of dollars to the farmers.

The shipment of grain from the Imperial valley has commenced and a rough estimate of the crop is that 400,000 sacks of barley will be threshed there this season. The present market price of $1.25 is very satisfactory to the farmers.

Eight hundred acres, known as the Swain ranch, five miles south of Hanford, has been acquired by the California Eucalyptus Company, who will set out trees there next spring. Another eucalyptus company has been incorporated at Vallejo.

The growing crop of sugar beets in Yolo county is reported in fine condition and

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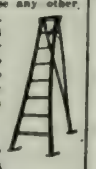
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the yield is expected to go far ahead of last year. The acreage near Woodland is stated to be 2200, near Knights Landing 400, Winters 400, and 350 acres of which Winters will be the shipping point.

The Orange County Celery Growers' Association has received $449,814.82 above all shipping and selling expense for the 1908-09 crop. Growers received an average of 25 cents per dozen bunches for all grades and varieties of celery, the best prices yet realized.

The prospects for a fine crop of sugar beets around Corcoran this season are good. This will be the first season for the new sugar factory at that place, and the owners predict a fine campaign. The company has hundreds of acres planted besides the large acreage set out by farmers.

In Yolo county the dry spring has not affected early estimates for grain and hay to any great extent. There is much variation in localities, depending on time of seeding and rainfall before and after the grain started. The fortunate farmers are the owners of alfalfa fields under an irrigation ditch.

Wool prices have shown an upward tendency at Cloverdale the past week or two, 24½ cents being offered for the spring clip and 25 cents in one instance. This is the highest price since 1905, when spring wool brought 28 cents a pound. Last year the average price was only 13 cents. In 1906 and 1907 24½ cents was reached. The spring clip sold at Red Bluff for 24½ cents.

Wheat dealers say that never before has grain been held at such prices in San Joaquin county. At the time of the Leiter deal in 1907 wheat reached $1.85, which was considered a record. Owners of small lots are now offered $2 and $2.15 by the mills, but will not sell, as Kansas and Oregon wheat is quoted here at $2.40. The new crop cannot be used before next September, and must then be used with old grain to make the best flour.

Live Stock and Dairy.

Mountain lions are growing bold about Porterville, Tulare county. One of these marauders killed a valuable mule recently near the city limits.

The first creamery in Shasta county has been established at Cottonwood, and will handle the milk of 400 cows. There will be an ice plant in connection.

It is announced that the Central Creamery Company of Humboldt county is about to equip a plant for the production of powdered milk to be manufactured by a new method.

Here is a good hay story: On the 17th of January, F. M. Leasure, who came to Tulare a few months ago and purchased a place near town, sowed 80 pounds of grain on four acres of his place and on the 10th day of this month he harvested 16 tons of hay from the four acres. Mr. Leasure has already been offered a good price for the hay."

G. H. Hart, the government live stock inspector, who is in the Porterville district investigating the tick situation among the herds of cattle there, stated recently that if all the regulations of the State and Federal departments are observed as regards dipping, none of the owners can be prevented from moving the herds. Some owners have been refused permits to move owing to the fact that the regulations had not been complied with.

THE USE OF GYPSUM ON CLOVERS.

An outline of uses of ground gypsum, or as it is commonly called by Eastern writers, "land plaster," is given by Mr. Byron Hunter in his review of clover seed production in the Willamette valley just published by the Bureau of Plant Industry of the U. S. Department of Agriculture. As alfalfa is a clover and responds to gypsum as do others of its group the following notes may be found interesting to our alfalfa-growing readers:

Land plaster, or gypsum, has a wonderfully stimulating effect upon the growth of clover and other legumes in the Willamette valley, Oregon. If applied as a top-dressing to clover sod early enough in the spring to be dissolved and washed into the soil by the rain, it produces a healthy green color and materially increases the yield of both hay and seed. Untreated clover, on the other hand, is often very much stunted, yellowish and sickly looking. The moist, mild climate is favorable to the growth of grasses and sorrel and other weeds which have a strong tendency to choke out the clover when no plaster is used. When land plaster is evenly distributed on clover sod in the early spring, the clover grows vigorously and its ability to hold the weeds and grasses in check is increased.

There are three principal reasons, then, for using plaster in clover seed production, viz.: to increase the yield of seed, to increase the amount of pasturage, and to hold the weeds under better control. To attain these ends in the fullest measure, however, it is essential that the plaster be applied early enough in the spring to be dissolved by the rain and that it be evenly distributed over the surface of the entire field.

In securing a stand of clover, the application of 30 to 40 pounds of land plaster to the acre at the time of seeding or after the clover is well up and leaved out has been found very beneficial. The stimulation it gives enables the young clover to withstand the summer drought better and to make a heavier growth, and therefore more pasturage, in the fall.

For hay, where a full crop is desired, the amount of plaster used varies from 50 to 100 pounds per acre. While this is a small amount of plaster to use, even less is used for a seed crop. While a few farmers apply as much as 75 to 100 pounds per acre for a seed crop, from 30 to 40 pounds is generally considered sufficient. Heavy applications usually produce too much straw. The plaster is usually applied during February, March, or early in April. One very successful seed grower, Mr. Clarence Koon, of Lane county, pastures his clover heavily with sheep until about May 1 and then applies 100 pounds of plaster per acre. By applying the plaster at this time when everything is eaten off closely he thinks the clover will receive the full benefit of the plaster, grow more rapidly and have a better chance to crowd out the weeds.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

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MORE ABOUT HAWAII.

To the Editor: In the PACIFIC RURAL PRESS of March 6, there is given a description of Hawaii as nature has treated it. It is my intention to show here, and perhaps in a later paper, what a person could expect if he intended to take up ranch life here.

To understand Hawaii we must have one thing in mind—that is, sugar. Wherever land can be planted to cane, cane is grown. Where the soil is not suitable, the land too broken by gulches, or the moisture conditions unfavorable, other things may be raised, but sugar canes first of all. Although we see photographs of rice patches, cocoanut palms, and so on, these represent only the infrequent conditions. What we see usually is large fields of sugar cane, hardly broken by a tree, and bounded by the ocean on one hand and the mountains on the other.

This cane is raised entirely on the plantations. The home seeker and farmer has to take the land that is left over and content himself with some other crop. In former times many of the plantations were small and owned by individuals. Now, whenever possible, they are consolidated and owned by companies, till at last it is said that a dozen men have a controlling interest in the bulk of the plantations, and by their influence direct the policy of the others. Practically all conditions not due to nature and climate are the result of this control of sugar interests, and all problems are solved as to their effect on sugar. Thus, in spite of the wishes of the natives the monarchy was replaced by a republic. For the sake of a secure free entrance of sugar into the United States the republic gave way to annexation, again in opposition to the natives, who then composed over 80 per cent of the voters. Now, as before, land exchanges and all other official actions are always for the benefit of the corporation and not of the territory.

This is not said to intimate that a hopelessly corrupt government has been the result, but simply to show that all things have been made to work for the welfare of one industry. For instance, State money was appropriated to import Oriental laborers, the effect of which was to lower the wages of citizens and to build up a foreign population. This, of course, was done before annexation, but it is typical of what can go on now.

The control of irrigation water, transportation facilities and commerce and agriculture generally has also resulted. In some places the plantation owners are jealous of the entrance of capital and independent residents. In other places there is the opportunity for the development of the pineapple, rubber, coffee, or similar industry and a person with some capital and desirous of a pleasant climate might do worse than to come down to look for a home and a good investment. The new settler will not find a very large white population to associate with. The rough labor is done entirely by people of other races, and Americans and Europeans, except those required to superintend plantation work, are found almost exclusively in the cities and towns.

These islands were originally much more heavily populated than they are now. Owing at first to interisland wars and later to the demoralizing influences of civilization the Hawaiians are now of special importance only in voting strength. They are far outnumbered by others, and in a few decades will be almost gone. Of a population of 210,000 the Hawaiians number only about 35,000.

At first they did the greater part of the work on the plantations. Always, however, new laborers were sought for and brought from the four corners of the earth. Although the Hawaiians would work well when they could be hired, they wanted too much spare time and in many ways were unsuitable for the work. Then, too, they were decreasing in numbers very rapidly.

Among the first foreign laborers to take their places were the Portuguese from the Azores. These form the bulk of the white population, and if occidental ideas are to be dominant, will probably continue to do so. The island Portuguese differ from their coast relatives in usually having a much fairer skin and lighter hair and eyes. Light hair and light blue eyes are very commonly seen among them. Usually they make peaceful, industrious, law-abiding and generally desirable citizens.

Although other races have often settled in the cities and towns, these live mainly in the country. Many still work on the plantations, but many more are small farmers and own their own houses and lands.

In the hunt for cheap labor China was also drawn upon. Twenty years ago the Chinaman was the main plantation laborer. Now he is seldom found there. The Chinese are running rice plantations or have drifted into towns and established themselves in shops or other trades. A large part have either died or made their pile and returned to China. Not many children are being born, and in the time to come they will not be a very important factor in number or influence.

From China the planters went to Japan, and the Japanese now outnumber any two of the other races. The greater part are now in the fields, but the Japanese have also gone into trade, market gardening and the skilled occupations.

There has been talk of too much Japanese competition, but the American population seems to be increasing, white stores still thrive, and although the American mechanic has almost disappeared, nobody else seems to be much poorer. Much money is now going to be spent to import European laborers so that the proportion of Europeans to Asiatics may change a little bit for the better.

Besides these, we have here Koreans, Porto Ricans, some Spaniards, some Italians and people from almost every other race. All of the people talk their own language at home. Most of the adults outside the larger towns talk but very little English. They all wish to keep up their racial customs to a great extent, although the Portuguese and Hawaiians and others eligible to citizenship are loyal to the United States.

It will take a long time to get these nationalities fused into one, although they are living together in peace and with little friction. The hope of the country for the future is that the Latin races will continue to come and to settle down to the cultivation of the soil, while the Asiatics either drift to other places or return to their own country after saving up sufficient money.

The lack of good associates for one's self and children is one of the greatest drawbacks toward the building up of an American population. At the same time a man with capital may make money and he need not stay away on account of any race problems. If he wishes to go away the pleasures of his trip will amply repay him for his time and expense. He will find a remarkably enjoyable climate and other things to make life worth living. The nature of island life and a description of the fruits and island products may follow in a later paper.

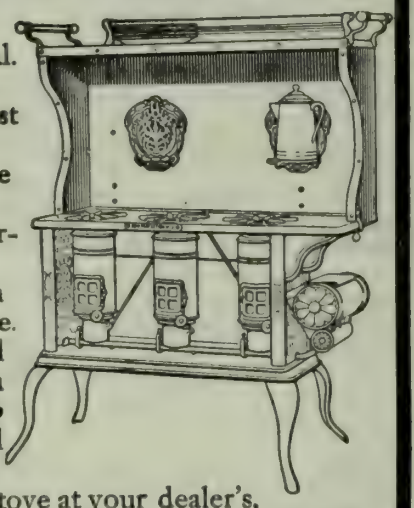
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Live Stock and Dairy.

HAS THE UNIVERSITY A RIGHT TO SELL DAIRY PRODUCTS?

In the suit brought in the Superior Court by the milk dealers of Berkeley against the University of California, for a permanent injunction restraining it from competing with their business by selling the products of its dairy farm to private consumers, plaintiffs have filed an amended petition. In this document they allege that the sale of milk and cream by the University to its officers and teachers and other individuals in and about the town of Berkeley is in direct violation of the State law which regulates the exchange of commodities between the public institutions owned or managed and controlled by the State, or the political divisions thereof.

By the terms of this act, plaintiffs claim, it is made the duty of the University, when it has a surplus of products produced by it, to notify the State Board of Examiners of such fact, in order that the board may notify other State institutions that the surplus products may be obtained, and that no public institution owned or managed and controlled by the State shall sell or dispose of any surplus products to any individual, corporation or association not connected with the State or any political division thereof, so long as there shall be a demand for the products by any other public institution of the State. Plaintiffs allege that the University has grossly violated this act with reference to the disposition of its surplus dairy products.

E. J. Wickson, professor of agriculture, director of the Agricultural Experiment Station and dean of the College of Agriculture in the University, has filed his affidavits in the case. He says that the courses in animal industry and dairy husbandry are an essential part of instruction in the Colloge of Agriculture, and require, as a part of the equipment for instruction, the dairy herd. A large number of students enrolled in the college are enrolled for such courses and make use of the herd owned by the regents of the University in pursuing their studies in agriculture, and that an important part of the instruction of these students concerns breed of dairy cattle and the characteristics of different breeds. It is an important part of this instruction, says the professor, that the students should inspect cows of different breeds and be taught by observation of these cows the qualities which make a valuable milch cow. Therefore, by the use of these cows as a part of the equipment of the College of Agriculture the students are taught the best methods of dairy management and dairy operation.

Furthermore, an important part of the work of the College of Agriculture and the United States Agricultural Experiment Station is to disseminate information among the citizens of the State of California as to the best methods of animal industry and dairy husbandry. This object is furthered, says Professor Wickson, by the maintenance at the University of the dairy herd, which can be used as an object lesson in methods of producing sanitary milk, and by the action of the University in maintaining the herd a valuable object lesson is given to the community in methods of producing milk of the highest sanitary standard.

The professor also affirms that the members of the faculty of the College of Agriculture lecture at Farmers' Institutes and write matter for publication by the University upon agricultural topics, and that the maintenance of the herd furnishes material for the scientific investigations in agriculture that are a principal feature of the College of Agriculture and bears an all-important relation to the animal industry and dairy husbandry of the State.

ALFALFA HERE AND THERE.

Alfalfa in all its phases is related to live stock, even when it may get mixed up with the fruit industry. Mr. W. R. McIntosh in the Fresno Republican sketches freely some phases which are not much talked about. He says: We have given little attention to cutting and feeding alfalfa to cattle, horses and sheep from hay-ricks, instead of pasturing it.

This plan is known as the "soiling system", which, I am sorry to say, is not practiced except in a very limited way in central California.

It means feeding live stock the green, succulent forage from daily cuttings, allowing the alfalfa to wilt a few hours under our warm sun.

When we remember the 10% of loss to young cattle from bloat in this State by the pasturage plan, and the further fact that fresh cut hay under the soiling system will supply feed to three times as many head of cattle, horses or sheep as the other, we can form some idea of its immense importance.

Then again, under the soiling plan much value to the farmer is vouchsafed in the manure that may be readily secured, which under pasturage is not only lost but acts as a deterrent in the open field.

The plan means the cutting of the alfalfa in the forenoon, allowing it to wilt, just as the mower left it, then fort it up late in the afternoon, throw it into a long rick, on your farm wagon, which by means of a very long coupling pole has been made ready to carry the rick.

The wagon, loaded with this fresh, delicious, new mown hay, is then hauled out and into the cow or horse lot, where it is consumed without more handling. The leaves, which constitute the best of the hay, are in this manner all saved to the stock.

I am not quite sure but what most of the peach orchards of the future in this valley will be producing crops of alfalfa hay.

All of the experiments with which I am familiar are decidedly favorable to the plan. In the Easton community there are a few peach orchards which are giving a good account of themselves as growers of alfalfa.

In some instances a limited area between the rows of trees is occupied with alfalfa, the remaining space being cultivated in the usual manner. In other orchards, as in the case of Charles Arthur, the entire orchard area is occupied with alfalfa.

Mr. Arthur informs me that he cut six crops of hay from a fully covered peach orchard section last year, and gathered a superior crop of peaches from his trees also. It is superfluous to say that Mr. Arthur has no intention of abandoning the plan.

Instead of being occupied with constant cultivation, he employs his time cutting and irrigating alfalfa. It is hardly necessary to state that Mr. Arthur's alfalfa proved far more profitable last year than his peaches.

He does not claim that the alfalfa was as heavy as it would have been in an open field of the same kind of soil, but he is fully of the opinion that he gathered a larger peach crop from the alfalfa covered portion of his orchard than he would have done under the usual treatment without the alfalfa. Other farmers, I understand, have done almost equally as well as did Mr. Arthur.

How long this plan may be continued without re-seeding the alfalfa we can only guess, the Arthur double cropping being in operation only a few years.

This plan, it is almost needless to remark, is opposed by all farming authori-

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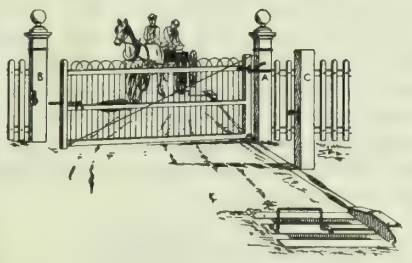
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ties, the idea being that you cannot grow successfully but one crop at a time, except under heavy fertilization, and even then only for comparatively short periods.

Alfalfa, however, has the rare merit of enriching most soils by the constant addition of nitrogen to it, in which it is so often deficient. Alfalfa, therefore, instead of impoverishing the land on which it grows, like most crops, strengthens and enriches it, hence there is no inconsistency in raising alfalfa, peas, clover, lupins, vetches, bur-clover or any other plant of the legume genus in orchards or vineyards.

In the case of cutting alfalfa for hay in an orchard, and removing it, the resultant fertilization is not very great, it is true, but there is always more or less nitrogen added to the soil by means of decay of the roots containing the nitrifying bacteria.

HARD MILKERS.

By Dr. David Roberts, Cattle Specialist.

Many a valuable cow and heifer have been sold at a sacrifice by the owner owing to the fact that they were hard milkers.

The cause of hard milking cows is so little understood by the average stockman that the disposal of such animals is accounted for in that way, but if stockmen knew how easily it is to overcome hard milking in both cows and heifers, I am sure that no animal would be disposed of for lack of treatment.

Hard milking is due to an abnormal contraction of the sphincter muscle, regulating the stream of milk from the point of the teat. On the other hand, a cow losing her milk is due to a relaxation or an abnormal expansion of the sphincter muscle at the point of the teat.

Many a valuable, hard milking cow has been ruined owing to the fact that the milker has been compelled to use a milking tube, and by use of the milking tube the cow has become infected, oftentimes losing one or more quarters. It is not advisable to use a milking tube if one can possibly get along without it.

The proper method of handling or overcoming hard milking in cows or heifers is by the use of a teat plug. The teats should be washed with a germ killer solution and the teat plug dipped in the same solution, then dipped in a little healing ointment and passed into the point of the teat. The teat plug being self-retaining, should be permitted to remain in the teats from one milking to another. This will positively overcome hard milking in cows and heifers.

This same treatment is exceedingly valuable in the treatment of sore teats where the sore is at the point of the teat where it interferes with milking.

NOTES ON THE RANCH HORSE.

The special purpose horse, the driver, the saddler or the track horse has received much attention as to the general treatment, but the Denver Field and Farm very pertinently claims that the horse that pulls the plow and makes possible the cheap cultivation of our soil and motive power of every sort has but little thought and attention given it. The common belief is that any one can care for a work horse, and consequently it is a fact that none are worse abused and generally mishandled than the plug that does the work. One need only to visit several ranches to discover that there is a great difference in the appearance of work horses under various managements. Correct feeding is not generally understood and a lack of understanding in this line causes much of the bad condition found in horses. It is common when a number of teams are kept for a stableman to do all the feeding. As no two horses should be fed the same at all times, the manager has to watch the feeding closely or some will get too much or not enough of hay or grain. When possible and the teamsters are intelligent, it is a good plant to let each man feed his own team. A stableman is likely to be partial to certain horses, or on the other hand indifferent and feed all alike. A teamster who likes his team is more apt to give them the proper amount of feed if instructed a little by the boss. The noon meal should be the lightest of the day, mainly because the horse if working hard is more or less heated and is likely to bolt the grain. Night is the time to give the heavy meal, when the horse has plenty of time to eat and rest. A horse should not be allowed to stuff on hay. In general about two pounds of hay to every hundred pounds of live weight is enough for a day. The best kind of hay to feed is a matter upon which feeders disagree, but from analysis alfalfa hay is more nearly a balanced ration compared with other hay, and with barley as a grain it makes a strong ration. On many ranches alfalfa hay is the only feed given to working mules and horses and it is remarkable how well thew work and keep up on it. A change of hay and grain occasionally does much toward keeping a horse in condition, even though scientifically it might not be proper. Once a week regularly it is well to give one good feed of bran, as a mash or dry. This loosens up the bowels and cleans them out. Colic is largely caused by too heavy feeding, too much water when warm or bolting the grain. With proper care in feeding and watering digestive troubles and unthriftiness of appearance will not occur so frequently.

SUFFOLK POLLS.

Mr. Frank Meacham, the Petaluma stockman, is a believer in the Red Poll breed of cattle, known as Suffolk Polls. He has a fine herd and thinks they are unexcelled as dual purpose stock, for dairy and beef. They are heardy animals of average size and deep red color. It is claimed they are especially suited for a mountain country. His imported bull, Eyke Dandy, weighs 2040 pounds, and is from a cow with a record of 7800 pounds of milk in one year. This bull was imported from England by Captain Hills of Delaware, Ohio, to head his herd of Red Polls, then considered one of the best dairy herds in the country, his price being $1000. Mr. Meacham made two sales of Red Polls last week, shipping 35 bulls to Humboldt county and 35 heifers to August Schmidt of Salinas.

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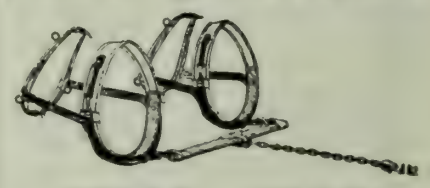
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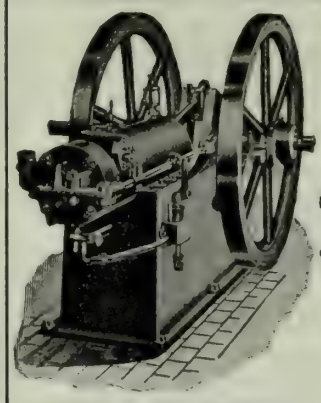
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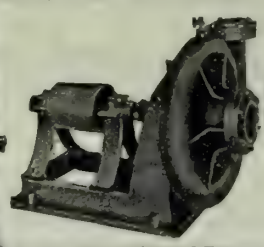
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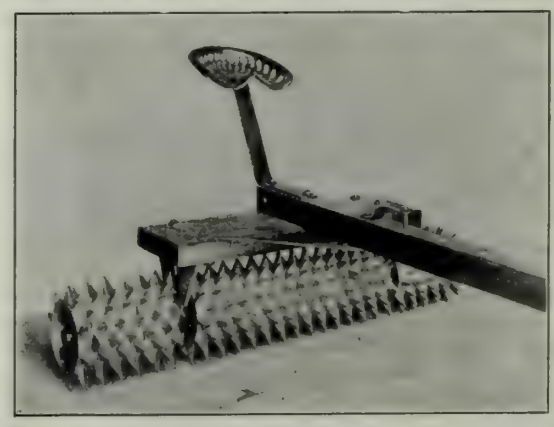
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SHEEP SHEARING IN THE SOUTHWEST.

Although it is betwixt and between shearing seasons in this State, the following account of clipping ways and means will be found interesting, as told by a writer in the Denver Field and Farm, and giving an outline of interior practices:

The shearing season opens in the Southwest soon after the first of the year and the shearers work north and do almost a continuous job the year around. Shearing corrals are stationed at convenient places in the heart of good feeding country and close to an abundant water supply, as there is usually a dipping vat in connection with all permanent shearing corrals.

On account of the number of sheep shorn at a public corral, numbering up to a quarter of a million or so, it is necessary to make dates far ahead. The herder obtains the date when he can come into the corral and so feeds his band far out until that time and then brings the sheep into the corral the previous evening so as to be all ready for business in the morning. It is also better to have the sheep empty out so as to be easier on both men and sheep.

Modern machine shearing has not come into universal use, as many flockmasters claim it to be hard on the sheep and also taking the wool off so close as to cause greater exposure during the nights, which are always cold, and this close cropping hinders the growth of the new fleece. Be that as it may, certain it is that about one-half the sheep are shorn in the old way with hand shears. Others believe that the machine work is far preferable to any hand work.

The corral consists of a series of small pens, each opening into an alley connecting with the shorn band at one end and with those to be shorn at the other. There is nothing except a narrow floor at one side of this small pen on which the shearing is done. This small pen is filled with sheep by the wrangler and business begins. The shearer reaches out and catches his victim by the leg, hog ties it, sets it on its rump and takes the fleece off in a very short space of time. No attempt is made to keep the fleece in anything like tangible form, but as the sheep are shorn the fleece, which is rarely tied, and, if so, with but a single string, is tossed over the fence by the shearer and is there gathered by the assistant, who at once throws it into a sack and packs it ready for market. The count is made as this small pen of sheep is shorn.

With the machine shearers the arrangement is about the same, except there is a double row of small pens facing each other and the machines are operated by a line of overhead shafting. The motive power is usually a gasoline engine. The pay for shearing is so much per animal, and this often includes the handling of the wool and freighting it to market, which, as one may understand, is often a long journey over very rough roads.

We have often been in one of these large shearing corrals and, unknown to the shearer, held a watch upon him to see how quickly the fleece could be removed. In one case with a machine operator a sheep was shorn in two minutes and five seconds, while with the hand shearer the time was but a little over three minutes. Average shearers will run off 100 in ten hours, either hand or machine, and as many as 160 in ten hours is not an uncommon occurrence. One large corral of 25 machine operators averaged 3000 as a day's run of ten hours, and some of these were green shearers of only one season's experience. The hand shearers are mostly Mexicans and the machine operators are Americans. The shearer works by the piece and is paid for the number of fleeces turned out, regardless of the quality of the work—uneven, frequent slicing and any old way at all so that the fleece is removed. In our boyhood days back in the Pennsylvania hills if a sheep should be turned loose looking as rough and cut as the average shearing of this country, that blacksmith would never try his hand again at our place. Piecework in this country runs from 8 to 13 cents a head, and the matter of boarding the men has to be taken into account.

The long travels over the dusty country drives into the fleece a large amount of dirt, and this is a great hindrance to the shearer, hand or machine. Even during the shearing process a heavy wind and sand storm may be raging, and the wool and sand thus piled in a conglomerate mass. When such wool is sacked, a large amount of it is dirt, and economy requires it to be scoured before it is hauled very far on wagon or train. As a result some sections have scouring mills, where the wool is cleansed of some sixty-odd per cent of dirt in the grease, and is then sent on its eastern journey in a clean white condition. About these scouring mills may be seen a steady stream of dirt flowing out of the room where the wool is being scoured, and this dirt is used upon the highway, as it makes the finest kind of a road, containing as it does enough oil to cement it together, and also prevent dust. It is far better to scour than to pay freight on the dirt.

COLORADO FIGURES ON MILLING ALFALFA.

Colorado seems to be taking the milling of alfalfa hay more seriously than California does and our feeders will be interested in knowing how they figure it. Mr. W. L. Monroe gives the Denver Field and Farm a detailed account in this line. The California reader will of course note the low price of Rocky Mountain coal which they have near at hand and must calculate how oil-burning in California will stand related to that. The following is the account:

There is such wide-spread interest throughout the West in the milling of alfalfa and so little definite information concerning the different methods and cost of milling, the cost of mills and markets for the finished products that a brief outline of these subjects seems appropriate. Alfalfa cannot be ground, as the term is understood, but must be reduced by shredding, beating or cutting. Shredding is the least satisfactory and least used method. The product is too fibrous and stringy and contains a large percentage of lint. Beating and cutting or granulating are the most used and most satisfactory methods. The cutting or granulating method can be built in farm units, but tne beater method cannot because of the weight of machinery and the high power required in operation.

A commercial mill of twenty tons' daily capacity, day-time run, is generally the most economical to operate per ton of output and will usually handle all the alfalfa grown tributary to it. A mill should be so located that an ample supply of loose alfalfa, delivered to the mill on farm wagons direct from the stack, will be assured. If hay has to be shipped to the mill it would have to be baled. The baling, freight and extra handlin adding from $2 to $2.50 to the cost of each ton—a handicap almost impossible to offset. Before a mill is located contracts between the mill owners and alfalfa growers should be executed for the growth of sufficient acreage to assure the desired tonnage. These contracts usually stipulate a fixed price for the alfalfa for a definite number of years. Such contracts are necessary to protect both parties. A mill of twenty tons capacity should have contracts covering at least 2500 acres for a continuous daylight run and 5000 acres for day and night run.

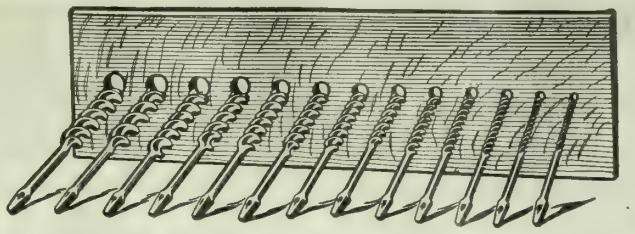
The cost of commercial milling depends on the method used, rate of wages and cost of power. The ton-cost of the product in wages is from 50 cents to $1 if not sacked, and $1 to $2 if sacked. The cost of power is from 25 cents to $1 a ton on the basis of $5 a ton for coal. With the right equipment of machinery, average wages of $2.50 a day and coal $2.50 a ton, the cost of milling a ton of product is close to $1.25 sacked. With higher priced labor and fuel and wrong equipment the cost may be doubled or even trebled. The product is generally sacked for shipment and sold in bulk locally. The cost of sacks is $1.50 to $1.75 a ton. A fair price for the best quality alfalfa, delivered loose at the mill in eastern Colorado, is $7 a ton. Shrinkage should not exceed 3½ per cent, making the net cost of alfalfa $7.25 a ton. Assuming good management, cost of milling $1.25, sacks $1.75 and alfalfa $7.25, the entire cost to the mill of a ton of product is $10.25.

The selling price f. o. b. cars at eastern Colorado points for properly milled products from good quality alfalfa is around $14 a ton on quantity contracts and $15 in single car lots. The demand for the product comes from everywhere—the West, Middle West or corn belt, the East and South. There are instances where local feeders take the entire output. What does twenty tons a day amount to in an active feeding community? The cost of a mill of twenty tons daily capacity for milling alfalfa alone is from $20,000 to $25,000, according to locality and details—all complete and ready to run. Grain milling equipment would involve additional cost. A commercial mill of twenty tons daily capacity requires 50 to 200 horse power, depending on method and equipment.

The granulating of alfalfa, described in the PACIFIC RURAL PRESS last week is a different proposition from that described above.

HOLSTEIN MEETING.

The Holstein-Friesian Association of America will hold its twenty-fourth annual meeting at the new court house, Syracuse, New York, on Wednesday, June 2, 1909, at 10 o'clock a. m., for the election of officers and the transaction of any other business which may legally come before it. All persons interested in Holstein-Fresian cattle, whether members of the association or not, are most cordially invited to attend this meeting.



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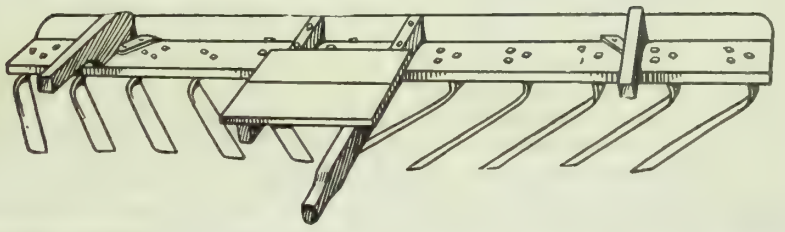
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1329 K St., Fresno, Cal.

The Poultry Yard.

FEED AND FEEDING.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

The subject of feed and feeding grows in importance as the price of feed advances. How to feed for best results at the minimum cost is the problem of the poultry keeper, and one that requires nice calculation. The cheapest feed is likely to be the least profitable, and skimping on the rations is dear economy. Anyone who has handled stock knows that it costs much more to bring run-down stock into good condition than it does to keep them in that condition. So the factor of closer rations might as well be eliminated at the start. To be profitable, poultry must be well fed, and this calls for good feed and sufficient of it.

We know of one case—and there are others—where the poultry business was launched upon great expectations. It was in the springtime, when grass grows and fowls lay, and the enthusiasm ran high. But when the grass began to wither and the egg yield to dwindle, these amateur poultry keepers evolved a system of feeding, viz, that the amount of feed should be regulated by the egg yield—plenty of eggs, plenty of feed; fewer eggs, less feed; no eggs, no feed to speak of. Unfortunately for a full test of this system, its originators suddenly discovered that there is "nothing in chickens anyway," and dropped out of the poultry business. Sure, there will be "nothing in chickens' unless you put something into them. That bugbear of fowls getting too fat has put many out of the poultry business. A hen must be fat in order to lay, and she must have food in excess of her bodily needs in order to produce eggs, also food rich in the material of which eggs are composed. Thus, some hens, especially the older ones of the heavier breeds, will get too fat. Instead of cutting the rations of the whole flock, yard such hens by themselves and diet them, or market them. Again, there is no saving to be made by investing in damaged grain and millstuffs, or in buying inferior grades of the same. The difference in price is more than offset by the difference in food values; while in damaged feed there is the added danger of harm to the fowls, as many poultry ailments have their origin in heated, mildewed or musty foods.

WASTE IN FEEDING.—Now we come to a point where we cannot cut too close. There are few yards where some form of waste is not going on, though it may not be recognized under that name.

First. Waste in the care and storage of feed. Rats, mice, weevils, etc., deplete and contaminate the sacks or boxes of feed, and it is scattered about and exposed to dampness, heat and dirt.

Second. Waste in dirty and irregular feeding. The feed is thrown down in the dust and droppings or left to sour in filthy troughs, and is not only wasted but becomes a source of contagion—diarrhea, cholera, worms. Fowls become over-hungry by long fasting, and over-eat, gorge, which results in more or less indigestion and crop-bound birds, and in poor returns from the feed.

Third. Waste in feeding non-producers. How many yards, particularly farm poultry yards, are overrun by a horde of roosters and cockerels, together with fowls which have outlived their usefulness, and consumptive, stunted, ailing stock.

Fourth. Waste in buying poultry medicines, condiments, egg-foods, etc.

When we have cut out all of these wastes, the solution to the feed problem begins to look more hopeful. Now let us turn to the manner of feeding before considering the kinds of feed that will best meet the requirements of the hen as well as the limitations of our purse.

DRY HOPPER FEEDING.—This method is more general in the East than with us. It has its advantages and its disadvantages. Its principal advantages are a saving in time, the prevention of fowls becoming over hungry, and also of the danger from vile mashes, soured, sticky and sloppy. Its disadvantages are waste by the fowls, and through the harboring of sparrows, etc.; the inability to utilize by this method many waste products which are the best of egg-producers; also the ground foods are less appetizing and more expensive than in mash rations. When this method is practiced, the hoppers should be kept in the poultry house to protect the feed from weather conditions and, in a measure, from other hopper-feeders. If the upper part of the open front of the house is protected by inch-mesh wire, it will usually keep out the sparrows, as they are shy of anything like a trap. This system of feeding requires the addition of more succulent food—raw vegetables, alfalfa and fresh greens.

MASH FEEDING.—For laying, growing and moulting stock, nothing can take the place of a good mash fed once a day. Fresh meat scraps, milk, vegetable parings, and many other waste products may be used to the best advantage, while the commercial meat products are more wholesome in this way, and more economical; the addition of salt, which may be supplied in this mash, is beneficial to the fowls and checks feather-pulling; also rolled barley cooked with this mash becomes fine egg food and lessens the amount of wheat required. Altogether, the mash is both appetizer and tonic for hens, and the best egg-food known.

POULTRY NOTES.

GAME BIRD FARM.—New York State has appropriated money to establish a farm to propagate game birds, principally English pheasants, Hungarian partridge, and quail. The English pheasants are said to lay 90 to 100 eggs in a season. The eggs will be hatched under common hens.

CONVICTS RAISE DUCKS AND PHEASANTS.—A novel experiment is in process of development at the McNeil Island Federal Penitentiary, where the convicts are rearing Chinese pheasants and Rouen Call ducks for the market, affording the prisoners diversion that relieves their minds of the pall of prison life and gives them a small income, which they devote to the purchase of books, newspapers and magazines, and which has enriched them also by a phonograph. Pens, yards and coops have been built by the prisoners, who have regarded the task as a diversion. U. S. Marshal Hopkins, whose headquarters are at Seattle, originated the idea and advanced the necessary fund for the start. The initial outlay was $100. A pair of Rouen ducks were imported from France, and the best specimens of Chinese pheasant obtained. Both breeds are well adapted to the climate of Puget Sound, where the Chinese bird has for years been well known. Under the careful handling good progress has been made, until now the penitentiary has a goodly array of both ducks and pheasants for the market.

O GIRLS! TAKE WARNING.—President Graham of the New York Central Farmers Club said, in addressing a large company at the annual dinner: "I believe, ladies, that you have made a great mistake. You have educated your girls in such a manner that they have not made good farmers' wives. I know a good many young men who have tried farming, and been persuaded by their wives and families to leave the farms and go to the cities. This must be changed. At Cornell they are educating in agriculture and poultry 500 young men and 300 young women. There are not enough young women there for wives for those young men. When they go back on the farms they will want wives. They will not look at gold bracelets or diamond rings. They will not see the freckles or high cheek bones. They will look for strong arms and willing hands. I believe, ladies, if you pursue this course of educating your girls not to work and not to be useful, there will be the greatest crop of old maids this country has ever seen."

The poultry census for the United States in 1900 was 234,000,000 chickens, 5,500,000 geese, 6,500,000 turkeys, and nearly 5,000,000 ducks.

CHICKEN PSYCHOLOGY.

The current report is that two German psychologists have just been amusing themselves by studying the memory of hens. Their method was very simple. It consisted in glueing 20 grains of rice upon a piece of cardboard and scattering among them 10 grains of wheat, not glued. The card was then placed before the birds. These pecked at the rice and the wheat indiscriminately, being of course unaware that the rice was immovable and the wheat free. The resistance of the rice to their efforts to pick up the grains puzzled the fowls at first, but they soon learned that the rice was a fixture, and after three or four feedings reached the point of devouring the wheat and paying no attention to the rice.

The experimenters discovered that by allowing an hour or so to intervene between the feedings the hens learned more quickly than when these followed each other in rapid succession. When they were fed without a pause the hens did not learn to know which of the grains were immovable until the sixth experience, but when an hour was allowed to intervene between the tests they learned after the third. It would seem that the observations of the fowls and the remembrance of them gained in strength by being spread over a longer period, as if they profited by reflection upon their experiences.

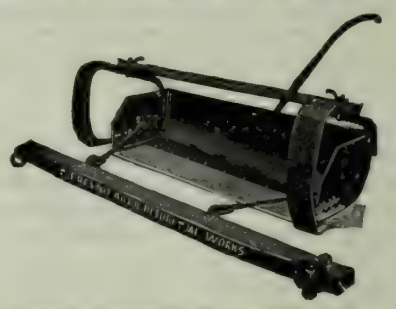
The experiment was extended in an effort to learn to what extent a hen could count. If a line of grains of wheat be made, each alternate grain being glued down, the hen learns very quickly to pick up only the even numbered or free grains, skipping the odd numbers without attempting to eat them. When every third grain is left free, two attached grains being placed between the free ones, the hens take a little longer to count—1, 2, peck; 1, 2, peck. But when three attached grains are placed between each pair of free ones the hens seem unable to learn the game; it is too complex for them. This indicates that hens can count up to three, but no higher.

Similar experiments have been made with babies, but they had no definite result unless the child was at least three years old. This suggests that a hen is as intelligent as the average baby of from two to three years.

It would be interesting to extend these experiments, in an effort to discover how much more intelligent roosters are than hens. That they are more intelligent any farmer will tell you. Who has not observed the difference between the procedure of a hen and a rooster in trying to peck pieces out of a cabbage leaf? The hen simply pecks at the leaf, lifting it from the ground with each peck, and the bird gets angry when it finds it cannot peck off bits to swallow. The wise rooster, after one futile peck, places his foot upon the leaf, holding it down, and pecks off from between his toes the morsels he desires to eat.

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The Home Circle.

Ma's Root Beer.

A meetin' up with brother Frank
This mornin', him a-lookin' blank
And out o'kilter, same as me,
"What tarnal thing's a-tack'lin' ye?"
Says I. "Or is it what I think,
You're dying daily for a drink,
Like them that used to find the place
And go to work to build and brace
Our gizzards into business gear—
A buzzin' swig o' ma's root beer?"

"Along down in the shanks o' May,
With all his seedin' under way,
Don't yeu remember, Frank, how dad
The same old-fashion feelin' had?
He'd sort o' sag back in his chair
Behind the dinner table there,
And sigh, 'I feel like givin' up,'
As mother filled his coffee cup.
Then, 'Where's them boys?' he'd sudden ask,
Like he was lookin' through a mask
At us a'waitin' to begin.
'Both here? Wull, I was wonderin'
About what time it was last year
We tapped that keg o' ma's root beer.'

"Mind how we'd tucker out, next day,
And loaf aroun' till mother'd say:
'W'y, Washington and Franklin, you
Don't seem to have a thing to do.
Pike down and tell your tired paw
To put you sproutin' taters—law!
Hunt up the hatchet and a hoe,
For, come t' think, I guess we'll go
And see if things are up enough
To get a batch o' brewin' stuff.
Skedaddle, while I fix a lunch!'
And did we need another hunch!
Did Wash or Frank 'arise to state,'
Or any further 'legislate'?

"'Way down in Hutchin's glen and woods
Is where we went to get the goods
That went to generate the cheer
And 'gimp' that grew in ma's root beer.
'Twas wonderful the barks and weeds
Ma found to fortify our needs,
Birch, spicewood, spikenard, prince's pine
And liverwort, are all in line,
With wintergreen and sars'parilla,
Squills, sassafras and squawkadilla.
Yep. There went yards into that brew
The pagan Injuns only knew.
But never pow-wow lived could blend
Their virtues to so live an end
As what," says I, "we're yearnin' fer
Right now, to set our blood astir,
Ol' boy, and rout the feelin' queer
That tackles us this time o'year—
A roarin' keg o' ma's root beer."

—*Orsen D. Lewis in New York Sun.*

The Gospel of Simple Living.

As the thistledown carries the seed, so some humorous point in a philosophy may be the means of spreading its solid truths. Horace Fletcher is likely to be known as "the man of many chews" before he is recognized as a philanthropist bearing the gospel of right living which also means simple living. Last autumn this great-hearted man who feels he has a message for his kind, left his palazzo on the Grand Canal of Venice for a tenement among the dwellers of the east side in New York city, where he feels his message is most needed. Twice a week he has given free lectures illustrating what he calls the "profitable and the unprofitable felicities of life," and each evening has explained the principles of "vital economics and dietic righteousness." The children have been made one of the opening wedges for his work, as he finds their plastic minds more amenable to suggestions and the parents more easily reached through their children. Every Saturday a free lunch is spread in his rooms for the little east siders, who are not only taught what to eat and how to masticate it, "with thirty-two chews," but, by gracious example and gentle checks, they are taught the finer laws of social courtesy and gentle breeding. And the fun of it is they don't know that they are being taught anything and think that they are there for just the good time which they always have, and they so admire their kindly host and hostess that they are ready to tumble over themselves to please them.

On its face his dietetic philosophy seems rather elastic: "Consult the appetite; eat what you want and when you want it"—but you must first wait for an appetite if you have to skip several meals; second, never eat when hurried, worried, angry or unhappy; third, eat only what the appetite demands; fourth, hang onto every mouthful as though it were your last; give it your whole attention; chew it for all it's worth.

By following these rules faithfully it is evident that a person cannot eat at the wrong time, and he cannot overeat—there isn't time.

A man in one of Mr. Fletcher's audiences declared that if he consulted his appetite he couldn't pass a saloon and would go to bed every night with his boots on.

"Suppose you try it and see," was answered.

This was agreed to with the stipulation that while he was to indulge every impulse for liquor, he should first make sure that it came from a physical demand and not from a mental craving; also that the liquor should be sipped in bits and every bit held in the mouth and well-chewed as it were. A few days after, the man returned with the acknowledgment:

"You're right. I've followed your directions and I'm blamed if I've got away with a pint of whisky in three days."

The point in Mr. Fletcher's dietetic teachings is that when one gets away from acquired cravings and down to the natural appetite, only the kind and quantity of food actually needed will be desired, and this will be the elemental foods prepared in the most simple manner. Thus the expense of daily living will be greatly reduced and the efficiency of the body increased. This is explained in the following:

HORACE FLETCHER'S DIETETIC RIGHTEOUSNESS.—"Simply by knowing how to eat in order to get all of the taste there is in food out of it, a saving of one-half to one-third in cost of food is effected. The reason of this is that food thoroughly tasted is half digested. The method of getting this knack is to masticate all solid food, sip and taste all liquid food, doing the same with foods like mushes, and swallowing only when the food practically swallows itself. Practice of this method of getting all the good there is in food out of it for a short time will establish a habit; after that time no care need be taken.

"The process of perfect digestion consists of mental and dental care; the dental being altogether the servant of the mental. The juices of the stomach flow only in response to the excitement of mental enjoyment. If the food is bolted and not tasted to the full extent, or if, in other words, all the taste is not taken out of it, there will be a deficiency of the digestive juices in the stomach to receive it when swallowed. Any food reaching the stomach and not quickly digested is pounced upon by bacteria and putrid decomposition takes place. The rotting process produces poisons which are sucked up and course through the body into blood and lymph streams. These poisons are called auto-intoxication and they produce lack of energy, that tired feeling, and the whole list of ills which humanity suffers.

"If, on the contrary, food is taken under conditions of calm and enjoyment, there is an abundance of digestive juices in the stomach awaiting its arrival. It is very easily digested, very little waste occurs, no poisons are generated, and in a normal condition of health, resistance against disease is maintained.

"This care in eating constitutes what has been appropriately named 'Dietetic Righteousness.' This is the foundation of health, efficiency, morality, temperance and spirituality. It is so important in this respect that it should be looked upon as a sacred function. To argue, to dispute, or to be at all contentious, or even absent-minded during the ingestion of food is as wicked as anger, worry, backbiting or any of the acuté forms of evil, and the result is pernicious all along the line and has far-reaching results."

No Fear of John.

Andrew Carnegie tells a good story:

"'I canna' leave ye thus, Nancy,' a good old Scotchman wailed. 'Ye're too auld to work, an' ye couldna' live in the almshouse. Gin I die, ye maun marry anither man, wha'll keep ye in comfort in yer auld age.'

"'Nay, nay, Andy,' answered the good spouse; 'I couldna' wed anither man, for what wad I do wi' twa husbands in Heaven?'

"Andy pondered over this, but suddenly his face brightened.

"'I ha'e it, Nancy!' he cried. 'Ye ken auld John Clemmens? He's a kind man, but he is na' a member of the kirk. He likes ye, Nancy, an' gin ye'll marry him, 'twill be all the sime in Heaven. John's na Christian, and he's na likely to get there.'"—Tit-Bits.

The First Tariff.

Adam had just finished the apple.

"I suppose," he said bitterly, "I am now qualified as a consumer."

Herewith he awaited with resignation a tax on fig leaves.

When a boy gives his sister the biggest part of an apple you may gamble that the biggest part has a worm-hole in it.

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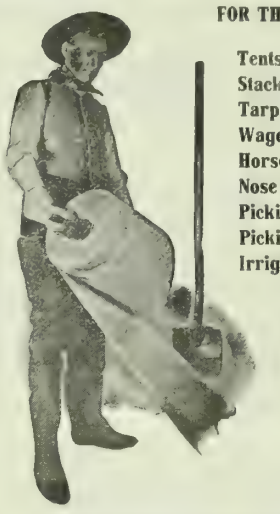
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THE MARKETS.

San Francisco, May 19, 1909.
(Unless otherwise noted, quotations represent prices paid to growers.)

WHEAT.

Prices locally stand the same as last quoted, and all offerings are held very firmly at quotations. There is considerable inquiry from the milling interests, but as there is scarcely any wheat of desirable milling grades offered, transactions are limited. There is a fair movement in low grade wheat, though the high prices have caused some decrease in the demand. The Northern markets are closely cleaned up, and a very small movement is to be expected from now on all over the Coast.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	2.30

BARLEY.

Future barley is lower than last week, and inclined to easiness. The cash grain is fairly firm, with prices about as last quoted. The arrivals have been fairly liberal all week, but large quantities have been shipped North, where stocks are about exhausted, and the supply on hand shows little increase. Trading locally continues quiet, with little demand for anything but feed grain.

Brewing	$1.62½	@1.65
Shipping	1.62½	@1.65
Chevalier		1.70
Good to Choice Feed, per ctl.	1.57½	@1.61¼
Common Feed	1.52½	@1.56¼

OATS.

Values have been held at about the same range for some time past. The local market shows little feature, as the demand is confined to narrow limits, and no offerings of any consequence are coming out.

White, per ctl.	$2.15	@2.25
Gray	2.10	@2.15
Red, choice		2.20
Common	2.10	@2.15
Black		Nominal

CORN.

Very little corn is coming into the local market from any source, though considerable quantities are being used in other parts of the State. All the Western grades show considerable advance, but white Egyptian is lower.

California Small Yellow	$2.00	@2.10
Western State Yellow, bulk		1.80
Mixed, in bulk		1.78
White, in bulk		1.82
Egyptian White		1.90

RYE.

The price quoted on Eastern grain is the same as before, but these figures are practically nominal in this market, as there is little demand, and very few purchases are reported.

Rye, to arrive	$2.00	@2.10

BEANS.

The stock of small white beans is very small, and the scarcity is becoming more evident as the season advances. Prices show quite a marked advance this week, and it is expected that they will be still higher. There is also a good outlook for an advance in bayos, which are extremely firm and in fair demand. The demand for blackeyes is light, but the price is held firmly at the former quotation. Some dealers are asking higher prices for limas. Pink beans are rather quiet at the moment, but are firmly held, and a growing demand is expected. Stocks of garvanzos are light, and with a poor crop outlook prices may advance.

Bayos, per ctl.	$5.25	@5.50
Blackeyes	3.50	@3.65
Cranberry Beans		Nominal
Garvanzos	3.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.80	@6.00
Large Whites	4.65	@4.90
Limas	4.15	@4.25
Pea	5.80	@6.00
Pink	3.25	@3.35
Red		Nominal
Red Kidneys	3.75	@4.00

SEEDS.

Some varieties are moving to a limited extent, but the market in general is decidedly quiet, with no particular demand and small supplies on hand. Prices are about as last quoted, yellow mustard being entirely nominal.

Alfalfa, per lb	18	@19 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.	3¾	@4¼c
Canary		4 c
Flaxseed		4 c
Hemp		4 c
Millet		2¾c
Timothy	5¾	@6 c
Yellow Mustard		Nominal

FLOUR.

The local market shows slightly more activity, but shipments to outside points are small, and considerable quantities are coming in from the North. All grades have again advanced, but the present advance is irregular. Family extras are as last quoted at the top figure, and bakers' grades are held at the same figures as family. The greatest change has been made in Oregon and Washington grades, which now bring about the same prices as some grades of local flour.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

Prices in the local market have fallen off somewhat in the last week, as the arrivals have been larger than for several weeks past. As the harvest has been progerssing rapidly in many districts, liberal shipments are expected during the next month or two. So far, only moderate quantities of new hay are being offered in this market, and the offerings generally are not of very choice quality. The weather has been favorable of late, and good crops are reported in several districts, though the production at most interior points will be short. There is a fair yield, both at Livermore and around Hollister, and the Salinas valley crop is larger than last year. Considerable barley hay is now arriving. Quotations are rather unsettled at present, with numerous changes from day to day, but the outlook is for prices to be maintained at a fairly high level.

Old Wheat, choice, per ton	$22.00	@25.00
Other Grades Old Wheat	16.00	@22.00
New Wheat	15.00	@18.00
Wheat and Oat	17.00	@22.00
Tame Oat	17.00	@22.00
New Barley	15.00	@17.00
New Wild Oat	14.00	@16.00
Alfalfa, first cutting	8.00	@12.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

Shipments of millstuffs from the Northern States have been limited for several months, but owing to the moderate scale on which the local mills are being operated several large lots have been brought in from Portland during the week. While the demand shows little increase, the scarcity of supplies has given a little more strength to the market, though prices show no change. There is some activity in miscellaneous feedstuffs, with a good demand for alfalfa meal in some sections.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		Nominal
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	33.00	@35.00
Mixed Feeds	30.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	33.00	@34.00
Shorts	31.00	@32.00

VEGETABLES.

Onions are inclined to easiness this week, the Australian variety being the only line on which prices are maintained. Bermuda seed onions meet with very little demand, and show some decline, while the new reds are beginning to arrive in large quantities, and large lots are offered on the wharf at $1.10 per sack. Peas, which have been easy most of the week, are scarce and high, owing to a falling off of arrivals from the Bay districts. All grades of asparagus are higher, and the market is kept well cleaned up. String beans are in good demand, and tomatoes from southern points are higher. Prices are steadily maintained on rhubarb, though supplies are liberal and poor lots are neglected.

Onions, new red, per sack	$ 1.00	@ 1.25
Australian Onions	4.00	@ 4.25
Bermuda Onions, per crate	1.15	@ 1.35
New Green Onions, per box	35	@ 50c
Garlic, per lb.	8	@ 10c
Green Peas, sack	1.25	@ 2.00
String Beans, per lb.	7	@ 9c
Cabbage, per ctl.	2.00	@ 2.25
Tomatoes, per crate	1.15	@ 1.35
Cauliflower, per doz.	65	@ 75c
Celery, doz.	40	@ 50c
Asparagus, extra choice, box	1.75	@ 2.25
Asparagus, common to choice	1.00	@ 1.50
Rhubarb, per box	75c	@ 1.75
Turnips, per sack	1.00	@ 1.25
Summer Squash, per box	90	@ 1.15

POULTRY.

Two cars of Eastern poultry came into the market early in the week, and the arrivals from California points are heavier than for some time past, though by no means excessive. As a result of the heavier supplies the market is naturally weaker than at last report, though the effort to maintain prices has been successful as far as hens and roosters are concerned. Fryers and broilers, however, are considerably lower.

Broilers	$ 3.50	@ 4.50
Small Broilers	2.50	@ 3.00
Fryers	6.50	@ 7.50
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons	1.00	@ 1.50
Squabs	1.50	@ 2.00
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

The local consuming market is quite active, and at the same time orders for shipment to the North are coming in on a larger scale, taking up all the surplus above local requirements and leaving nothing for storage. The market is accordingly very firm, with prices on the upper grades 1½ cents higher than last quotations. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	26 c
Firsts	25½c
Seconds	24 c

EGGS.

Eggs are again quite high, the price on extras reaching almost the high level of last week, while quotations on the lower grades have advanced to some extent. The arrivals are much lighter than for some time past, and with a good consuming demand very little stock is being stored here, though a fair movement into storage is reported in producing districts. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	27 c
Firsts	26 c
Seconds	24 c
Thirds	23 c

CHEESE.

The supply of local flats is still quite large, and buyers show little interest. Y. A.'s, however, are comparatively scarce, and while the demand is only moderate, the price is firmly held at an advance of 1½ cents. Flats are offered at lower prices, but are fairly firm at the new figures. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	12½c
Firsts	12 c
New Young Americas, fancy	17 c

POTATOES.

New potatoes continue in good demand, and with limited arrivals are bringing higher prices. Old stock has been rather dull this week, and as the supply is quite ample for present needs, buyers are holding off. Prices, however, are firmly held on all descriptions, with Oregon stock a little higher.

River Whites, per ctl.	$ 2.00	@ 2.25
Oregon Burbanks, per ctl.	2.35	@ 2.50
Sweet Potatoes, per ctl.	1.25	@ 1.50
New Potatoes, lb.	3	@ 3½c

FRESH FRUITS.

Arrivals of cherries are steadily increasing, and prices are much lower, few lots being sold at the top figures. While there is a fair demand, holders are obliged to give liberal concessions to prevent a large carryover, and further reductions are expected. Bulk lots are moving at about 9 cents per pound. Several more varieties of berries are now arriving in limited quantities, and sell off rapidly at high prices. Strawberries are very plentiful, and surplus lots are going to the canneries. Longworths are still held at good prices, but the other varieties are lower.

Raspberries, basket	12½c	
Gooseberries, drawer	60	@ 75c
Currants, drawer	1.00	@ 1.25
Loganberries, basket	12½	@ 15c
Blackberries, basket		15c
Strawberries—		
Longworths, per chest	$ 5.00	@ 8.00
Large varieties	3.50	@ 5.00
Cherries—		
Black, drawer	75	@ 1.00
White	50	@ 65c
Apples, per box	1.00	@ 1.50
Apples, new, green		75c

CITRUS FRUITS.

Navel oranges are considerably lower and with large arrivals there is some pressure to sell. There has been a fair demand for the small sizes, but the increasing offerings of deciduous fruits tend to check the demand, and the movement is rather slow. Choice grape fruit is higher and lemons and limes are in fair demand at former prices.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.25
Standard	1.00	@ 1.25
Limes	4.50	@ 5.00
Oranges—		
Fancy Navels	1.25	@ 2.50
Grape Fruit	2.50	@ 3.00

DRIED FRUITS.

Stocks of dried fruits in the East are rapidly decreasing and a growing inquiry for shipment is causing more activity in this market, with slightly firmer prices on some descriptions. Both apples and apricots, which are closely cleaned up, show some advance and quotations are firmly held in other lines. Prunes are firmer in the east and there is a better feeling in peaches, though considerable stock is still held here and some is likely to be carried over. Sales of future apricots are reported at the prices named last week, though both buyers and sellers are so far inclined to hold off until conditions are more definitely known. Contracts for new crop raisins are reported as high as 3 cents, but 2½ cents is the price generally offered, and very little business has been done. Opening prices quoted in New York for shipments f. o. b. coast are 4 cents for 4-crown, 3½ cents for 3-crown and 3 cents for 2-crown, loose, and 5 cents for fancy seeded. Some inquiry is reported for spot raisins and there is a feeling in some quarters that supplies are smaller than is generally believed. Prices for packed stock are as formerly quoted, but some packers are offering 1¾ cents or better for sweatbox stock. The actual movement of spot raisins, however, is of small proportions.

Evaporated Apples	6¼	@ 7¼c
Figs, black	4	c
Figs, white	4	c
Apricots	7½	@ 11 c
Peaches	3½	@ 4½c
Prunes, 4-size basis	2	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	70c

NUTS.

The market shows little feature at present, business being rather limited in both almonds and walnuts. There are very few California almonds to be had, and the few offerings are firmly held. Walnuts are also fairly well cleaned out of growers' hands, though local holders have sufficient for all current demands.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

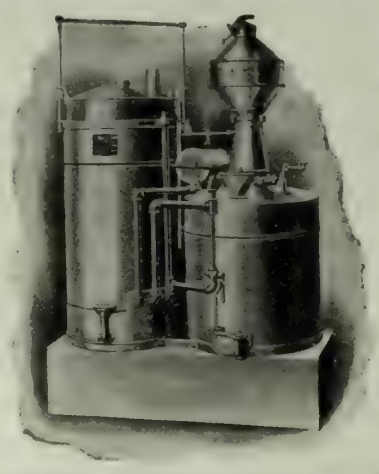
Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

The new crop has not yet appeared in this market, and no quotations are given. With a bare market the prices will probably be rather high at the opening of the season, though a large crop is reported in some districts.

All grades nominal.

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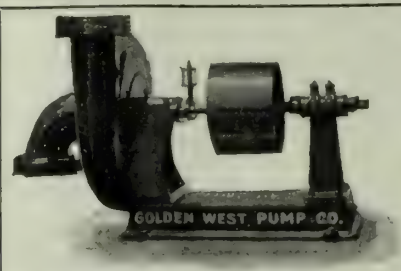
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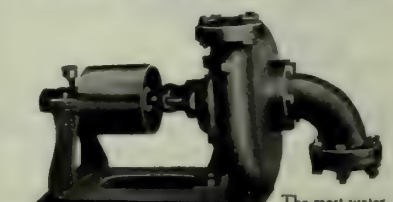
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HOPS.

There is more activity in this market than for some time past, and old stock is rapidly moving off. There is a much better feeling in regard to prices, and all choice offerings bring the top quotation. The outlook in Oregon is for a small crop. Interest in the new crop is gradually increasing and while the buyers are offering 9 to 11 cents growers are inclined to hold for better figures.

Hops, per lb.	5	@10	c

WOOL.

Marked firmness and activity are reported in all markets. The local buyers have been buying up the spring clip rapidly and some sections are now about cleaned out. The Red Bluff clip has all been moved and the prices now quoted on all choice wool from the northern part of the State show considerable advance.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22	c
do (year's staple	20	@24	c
Middle Counties, free (7 to 8 months)	16	@19	c
Southern, free (7 to 8 months)	13	@14	c

Defective wools, 2 to 3c. lower.

MEAT.

The market generally is inclined to weakness and several lines are lower, with arrivals quite ample for the local demand. Live cattle and dressed steers show some decline and sheep and young lambs are easier. Hogs are quite plentiful, with very little demand.

Beef: Steers, per lb	7	@ 8	c
Cows	6½	@ 7	c
Heifers	6½	@ 7	c
Veal: Large	7	@ 8½	c
Small	8	@ 9	c
Mutton: Wethers	7	@ 8	c
Ewes	6	@ 7	c
Lambs		9	c
Spring Lomb	9½	@10	c
Hogs, dressed	9½	@11½	c

LIVESTOCK.

Steers, No. 1	4¼	@ 4½	c
No. 2	4	@ 4¼	c
Cows and Heifers: No. 1			3½ c
No. 2			3¼ c
Bulls and Stags			2 c
Calves: Light	5	@ 5½	c
Medium	4½	@ 4¾	c
Heavy	3¾	@ 4¼	c
Sheep: Wethers			4½ c
Ewes	3¾	@ 4	c
Lambs: Yearlings			5 c
Spring Lambs			5¼ c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼	c
150 to 250 lbs.			7¼ c
250 to 325 lbs.	6¾	@ 7	c
Common Hogs, lb	4	@ 4½	c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., May 18.—The slump arrived all right. Conditions in the citrus market are the worst of the season and the very worst for three years. The excess of navels did the trick, and as long as the heavy shipments keep up the shippers will only be dumping their good fruit into a hole and keeping up the present very bad conditions.

A glance at the auction reports would seem to show that the Exchange owned the bulk of the navels out. In the past the Exchange claimed to furnish but 40 per cent of the fruit that was sold at the auctions. For the past week they have been supplying nearly 75 per cent of the navels sold in the seven different auctions reported in the papers. On Monday there were 179 brands of navels sold, and of these the Exchange furnished 122 brands. The very heavy increase in the foothill section of southern California, where the Exchange controls nearly all of the fruit, is probably responsible for this state of affairs, and it seems to be a case of sell it at whatever price it will bring before it rots.

Cash selling, or rather cash buying, seems to have gone out of style this season. There has been less cash business done than ever this year, and this has led some of the operators in California to speculate a little and some of them will have been pretty hard hit when the season closes.

Values have gone by the board, get what you can by going it blind is the rule the shippers are now working on. What else can they do? No call for their stock at any price, the stock must go at once, as navels are now getting old and overripe, so they roll the cars and trust to blind fate, and blind fate is not using them very well right now.

Good brands of extra choice and orchard run navels are selling at an average of $2.10 a box in the auctions. This price will net about 50 cents a box to the grower ,and many of those who are stuck have only themselves to blame, for they could have had more than twice that amount within the past four weeks, but they remembered the prices of May last and their ideas were nearer $2 than $1 a box.

Lemons are poor property right now and many are netting the shippers nothing but red ink. The holders of weak lemons are in a bad position, for it they do not ship at once their stock will rot, and if they do ship they are not sure of getting back freight and packing charges. Under the circumstances it would seem to be better to let the stock rot than to take the chances, for there is nothing encouraging in sight other than a spell of hot weather.

The citrus fruit shipments to date this season have been 21,772 cars of oranges and 3122 cars of lemons. To same time last season, 19,043 oranges and 2441 cars of lemons.

HOW ABOUT OILING THE HARNESS.

Harness oiling is a rainy-day job on the farm and a regular part of stable work in the city.

It's a vitally necessary part, too. There's no trouble about spoiling a harness—the question with horse owners is how not to spoil harness.

A very little use in all kinds of weathers works a great change in the flexibility and "snappiness" of harness leather. It gets hard, dry, lifeless—crossed and recrossed with little checks which eat into the leather and soon bring it to the breaking point.

Every man who owns or drives a horse knows these conditions and knows that the preventive and cure is "oiling"; but every such man doesn't know that, from an economical standpoint, Eureka Harness Oil is the only oil worth using.

We say that advisedly—"Eureka" is the most economical harness oil, and here—outside the fact that it never becomes rancid and contains nothing injurious to leather—is the real reason.

Eureka Harness Oil has the quality or power of "staying put." It goes into harness leather and it takes a lot of wind and rain, and animal sweat, to drive it out. It stays better than other oils. It gives a glove-like texture to leather that adds wonderfully to its wearing qualities. And it improves the appearance of the harness by keeping it black, which means keeping it new looking.

Of course, if you use oil that keeps a harness soft and pliable twice as long as another, it's the cheaper of the two, and that's why it pays to try Eureka Harness Oil.

SPRAYING FOR MILDEW.

For the past three years a substitute has been found in place of dry sulphur on grape vines for mildew which is far more effective, eradicating the mildew and at the same time stimulating the vine or plant. This article is what is commercially known as Rex Lime and Sulphur Solution. It is chemically prepared; is absolutely free from sediment and is uniform in strength. It comes in barrels and does not require any boiling; is simply mixed with cold water and sprayed upon the vine.

The manufacturers of this article caution its users against spraying the vines when the north wind is blowing or when it is extremely hot, because scalding is liable to follow and might in some cases be of some injury. Otherwise, in all parts of the State where this spray is used it has given entire satisfaction, and so far as we know is well worth a trial by those who are troubled with mildew or with the vine hopper. It is claimed that the vine hopper will not stay on the vines after they have been sprayed with Rex Lime and Sulphur Solution.

ASK YOUR DEALER ABOUT THIS.

The matter of roofing for house and buildings is one of the most serious questions the farmer of today has to consider. Shingles are going higher all the time; while the quality seems to be getting worse every year.

Of all the prepared roofings, none has been more confidently offered to the consumer than Rex Flintkote Roofing, which has been so highly recommended in our columns by dealers of the best standing in this State and neighboring States. J. A. & W. Bird & Co., the manufacturers of this roofing, refer our readers to their respective dealers as to the quality and service of this roofing and are well content to abide by their candid opinion, knowing that the reliability of "Rex Flintkote" and their own reputation are known to the trade everywhere.

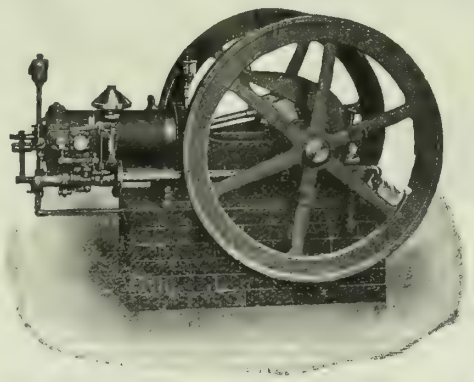
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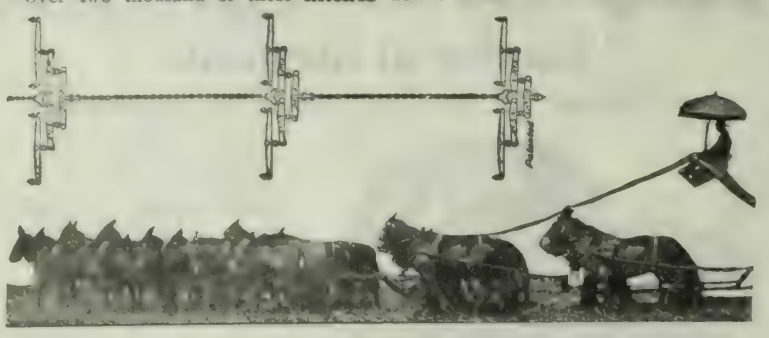
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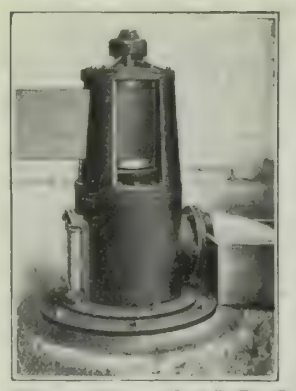


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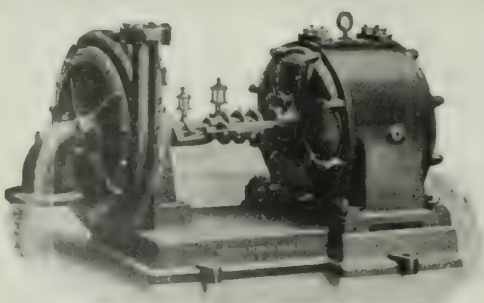
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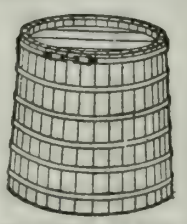
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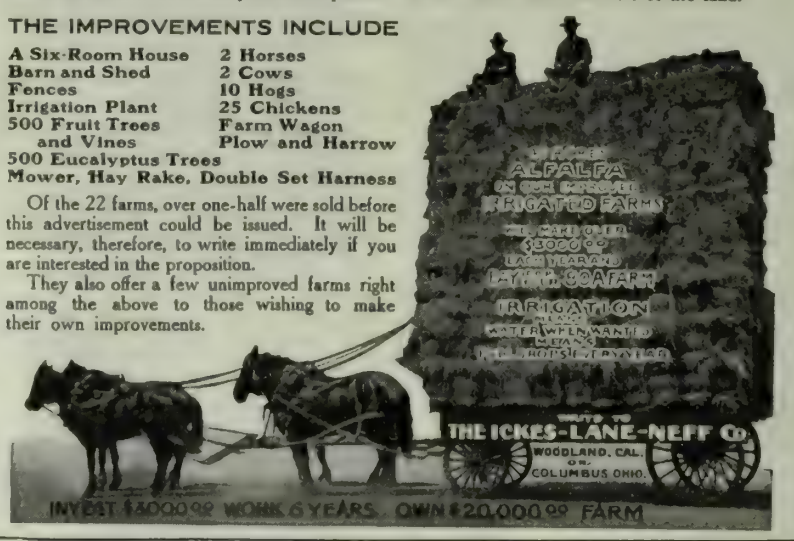
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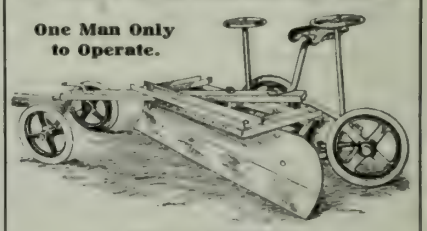
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 22. SAN FRANCISCO, SATURDAY, MAY 29, 1909. Thirty-ninth Year.

The Currant in California.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

The heavy clay loam is the soil best adapted for the currant in California. It may thrive fairly well in lighter soils, but it is less productive and shorter lived. Its favorite climate lies within the limits of the coast region, and the section centering in the vicinity of San Leandro and San Lorenzo is probably unsurpassed for currant growing. The climate, tempered from extremes of heat and cold by the bay fogs, is evidently favorable, because in other localities, with a precisely similar soil, results have not been so satisfactory. Farther south, a temperature of 90 degrees and over occasionally cooks the fruit on the vines, and in the interior valleys the extremes of heat and cold are injurious. Frosts in March are liable to destroy the setting fruit, and if these are escaped the heat of summer often proves disastrous. These conditions would seem to limit the most successful currant culture to a comparatively restricted area with a clay loam soil and equable climate.

The varieties most largely grown are the Cherry currant, a large red fruit growing on a dwarf bush, and the "Raspberry currant," which is a smaller berry on a taller bush. The Cherry currant commands a top price in the market, but is a rather shy bearer. The Raspberry currant is only medium in size, but more profitably than the first named. Stenzel Bros., who have seventy acres in both kinds near San Lorenzo, find the Raspberry currant the more profitable because of its superior bearing quality, which more than offsets the readier market and higher price of the larger and showier Cherry currant.

Another extensive grower, T. R. Madera, claims to have crossed two other varieties, the White Grape currant and Fays Prolific, and is well satisfied with the result, which has proved a good bearer and of good quality.

It is of first importance that this clay soil should be well drained, and thoroughly tilled to regulate the moisture. Thorough cultivating with a disk after the first rains, and again several times before following season's picking is well repaid.

The pruning month is November, when the sap is dormant. The new wood which has then attained a growth of one foot to eighteen inches is cut down to six inches.

In setting out a new plantation, the cuttings used are about fourteen inches in length. The shoots are pinched off for eight inches, and the plants set in the ground to that depth, leaving six or seven shoots for bearing. The life of the currant bush is about ten years, and it is five years old before its bears its largest crops, so that new plantations are set out every seven years, to ensure a continual supply. The first season after planting barely pays expenses, there being a gradual increase each season thereafter until the fifth year. After the tenth year the fruit deteriorates in quantity and quality, and the bushes should be dug out.

Thirty chests, this is, about 3000 pounds, or one and a half tons, to the acre, is an average yield. The crop ripens from the middle of May to the first of June. The market price to the growers has been from 5½ to 6 cents per pound, there being a slight upward tendency for the past two or three years, one reason for which can be traced as a desirable result of pure food legislation. Currant jelly must now be made from currants, without apple juice or other cheaper fruits, and free from more deleterious adulteration. And jelly is the chief destiny of the currant, a delicacy which before the passage of the pure food laws was frequently a rank imitation, barely flavored with the juice of the genuine fruit.

There is always a strong market for currants, for use in varieties of jams as well as jellies, and the area of culture being somewhat limited, makes the currant an important fruit, and its growing a profitable industry.

In its proper habitat it is hardy and demands only reasonable attention. Mildew is its principal enemy, and this can be successfully combated, with but slight expense and labor, though the bushes should be carefully scrutinized every few days in foggy or moist weather. Sulphur is an effective remedy. It can be shaken over the bushes from a can, in the early morning, when there is no wind.

There is a small yellow grub, more or less prevalent as the dry weather sets in, but there is no report as yet of serious injury from it in the section of country referred to, surrounding San Lorenzo.

The currant's extensive use in jams and jellies, and its ready demand by canners, will steadily increase, while its area of best production is pretty well taken up, as it will not flourish everywhere. Though fairly hardy in its most suitable soil and climate, mildew must be well guarded against, and it is not a long-lived bush in any event.

Stenzel Bros., near San Lorenzo, have been engaged in currant growing for twenty-five years, with good success, and a cut is promised showing this farm's seventy acres all in currants, upon which the fruit at time of writing is ripening nicely. Two other growers, Manuel Landis and Tony Bettencourt, had the honor of making the first sales this season in the San Francisco market, on the 12th of May.

Thus it appears the currant may be regarded as something of a pet in the fruit family. It demands the best soil nutriment and some watchful care, and is shy of harsh extremes. It does not object to the near protection of taller and hardier orchard trees.

The delicate and distinctive flavor of the fruit recalls to Californians who are not native sons, its lowly treasures in the old home garden, and how we watched, in other days, for the coloring of the pink globes, and the crystal white ones, and the pungent-scented blacks.



Currants in Apricot Orchard of A. J. Bettencourt of San Leandro.

HURRYING FIREBREAKS.

Supervisors of the National Forests in southern California are bending every effort toward the completion of trails and firebreaks planned for construction during the past winter. This hustle is accounted for by the fact that the dry season is fast approaching and the danger from forest fires is becoming imminent.

On the Angeles Forest one of the most urgent needs in connection with the system of government fire patrol has been that of telephonic communication with interior sections of the mountains not covered by commercial lines. To meet this need, the service has during the past winter constructed 45 miles of private telephone line which will bring into instant communication practically all of the ranger headquarters on that forest, and thus enable help to be secured at the earliest possible moment.

In the construction of this telephone line practically all the work was done by the local rangers, assisted by a telephone expert from the San Francisco office. Although designed primarily for use in connection with fire patrol, the telephones will be available for use by the local settlers when that use will not interfere with the interests of the government.

Pacific Rural Press

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FRANK HONEYWELL - - - - - Business Manager

California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., May 25, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.00	42.11	44.49
Red Bluff	.15	30.79	24.39
Sacramento	.00	21.75	19.83
San Francisco	.00	25.57	21.98
San Jose	.00	18.26	12.83
Fresno	.00	9.79	9.47
Independence	.00	8.00	9 34
San Luis Obispo	.00	31.37	20.22
Los Angeles	.00	19.07	15.51
San Diego	.00	10.23	9.92

The Week.

The greatest agricultural even of the week was the farmers' picnic, including the dedicatory exercises of the first dormitory building on the University Farm at Davis in Yolo county. It was not significant because it was a picnic nor because it was a dedication, but because it indicated a great outpouring of interest and approval for the new lines of agricultural instruction which the university has zealously entered upon and for which the State is liberally providing. There was a great concourse of people—from two to four thousand according to current estimates; probably three thousand, by average estimates. The buildings were swarming with people in holiday garb and spirits; the broad acres surrounding the instructional buildings were covered with vehicles of all sorts; automobiles by scores, horse gears by hundreds. The whole aspect was that of a very successful county fair—that is, such a commendable fair as we are to have through the enactment of the anti-gambling law. The formal exercises of music and oratory filled every foot of sitting and standing room in the stock-judging pavilion; the lunching tables covered the cement floors in the newly finished dairy barn; the class rooms in the upper story of the creamery building were filled with those who declared they must sit down just for a minute to rest before proceeding to more edifications and entertainments. It was a delightfully enthusiastic concourse of people representing widely distant parts of the State and including large delegations from neighboring towns and counties. We have no space for the details and incidents which the local journals will freely set forth, but the wide significance of the event and its celebration should be recognized by the whole State.

To our mind the dedication of the new dormitory building on the University Farm, and which is but the forerunner of a group of buildings with similar uses and purposes, stands as the exponent of the very important fact that our agricultural instruction having lingered long in the field of farm work rises now to the higher plane of farm life. The declaration that "life is more than work" was never so widely accepted as an attainable basis of human endeavor as at the present time. During all the ages it has been only a dream to the masses of mankind; in the present century, and especially in this favored country, it is becoming a working hypothesis toward the demonstration and realization of which the efforts of sociologists, economists and statesmen are directed as never before in history.

A general improvement of farm life seems reasonable to hope for, for several reasons:

First, it is generally appreciated and demanded. The whole country has shouted acclaim to President Roosevelt's declaration: "our civilization rests at bottom on the wholesomeness, the attractiveness and the completeness, as well as the prosperity, of life in the country."

Second, American agriculture is characterized by a degree of prosperity never before attained and never before so widely distributed and a leading factor in this grand condition is conceded to be due to the utilization of our natural resources by the application of the scientific method to agricultural problems and the general use of the products of scientific research.

Third, the American people have, therefore, a forceful desire for the improvement of farm life and the means to attain its desire.

Unquestionably the attainment of our present prosperity has been rendered possible by our institutions and systems of education and research—both by direct contribution and pertinent suggestion. They have labored hitherto in their efforts for the industrial application, chiefly to teach people how to work more effectively. They must now take up the responsibility of teaching people how to live better in all the lines of both family and community life.

Upon our educational institutions, from the University Colleges of Agriculture to the little school houses in rural districts, rests the duty of bringing this dream to realization, for two forces must be aligned toward the resultant reality: education and co-operation. This realization may seem a stupendous end to which to dedicate a collection of sleeping apartments and social gathering places which we call the University Farm Dormitory, but it is a first step and clearly in that direction. The university has been almost exclusively engaged hitherto in showing students and consultants how to work more effectively. They have been trying to teach agriculture with only remote suggestions of how to live the farm life. Now their work, by appreciation of the California people as manifested by a liberal legislature, takes on a new and living phase and they will teach the thousands who will come to them as years roll on the real things about farm life by requiring them as far as possible to live upon the farm, cleanly, economically and contentedly and to find in such surroundings new inspirations toward righteousness and good citizenship. To these ends the new dormitory was dedicated in the presence and with the active interest and support of a most representative assembly of California people.

Even in the most sensational traffic of hot-house fruits California is pressing close with an open-air product. The news is that in Chicago this week peaches from Belgium have sold at $1.25 each. They are grown under glass with stove heat and come to Chicago packed in cotton in refrigerating apartments. It is also said that two dozen cantaloupes have also reached Chicago, for which the same price is demanded as for the peaches. The cantaloupes come from London, where they have been growing during the winter in hot-houses. They are said to be better taken care of in crossing the ocean than a child. It is interesting from our point of view that on the same day that these sensational sales were made in Chicago the first crate of cantaloupes from Imperial valley, consisting of sixteen melons, was shipped from Heber today to Los Angeles. The melons were grown by D. G. Lathers, one mile south of Heber. The melons were too ripe to stand shipment to the Eastern market. It would have been interesting to have had our open-air cantaloupes fight the hot-house fruit in Chicago.

It is too bad that California will not have more wheat this year, for the market for the new crop promises to open very high. The effect of the Patten campaign in boosting wheat, which he has successfully carried out with a gain of several millions of dollars, seems to be to give the whole trade a strong bull feeling. This week the report comes from Chicago that Patten's statements about supplies, consumption and decreasing stocks has convinced many that the situation is unusual, and that lower prices will only come with greatly enlarged production. Meantime the Department of Agriculture maintains that its figures of a respectable visible supply are correct and that Patten's operations are against the interests of producers—in fact "have aroused indignation among the farmers, who are standing by the Department of Agriculture in its efforts to defend their interests." That may be. It is a great question; meantime we wish we had a good big field of wheat coming on in good shape.

We are very sorry that the present popularization of the work of plant breeders is leading to so much plain lying. Nothing seems to be too ridiculous for some people to believe and for many journals to print. Here is a thing which is simply a lie: "Two years ago Colonel Touville observed that his berry patch dried up early in the season, while a field of alfalfa adjoining was always green. The colonel hit upon the expedient of grafting alfalfa roots on runners of the berry plants, and to his surprise they united perfectly. Last summer he gathered three crops of berries and the plants look rank and hardy this year. Alfalfa roots often reach a depth of twenty feet. Colonel Touville calls his discovery the Alfberry." Another form of lying is being practiced by swindlers who are imposing upon people with the claim that they have gained a diploma from Burbank. One of them operated in Idaho until Mr. Burbank shot this at him: "I never gave a diploma to anybody, and the scalawag and confidence man who shows any such thing is a liar and a thief." As one reads this paragraph he might think a distinguished American had returned from lion hunting.

Those who are discussing the desirability or otherwise of Japanese in California may be interested in some figures said to be authoritative and furnished from Tokio. According to statistics there were in December, 1906, 59,100 Japanese in the United States, and out of that total 53 per cent were in California and its immediate neighboring States. In California itself 50 per cent of the total were found and of these 26 per cent were engaged in labor on railways and in mines, the remaining 24 per cent being occupied with agriculture. There are 14,000 Japanese farmers—speaking roughly—in the State of California, and they own an aggregate of 12,000 acres, which land is devoted mainly to the cultivation of fruit and vegetables. A feature is their trade with Japan, but more remarkable are the sums remitted by them to the home country. In 1904 they sent to Japan $3,750,000, in 1905 nearly $5,000,000 and in 1906, $5,632,000.

Queries and Replies.

The Leaf Aphis.

To the Editor: Enclosed please find a lot of insects which are covering a good many of our apple and prune trees. Where trees are badly affected leaves all curl up and turn yellow, also exude a sort of honey-dew. Apples will be no good, as it retards their growth. There were a few of the same kind last year, but they have increased to a fearful extent. As far as I can learn, it is pretty well distributed throughout this section. I have sprayed with lead arsenate, 3 pounds to 50 gallons of water, as you can see by the apple leaves inclosed, but that don't bother the insects a bit; they are getting fat on it. Please let me know what to do for them.—Farmer, Sonoma County.

It is a very bad year for leaf aphids of all kinds. The low temperature has held back the multiplication of their chief devourers, ladybirds, syrphus flies, podabrus beetles, etc., and the coast region at least has had no very hot dry winds to dry them up nor pelting showers to knock them off or drown them. The result is that every plant and tree is lousy in its own way. The remedy is, of course, spraying, not with poisons as for eating insects like codlin moth larvae, caterpillars, etc. As our correspondent shows, poisons are of no particular use against plant lice. You must go after them with good force pumps and upward-spraying nozzles to reach the under sides of the leaves where they congregate. They can be killed with kerosene emulsion, tobacco decoctions, soap solutions, miscible oils, etc. The aphis is easy to kill if you can hit it; if not, it will multiply fearfully and destroy all your growth and distort the fruit and cover the whole tree with an abomination of honey dew and black smut.

Failing Almond Trees.

To the Editor: Please find enclosed twigs taken from my almond trees. The trees are about 4 and 7 years old. They have commenced to turn yellow and have made no growth. They looked all right until about 10 days ago. Part of my orchard is 20 years old. The old trees look all right. The ones that show signs of not doing well are the young trees. They are on the best land I have, and are well cultivated and well drained. I have never had red spider, nor have I had to spray, but I feel uneasy about the appearance of these trees, and would like you to examine what I send you, and give your opinion.—Grower, Yolo County.

The foliage shows no sign of aggressive disease, but is clearly significant of physiological debility in the tree. The leaves are too small, too light colored, too thin in substance and show a light brown margin—all of which indicate weakened if not suspended root action. You must look underground for the trouble. The sap might be restrained by crown-knots or by gopher-girdling, but those things you would probably notice in cultivation, etc. It is more likely that your trees may be rooted in dry soil. You speak of it as well-drained; is it too well drained or leachy? Is there too much gravel below, or are they otherwise prevented from deep rooting, which perhaps the older trees have secured and are thus enabled to hold on to life? You will have to work this out yourself. On a soil which is too free in drainage the lower strata may be dry and the trees come into distress although the surface soil may be well cultivated and moisture show on stirring it. If on digging you find only the color of moisture and not enough to make a compact ball on squeezing in the hand, try the effect of giving a lot of water to some of the trees which are not already too far gone for revival.

Alfalfas Again.

To the Editor: I have heard that there is a variety of alfalfa which is of quicker growth and more abundant in yield than the ordinary alfalfa. Will you please give me the name of same? I suppose in every other way it is equally as good as the common alfalfa? I would also like information concerning nitro-culture of alfalfa in this State.—Farmer, San Joaquin County.

There is one kind of alfalfa called the Turkestan which is a better winter grower than the common alfalfa. Another variety called the Arabian is probably also better in this respect than the common variety, but seed of that is not yet available. The objection to the Turkestan alfalfa is that it makes a very coarse growth with a solid stem, and is less liked by grazing animals, and its value as compared with the common alfalfa has not yet been determined. Many are now trying it. Nitro-culture for alfalfa has only been used in a small way thus far in this State, and what the outcome will be cannot be predicted. It is a fact, however, that the tens of thousands of acres of alfalfa which are now profitable in this State were started without any nitro-culture whatever, and presumably it is not required, although under certain conditions it may be an advantage.

Crimson Winter Rhubarb.

To the Editor: I am starting "Crimson Winter Rhubarb." Wishing to work intelligently for best results in size of stalk and color, I would be glad to get from you, if possible, the chemical analysis of this rhubarb with a view to forming a judgment as to the fertilizer needed to obtain best results or to replace deficiencies in the soil. My land is chiefly a sandy loam overlying wash gravel, but wonderfully retentive of moisture, this being due, I judge, to the perfect dust mulch which can be maintained on the surface. I fear our only difficulty will be in obtaining size and color of stalk and I am anxious to obtain both.—Enquirer, Los Angeles.

Color and quality of your rhubarb will probably depend far more upon weather conditions than upon any treatment of the soil. It is, however, sometimes found that application of iron deepens color, and you can readily experiment with this by the application of a little sulphate of iron or copperas to a few plants, noting the result as compared with those not treated. Otherwise we can only suggest such use of ordinary fertilizers as seems desirable, with the view of promoting the general thrift of the plant. Mr. J. B. Wagner, of Pasadena, has issued a circular describing a method of getting extra fine specimens of rhubarb, and there are suggestions for those who wish to produce something strikingly fine.

Imperial Valley Problems.

To the Editor: I am especially interested to know the reasons for the condition that existed in my field this spring: 160 acres, all in barley. The land was very imperfectly leveled and there were many spots, varying in size from a hundredth of an acre to a tenth of an acre which the water did not cover. These were, of course, entirely bare beyond where the soil subirrigated, but in every instance the barley around the edges of these high places was the very best in the field. It was always best just at the water line, and graded poorer and poorer until it reached the average condition at perhaps four feet from the line where the water reached. Perhaps there are tests I myself might make if I had instructions to ascertain why this was so.

Another subject of vital importance to me is the selection of some green manure crop that would endure the summer heat here. I want to sow it in June, as soon as the barley is off, and turn it under in September or October when I sow next season's crop of barley. My soil is a silicious silt, what they call light soil or sandy soil here, though the particles are too small and fine to be properly called sand.

An attack of aphis did an irreparable damage of at least 25 per cent to my barley, and they would have made it 100 per cent if it had not been for a timely and spontaneous appearance of ladybugs. The bug very much resembles those shown me on the demonstration car, but I am not entomologist enough to pick out the small difference if any exist. Do you know if that ladybug is native in this country. If not I cannot account for its appearance, for Mr. Carnes had none to give me while at Imperial and no neighbor received any.—Farmer, Imperial.

We can only guess at the behavior of the barley in certain places; that it is due to the moisture conditions best befitting the growth of the plant at just those places where perhaps no puddling effect is produced upon the soil by the water. You might learn something by digging down and noting the condition of the soil in these two places, comparing it with others where the growth is less satisfactory. Nothing but an experiment will tell what you can grow best in your summer heat; with moisture enough, manifestly some summer growing legume, like cow peas or soy beans, or possibly common Eastern red clover. Seed of all of these you can get from the seedsmen in Los Angeles.

The ladybugs which were distributed by Mr. Carnes are natives of California. They are not introduced species, and it is altogether probable that you have the same naturally existing with you. They often appear when aphis become abundant without anybody being able to tell whence they come.

Alfalfa and Bottom Water.

To the Editor: Can you tell me if alfalfa will grow in sandy loam where the water is only seven to ten feet from surface?—Reader, Kern county.

Alfalfa will certainly grow satisfactorily on such a depth of soil as you indicate, providing the water is not alkaline. If the water should rise nearly to the surface it will, of course, limit the suitability for alfalfa growing to that extent, but from seven to ten feet of free soil will give the plant a good chance. We suppose, of course, you are beginning upon irrigation and are simply inquiring whether there is danger from having water at that distance from the surface. On such land you could probably get a good stand of alfalfa without irrigation, but it could only be made very productive, and be protected also from gophers, by surface irrigation as ordinarily practiced.

Probably Too Dry Below.

To the Editor: I put some barley out in a field where I pulled vines out last year. Now where the rows of vines were running east and west the barley is very thin and stunted, while between the old rows it has a nice dark color and good heads. I thought it might be that on the places where the vines had been standing the soil has not yet settled enough; but it is not only on those places—it is the whole row. Can you think of anything that could have caused it?—Farmer, Yolo County.

We believe your barley must be suffering from lack of moisture, as you suspect, because of the drying out of the soil loosened by the taking out of the vines. It would probably have been good if we had had heavy spring rains to help settle back the soil. There is nothing else that occurs to us as likely to cause this trouble.

Crab Grass.

To the Editor: I send two weeds which are coming in my young alfalfa. Can you tell me through your paper what they are and if necessary to pull them or not?—Subscriber, Stanislaus county.

The grass is crab-grass (Panicum sanguinale). The other weed is some member of the mustard family, but too young to be determined. Both are annuals and the crab-grass makes good feed, especially when mixed with alfalfa. It would seem, therefore, that pulling would not pay. Better let them grow awhile, but cut the first crop of alfalfa before these weeds get to the seeding stage. The mixture would be good for silage, but you should never allow these weeds to go to seed.

Horticulture.

PRUNE GROWING IN THE SANTA CLARA VALLEY.

To the Editor: A careful estimate of the prune prospect in Santa Clara county for this season places it at 50,000,000 pounds, or an increase of 12,000,000 pounds over last year's crop. A close approximation is difficult, from the fact that while certain areas, amounting to thousands of acres, will be practically destitute of fruit, other portions are almost up to an average. It is remarkable that the best yield will be on the sandier soil, while the worst failure is noticeable where the soil is heavier and usually most productive. In the opinion of some growers, this points to the thrips as the cause of the shortage, but the sole responsibility of the pest is, on the other hand, doubted by those who have been scientifically investigating the habits of the thrips and its method of attack.

The fact remains that this season's crop still reaches only one-half the average of former years, which is placed as high as 100,000,000 pounds, or two-thirds of the entire product of the State.

The Government Inspector, Mr. Dudley Moulton, has about completed his investigation of the thrips, and will publish his report by the first of September. The County Entomologist, Mr. Earl L. Morris, has also been working indefatigably, and the result of his investigation mainly corresponds, so far as yet made public, with that of the Government Inspector.

Mr. Moulton's paper, published in June, 1907 (a later statement by Mr. Moulton was published in the PACIFIC RURAL PRESS, June 27, 1908), dealt exhaustively with the nature and habits of the insidious foe he has been combating. It amounts to a very thorough and instructive diagnosis, and the result of his work toward a remedy is looked forward to with great interest and considerable hopefulness. The method of treatment, so far as yet disclosed, consists of thorough plowing and cross plowing in the fall, followed by spraying in the last of February and beginning of March.

As the thrips is chiefly found within reach of the plow, though frequently going several inches deeper, it may be that thorough cultivation destroys as high as 50% of the grubs, which are then in the pupal or intermediate stage, between the larva and the adult form. The white larva and pupa are just readily discernible with the naked eye, and the brown adult is no larger. Its diminutiveness, together with its hidden method of entering the buds, makes it difficult to discern and destroy.

Many sprays have been tried, and rejected because injurious to the tree. The most effective, if not the most effectual, spray is composed of black leaf tobacco and distillate oil emulsion, which, while harmless to the tree, works havoc with the parasite. About the first week in May it goes out of business and retires into the ground from three to four inches, the adults having died or disappeared after laying their eggs.

California prune growers are awakening to the necessity for better organized system in marketing. It is impossible that an industry and business of such magnitude, involving millions of dollars and depending on distant consumers, should remain long to be chanced in a haphazard and chaotic fashion. The spirit of organization is now abroad, and bids fair to take practical form in time for a businesslike handling of this season's crop. The most profitable and readiest marketing of one hundred million pounds of fruit calls for some centralizing system and representative handlers, along the line of other big businesses. A preliminary step in the right direction was taken at a meeting held in San Jose last month, when a committee of growers was appointed.

It is too early yet to prognosticate this season's market. A few small orders have been picked up now and again on a 2½ cent basis for 40, 50 and 60 prunes, same to be delivered in September, but such orders have been declined, and a 3 cent basis is looked for.

A. J. L.

[An important letter on prune marketing, by Mr. H. A. De Lacy, chairman of the Committee of Fifty, may be found upon another page.—EDITOR.]

THE PAUL AND BING CHERRIES.

To the Editor: I read with interest the description of the Paul cherry which you published last February. I have seen the bearing trees in Mr. Paul's orchard, have grown the trees in nursery row before it was sold to Mr. Coates, and have seen and sampled the fruit; and while I tried to see a new variety in this cherry, I was unable to discover any difference between it and the Bing, either in appearance of the trees in orchard or nursery, or in appearance or flavor of the fruit, except some difference in time of ripening, the fruit in Mr. Paul's orchard being later than at Forestville, where I fruited the Bing. The Royal Ann cherry and other fruits were later also with Mr. Paul, due to the higher altitude and colder winter and spring. I believe that the promoters of this cherry are honest in the conviction that they have a new variety, but the people who sampled the fruit evidently did not take into consideration the fact that altitude and location made a difference in time of ripening, and were perhaps ignorant of the fact that the soil in Mr. Paul's orchard, together with the altitude and climate, are conducive to the production of the highest quality of any kind of fruit.

The Paul is a very fine cherry, but the Bing is also a very fine cherry, noted for its size and keeping and shipping qualities.

T. J. TRUE.

Modesto.

[Mr. True's letter was written some time ago, and delay has occurred in looking up the matter. One might think that some of the many fruit experts to which the cherry has been submitted during the last four years would have noted the point which Mr. True makes; also that the judges at the Oregon Cherry Fair gave the Paul a certificate as a new variety, although they were familiar with the Bing and had specimens alongside for comparison. These facts do not, however, amount to a demonstration. Mr. Paul's observation of the two varieties in his own orchard is as follows: "The Bing trees are through blossoming and the bloom almost all off the trees before the Paul blossoms at all. The Bings ripen two weeks before the Paul. The stems of the Paul are much shorter and heavier and the skin is thicker than the Bing. The Paul is not as round as the Bing, and is larger and more mahogany red; it also grows in clusters and keeps a week longer after picking than the Bing." These are certainly strong pomological points, and certainly, if well established, constitute the two varieties distinct. It will be an interesting question for all to take up as soon as they get the Paul into bearing. We have never had opportunity to compare the varieties grown under the same conditions.—EDITOR.]

ON THE OCCURRENCE OF FROST.

Although we are now out of the frost region of the calendar, except in high mountain valleys, it is interesting to read the observations of a distant observer on the local occurrence of nipping temperatures. A good description of this was given in a bulletin by Prof. W. N. Hutt, from the North Carolina Agricultural Department. Professor Hutt is speaking particularly of the mountain region of his State:

The frostiest locations, and those therefore to be most avoided, are valleys shut in on all sides. To the uninitiated these places would appear to be most admirably protected, but they are veritable frost pockets. On cold nights they receive the cold air from higher regions, and frosts and freezes in them are inevitable. Once while traveling in the Rocky Mountains I saw one of these small valleys shut in by hills, in which all the vegetation was nipped by frost. The surrounding hills on one side were somewhat lower than on the other sides. When the valley became full of cold air it flowed over the lowest side, just as water would have done. All around on the other sides of the valley the high frost mark could be seen, and it formed a line on a level with the top of the lowest hill where the frosty air had flowed over. Above this line the tenderest vegetation showed not the slightest injury. A valley with a large outlet will usually be reasonably safe from frost. The land above rivers which have a considerable fall will be drained of water and also of cold air. Lands contiguous to such streams can be counted on as being reasonably safe from frost. Experience with frost shows that mountain regions are much safer for fruit growing than the lower lands below them.

A carefully planned and conducted experiment which I made two years ago in a hillside orchard confirms the results of general experience on this point. This orchard was carefully surveyed with a leveling instrument and the ground mapped in contours. Contour lines connected all trees at the same elevation. There was two feet difference in elevation between each two contour lines. Self-registering thermometers were placed on each contour line, and readings were made on them three times a day throughout the entire winter and spring. The lower contour lines almost invariably registered lower temperatures than the higher ones. There was usually from one-half to one degree of difference between each line and the one above it. Instruments placed along one contour line, thus all being at the same elevation, showed practically no difference in temperature. During the winter zero temperatures were recorded in this orchard. At pruning time in the spring it was found that the wood of the trees on the lowest contour had been badly frozen and was "black-hearted." The effect of the "black-hearting" lessened with higher contours, and on the highest one not a single affected tree could be found. The only fruit produced in the orchard was on the two highest contours. Higher land above this, which was not planted in orchard, would undoubtedly have been a safer location for peaches. The same season an estimate was made on the effect of winter freezing on peach buds on trees grown on comparatively level land. A measuring pole was placed in the trees and by means of a step-ladder the buds were examined and counted at different heights from the ground. An examination of 1300 buds gave the following percentage of buds killed by frost: 2 feet from the ground, 50%, 4 feet from the ground, 30, 8 feet from the ground, 16%.

Forestry.

SEASONING EUCALYPTUS TELEGRAPH POLES.

The government has undertaken a study to determine the proper method of seasoning eucalyptus poles, particularly those cut from trees which, owing to a large number of knots, will not make clear lumber. Such poles have shown a tendency to check and warp after being cut, probably due to improper methods of seasoning, which has been a great obstacle to their more extensive utilization.

Experiments will be carried on by the United States Forest Service to determine the method of seasoning which will prevent this checking and warping. One series will be conducted on the Sutro estate, which is in the fog belt, and another on the Pacific Land Investment Company's holdings at Newark, which is out of the fog belt.

Forty-eight growing trees, 13 inches in diameter and having a clear length of 34 feet, will be selected and marked by an officer of the Forest Service. These two groups will be handled in the same way, 12 trees of each group are to be girdled and allowed to die and season standing, with the bark on, and the other 12 will be felled and laid on skids in the open and seasoned in this manner. Six of the 12 felled trees of each group will be peeled and the other six will be left with the bark on.

The skids will be so constructed that the poles will be at least one foot from the ground to allow a free circulation of air. The poles will be left on the skids from six to eight months, and observations taken as to checking, warping, shrinkage and loss of weight. The same observations will be obtained from the standing poles.

When a sufficient period of seasoning has elapsed, determining the weight of the skidded poles, the standing poles will be cut and their weights found. The condition of these poles will then be compared with the condition of the skidded poles, and a proper method of seasoning outlined which will be available to all interested in the use of eucalyptus timber.

Citrus Fruits.

PRUNING THE ORANGE.

Written for the Pacific Rural Press
By Wm. M. Bristol.

The title of this article is, perhaps, a misnomer, for I shall not say much about the pruning of the bearing orange tree. That is a matter concerning which there is much diversity of opinion and practice, and every theorist can fortify his position with impregnable argument. But I have some decided convictions regarding the treatment of young trees. The scriptural precept concerning the training up of the child is equally apt in connection with the youngster of the citrus family. I am persuaded that a little philosophy and foresight in the first years of the orange tree's career will save much trouble for it afterward. It is easier to row a boat across a river if one pulls a little with the current. It is easier to make nature a servant and helper if her immutable laws are heeded.

From infancy the young orange tree is shaded by its foliage. After budding and while yet in the nursery the protection afforded by its own leaves is augmented by that of its neighbors; and when set out in the open sun of the orchard and shorn of its natural covering, its trunk must have an artificial substitute therefor, if continued growth and vigor are to ensue. If trees are wrapped, after planting, with two or three layers of burlap. the protection thus afforded enables them to use all their vitality in producing tops. One often sees young trees not wrapped which seem to have used all of their vitality in clothing their trunks against the rays of the sun. Even when unwrapped trees show suckers below, there is no reason to believe that had the suckers been rubbed off, the ratio of top growth would have been different. Indeed, I have had trees, planted on an adjoining tract at the same time, which were not wrapped, which made very little top growth during the first year. An old fertilizer sack costs two cents, and makes four wrappers. A wrapped tree is larger at two years than an unwrapped tree at three. The increase in value in a young orange orchard is commonly rated at one dollar per tree per year; hence there appears to be a profit of 99½ cents on the ½ cent invested in the wrapper. So much for wrapping.

By the end of the first year the main frame of a well grown orange tree has new shoots, which always try to grow upward, but always become pendant as their length increases. At the end of the second year, if not molested by the pruner, the pendant branches will have sent up a new series of shoots, usually one in a place. But the chances are that the pruner has been there. It is a peculiar but well known fact that a knife in the hand of a surgeon almost invariably wants to cut something. "What was I made for," it augurs, "if not to cut?" And the same is true of pruning implements. A pair of shears in an orchard seem to hypnotize their owner so that he permits them to reach out and snip off every branch that has dared to venture far from the parent trunk. The folly of this practice in a young tree grove is shown when the branches are shortened, for the new shoots usually appear in a bunch at the end. This results in a forked formation, which is very likely to split under the weight of a full crop. Nature is a wise architect; the unmolested orange tree assumes a structure which will carry the maximum load without propping, while the mutilated one cannot by any artificial support be made as strong. Furthermore, the drooping branches which are lopped off would be the first to bear fruit—and fruit is really what many growers are after, rather than a prim and precisely shaped tree. I once heard of a farmer who spent so much time keeping his place neat that he went broke. I do not know how true the story is, but I do know that I have seen many prospective boxes of oranges chopped off by the pruning shears, and many trees deprived of their proper shape and strength by their use.

As stated above, there is great diversity of opinion as to the pruning of bearing orange trees. Some broad statements of principle may be of service in this connection. It is a well known fact that the fruit on young trees averages firmer and of better quality than that on old trees. With this in mind, some growers are endeavoring to prune in such a manner as to put a wholly new top on their trees about once in seven years—not by lopping the old top off all at once, but by taking out a good-sized branch each year. The orange tree is very much inclined to send up new and vigorous shoots from its old branches. These are usually called suckers, and regarded as usurping interlopers which should invariably be removed. Whatever my convictions regarding the treatment of young trees, I will frankly confess that I am somewhat at sea as to those in bearing. Within a half dozen years there have been orchards in my neighborhood pruned up from the bottom and others pruned down from the top by professional pruners with fantastic ideals—and exorbitant bills—and these orchards have brought diminished returns for a couple of years thereafter. Surely what pruning is necessary may be done so gradually as not to shorten the crop and defeat the prime object of the grower.

The oranges which grow in the sun, or which get sunshine a part of the day, have the best flavor and keeping qualities, but I doubt the wisdom of letting the sun shine clear through the tree, or of cutting out the top to make a goblet-shaped space in the center. In pruning the orange, as in other horticultural operations, we must keep within hailing distance of nature; and I, for one, am not hewing my trees to a single set and artificial pattern. A certain number of the strong shoots which start upward through the top of the tree just in bearing are needed for the new and larger top which the tree must put on. Unlike some deciduous trees, the orange tree seems to be ever trying to perpetuate its youth, and the wise grower will ponder long before making extensive use of the shears and the saw.

The Vineyard.

THE COULURE OF THE VINE.

Written for the Pacific Rural Press
By Prof. F. T. Bioletti.

Physiological Diseases of the Vine.—The vine is subject to certain diseases or pathological conditions which are not due to the attacks of any animal or vegetable parasite, or of which the parasite is not known. These are usually called physiological or non-parasitic diseases. Some of these are probably due to parasites which have not yet been discovered; others are due to unfavorable soil or climatic conditions, and others are merely symptoms whose dependence on known causes or parasites has not yet been demonstrated. There are a large number of these diseases, some of which are of a serious nature.

Coulure.—This is the name given to the dropping of the flowers and young fruit. When the flowers fail to set or the berries drop off without growing, it is called early coulure. If the dropping occurs later, after the berries are well formed, it is called late coulure, or, in the East, shelling. A similar trouble is the failure of the berries to develop seeds or to grow to full size. In this case, the berries may remain green or they may ripen early. This trouble is known in France as Millerandage. All forms occur in California, and are due to various causes.

Coulure Due to Imperfect Flowers.—Many varieties of American vines have imperfect flowers. The flowers of staminate varieties always fall without setting, owing to the absence of a pistil. Those of varieties with imperfect stamens do not set unless cross-pollinated. Most Vinifera varieties have perfect flowers, but a few are more or less defective, and such varieties are subject to coulure.

Coulure of Muscats.—The Muscat of Alexandria has a very strong tendency to this trouble. The cause lies in the structure of the flower, which often leads to imperfect pollinization. There are several defects in the Muscat flower which make this necessary pollination more uncertain than with most other varieties, and it is only under the most favorable conditions that the ovules are properly fertilized.

In the first place, owing to the shortness of the filament supporting the anthers, the position of the pollen is such that it may fall off without reaching the stigma, which is the part of the pistil through which the pollen tube obtains access to the ovule.

In the second place, the pollen is not powdery, as with most vines, but waxy and with a tendency to cohere in masses. This renders its distribution by wind and insects much less certain. The pollen grains are, moreover, often imperfect, and most of them are incapable of germination and of performing their function, even if they reach the stigma.

This is shown when we place the pollen grains in a weak sugar solution. Normal pollen germinates readily in such a solution, but that of Muscat of Alexandria germinates irregularly, imperfectly, or not at all. The same result occurs if the pollen is placed on the stigma of any variety of vine.

Remedies.—In regions where this variety has been grown for centuries (Asia Minor, Northern Africa, Spain) it is usual to plant other varieties having abundant and strong pollen among the Muscat vines. This practice, while not removing the trouble completely, may be of use in California. It would be well in planting a Muscat vineyard to make use of some of the varieties which have shown their ability to produce abundant and vigorous pollen. The proof of this vigor and abundance is regular setting of good crops. The pollinating varieties might be planted in neighboring blocks, or, better still, in occasional rows.

It is necessary not only that the pollinating varieties should have good pollen, but that they should blossom at the same time as the Muscat. The pollen of the Aramon x Rupestris has been used with success in the hothouses of Paris for the artificial fecundation of Muscat flowers. This is a resistant stock which produces an abundance of blossoms which are completely staminate, and therefore incapable of producing fruit themselves. Their pollen, however, is extremely vigorous, and causes the fruit of other varieties to set well. The pollen of this variety is collected, dried, and at the proper time dusted onto the Muscat blossoms. As this variety blossoms about two weeks earlier than the Muscat, however, it could not be used for cross-pollination unless the pollen were collected and applied as described, which is of course impracticable in a vineyard.

Most of the varieties cultivated in the raisin districts blossom about the same time as the Muscat, and such varieties as Palomino, Perruno, Beba and Burger, which always set their fruit well, would be suitable for the purpose.

Another peculiarity of the Muscat of Alexandria is that the stigma of the pistil is covered with a drop of liquid, which forms and falls two or three times a day, thus removing pollen grains which may have reached the stigma. A moist atmosphere is, therefore, unfavorable to the setting of Muscat.

We can control the moisture conditions to some extent by avoiding cultivation or irrigation during or just before blossoming.

The air near the ground is moister than that a little higher up, and the practice of pruning Muscats to a low, prostrate stump is unfavorable, for this and for other reasons.

Coulure Due to Excessive Vigor.—Vines which are pruned very short or heavily fertilized with nitrogenous manures are sometimes excessively vigorous but unfruitful. One reason for unfruitfulness of some varieties under these conditions is an increased tendency to produce abnormal and imperfect flowers. This tendency is temporary and to be overcome generally by changes in pruning and cultivation. Certain individual vines and certain canes, however, show this tendency more than others, and the best means of eliminating it in new vineyards is a careful selection of cuttings.

Coulure Caused by Unfavorable Weather.—A more general cause of failure to set is the occurrence of unusually cold and wet or excessively hot and dry weather. These conditions, especially the former, are unfavorable to the proper pollination of the pistil. They increase the loss on vines with defective flowers, and may cause it on any vines.

When coulure, for this or other causes, is frequent, it may be remedied to some extent by pinching the growing shoots and ringing the canes just below the bunches. Sulphuring during blossoming also appears to be beneficial.

The advice comes all the way from England, where hops are as dull as they are in this country, that hop shoots, when they have grown six or eight inches or a little more, make a most excellent green vegetable, cooked like asparagus. Many acres of hops have been grubbed in Kent and Worcestershire.

AGRICULTURAL REVIEW.

Horticultural Notes.

After a busy five weeks the strawberry season at Bend, Tehama county, is practically ended.

The Imperial valley canteloupe growers will commence shipping melons in small lots next week.

The first carload of cherries, which left Vacaville the 7th inst., sold in New York May 19 for $4144.

A few boxes of early apricots and peaches are being shipped East with cars loaded with cherries.

Cherry shipments are being made from Healdsburg to Coast points, and are bringing from 2 to 4 cents. The crop is an average yield.

The 1000 acres of land to be devoted to fruit raising, belonging to the big San Joaquin ranch near Santa Ana, is being piped for irrigation.

The Colorado Land & Irrigation Co. is a new concern, that has taken over 20,000 acres of land on the Colorado river, northwest of Needles, and will subdivide it for settlers.

The berry special run by the Southern Pacific from Watsonville to San Francisco was put on last week for the season. The train will be run at night, collecting berries along the route.

A local association of prune growers in Santa Clara county has been called to meet at San Jose May 29, for the purpose of forming a central corporation, in accordance with the plans of the Committee of Fifty.

A special train is promised by the Southern Pacific to run through the fruit districts east of Sacramento at night and take fruit picked during the day to the pre-cooling plant at Truckee to prepare it for the long desert trip.

The statement given out by the raisin committee which had charge of the Raisin Day campaign shows that $11,690 was contributed, and of this amount $7123 was expended. The balance of the money will be used to advertise raisins.

The packing house at Charter Oak, Los Angeles county, is being enlarged to 120 feet square, and will have a capacity for handling five cars of oranges per day. In that section the navel crop is all shipped, and the movement of the Valencia oranges will commence next week.

The fruit growers of Oakdale, Stanislaus county, are at work harvesting a big berry crop, and the fruit on peach trees is being thinned to keep them from breaking. The almond crop promises well. The Pea Packing Co. has already cut and canned the first of its large acreage of peas, and will soon start on the second crop.

The crop of 1908 raisins from the Kearney estate at Fresno was sold to the Rexford Packing Co. of that place last week for $45 per ton. The estate had asked packers for bids on the crop, and sold to the highest offer. This lot of raisins amounts to nearly 600 tons, and is considered the best of last year's crop left in the State.

Apricot growers in southern California report a fair crop, and as the crop in the North will be very light, they are anticipating a good price. It is reported that buyers are offering $20 per ton and upward. The Hemet deciduous fruit association, which controls about 700 tons of green cots, has already sold 150 tons at $27 per ton. The fruit will not be ripe for several weeks.

A correspondent, writing from Porterville, states that immense areas of seed beds have been planted this year in the section of the orange district, in view of the great shortage of citrus trees, it being conservatively estimated that one million roots of the sour stock are planted out. Nurseries are springing up in this section, and it is probable that in another two years the Porterville district will be producing enough new stock to make the district independent of the southern county.

A test was made at the new pre-cooling plant at Newcastle last week which proved very satisfactory. Cases of oranges and strawberries were taken from a sun exposure, having a temperature of 72 degrees, and placed in the pre-cooler, and in 1 hour and 12 minutes the temperature of the oranges was down to 44 and 50 degrees, and the berries from 40 to 42 degrees. By taking advantage of this plant growers will be able to land their fruit in the market with very little decay.

The fruit packers of Santa Clara county organized a county association last week for the avowed purpose of helping both the grower and the Eastern broker. It is stated that no attempt will be made to influence prices. One of the subjects discussed at the meeting, and which was unanimously agreed upon, was that prunes should be washed after dipping, which will prevent fermentation. The officers selected were: F. A. Schneider, president; Ed Haven, vice-president. Executive committee: H. E. Losse, Geo. N. Herbert, Ed Haven.

The Walnut Crop.

J. B. Neff of Anaheim, while in the PACIFIC RURAL PRESS office this week, discussed the walnut question with us, and as Mr. Neff is perhaps the best posted walnut grower in the South, his opinions are of value. He stated that all of last year's crop had been marketed, and that owing to the blight the coming crop would be about 25% short of that of last year, which was nearly 900 cars. The prospects were that the price this fall would be about 12 cents for No. 1 nuts. The recent effort to establish a marketing organization has failed, and the crop will be handled in the same way as during several years past. Mr. Neff has during the past two years grafted over a lot of his trees to blight-resistant stock, and feels that so far the experiment has been very successful.

Northern Fruit Conditions.

From the bulletin recently issued by the California Fruit Exchange it appears that the fruit crop in the Sacramento valley will be fair in quantity and good in quality. In the Sacramento River district pears will be about 40% of a crop, quality good. Plums and prunes about 40%. In Placer county the early cherries are marketed, later varieties will make an average crop, quality good. Peaches will be a light crop, especially clings. Plums and prunes will be a light crop in most varieties. Pears about 30%. In San Joaquin county plums and prunes are good, apples fair, peaches light. In Yolo county apricots will be about one-fourth of a crop, pears good, peaches light, plums and prunes about 20%. Grapes in all districts promise a heavy yield. In Yolo county it is stated that there are from 15,000 to 18,000 tons of 1908 crop of raisins on hand. Orchardists around Anderson, Shasta county, expect to harvest the best crop of peaches, pears, and prunes there for years. Prices will be good.

General Agriculture.

Crops growing in San Luis Obispo county promise a fair yeld. The cool, cloudy weather has helped in bringing them to maturity.

Heber, Imperial county, is becoming a heavy hay shipping point. One firm has ordered two cars a day for the next 30 days, for hay shipments to Coast points.

The beet crop around Woodland is stated to be very large this season. A few of the fields have been irrigated, showing a very noticeable advantage over those not irrigated.

The last of the big ranches near Modesto is to be subdivided and sold to settlers. The Clark ranch of 855 acres, adjoining that town, is to be placed upon the market at once.

L. H. Morse, of the Morse Seed Co. of San Francisco, was looking over the country between Santa Rosa and Healdsburg, with a view, it is stated, of buying from 800 to 1000 acres of land, to be used as a seed farm.

Last Saturday President Taft issued a proclamation opening up for settlement and entry about 440,000 acres of land in the Flathead (Montana), 200,000 in the Coeur d'Alene (Idaho), and over 50,000 in the Spokane (Washington) reservations.

A big crop of alfalfa and grain hay will be harvested in the country about

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8 Baskets per Tree. Rate, 10 Tons per Acre. Increase, 6¼ Tons of Peaches per Acre.

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5 Baskets per Tree. Rate, 6¼ Tons per Acre. Increase, 2½ Tons of Peaches per Acre.

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Potash is Profit
as you will be convinced is the case, by adding enough Sulfate of Potash to your commercial fertilizer to make the Potash run 10 to 15 per cent. Every 2 lbs. Sulfate of Potash added to 100 lbs. of fertilizer increases the **Potash** by 1 per cent.

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It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

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who have used our goods once, will always come to us for their fertilizers. We are making a special study of plant life and are therefore in a position to manufacture fertilizers that exactly meet the requirements of each plant. Let us know what you intend to plant, and we will name your special compositions. Write for our new booklet "The Farmers Friend," for 1909.

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For DUST SPRAY Use

VIGORITE BRAND HYDRATED LIME

MANUFACTURED BY

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Henleyville, in Tehama county. The grain crop will be light in that county, though some good fields are found along the river. Hay is being contracted for at the rate of $8 per ton for alfalfa.

Tulare county claims to have the largest sugar beet field in the world this year. The big field contains 1700 acres, and lies alongside the S. P. railway between Tulare and Goshen. Both the Visalia and Corcoran sugar beet factories will be operated this year, and expect to manufacture between 100,000 and 150,000 bags of sugar, as against a production of 43,000 bags last year.

The final payments were made last week to the members of the Orange County Celery Association for shipments of the 1908-09 season. This association shipped 1422 cars, receiving above all expenses $449,814, making an average of 25 cents per dozen bunches for all grades. One hundred and fifty cars were shipped by outside parties, which brought the total celery receipts to growers in that county up to $500,000. The season was perhaps the best, in prices realized, in the history of the industry in Orange county.

The high price of corn has been the cause of Missouri farmers doubling their acreage of the cereal this season. At 70c. per bushel farmers will grow rich.

Live Stock and Dairy.

The contract for erecting the Brawley creamery has been let, the plant to be ready for business August 1.

The Tulare Co-Operative Creamery Co. has purchased the Visalia Creamery and will conduct its business hereafter.

The Farmers Cattle Co. of Corcoran is preparing to build two silos there, to hold the beet pulp contracted from the sugar factory.

A. C. Harper, former mayor of Los Angeles, is starting a dairy farm at Corcoran. Last week he received a carload of dairy cows.

About 400 head of fat cattle were shipped from San Luis Obispo county last week to San Francisco. Another large shipment will be made about June 1.

Advices from Cloverdale state that wool sold for 25½ cents for choice clips there last week. Most of the wool sold for 25 cents, and some went as low as 22 cents.

Oregon dealers claim to have handled over 500,000 pounds of mohair this year. The building of large mills to handle mohair at Portland will doubtless stimulate the industry in that State.

Many dairy cows from the Coast sections have been taken into the Imperial valley during the past three months, it being estimated that the valley dairy interests have gained one-third this spring.

The J. H. Henry ranch, near Morgan Hill, probably the finest stock and dairy place in the State, consisting of 4000 acres, was sold last week to the Capitolo Investment Co. for $110,000, which includes live stock and personal property.

The Farmers' Cattle Company has nearly completed their silos at Corcoran for beet pulp from the sugar factory. Beet pulp is said to be valuable as a food for cattle, and when properly prepared in silo will keep fresh for several months.

The Mutual Dairy Association, composed of nearly 400 dairymen, mostly in Los Angeles and Orange counties, is now marketing the milk, cream and butter of its members in Los Angeles. This association's product was formerly handled by the Los Angeles Creamery Company.

The Western Creameries Co. of San Francisco has purchased the Colusa Butter Co.'s plant and has placed M. A. Sickles in charge. It is announced that the creamery output will be largely increased. This company has also purchased the creamery at Meridan and consolidated it with the plant at Colusa. The creamery at Meridan will be operated as a skimming station.

Miscellaneous.

M. K. Serailian is trying to interest the people of Hanford to join him in organizing a $25,000 stock company to erect a grape juice factory there.

Imperial valley farmers are called to meet at El Centro, May 29, to organize a co-operative association, with the idea of bettering marketing conditions.

The Porterville Enterprise states that 15 well-drilling outfits are kept busy near there, drilling holes for irrigation purposes. Last year one firm placed over 100 pumping plants in that section.

A new $1,000,000 sugar factory is to be built at San Jacinto, Riverside county. It is stated that the company which will build the factory has secured 6000 acres of land near there on which to raise beets.

The petition of water-users of the South Yuba Water Co. for lower rates will be heard by the Placer county supervisors on Monday, June 14. The petitioners are fruit men residing between Newcastle and Rocklin.

The beautiful Roeding Park at Fresno has been further embellished this spring by having $3600 worth of ornamental plants and trees set out in it. All of the plants were donated by Geo. C. Roeding of the Fancher Creek Nurseries.

A public market house is to be built at Los Angeles this summer, which will represent an investment of $1,500,000; $500,000 is to be put into a new building and the balance will represent the land. The old city market building has been outgrown.

The work of completing the sugar factory at Santa Ana is being rushed, that the thousands of acres of beets around there may be worked up this season. Steam will be turned into the pipes next week to make the first test of the machinery.

Property owners on Russian river, from Alexander valley to the Wiederskeim ranch, a distance of eight miles, will petition the supervisors to form a "Stormwater district" under the act passed by the recent legislature. The act provides for the assessment of property for such improvements.

The Kings County Raisin & Fruit Co., a company composed of 20 growers, recently organized, has ordered machinery and will fit up the Downing grape-packing house at Armona. The plant will have a capacity of 10 tons per hour, and the company expects to handle 2000 tons of grapes during the coming season.

The government nursery at Lytle Creek, near San Bernardino, has received a large lot of conifer seeds, which will be planted at once. The State is preparing to aid the forestry work, and the new law providing for a forestry board in each county is expected to help very much. The appointment of the board will be made by the county supervisors, the chief county forester being given full police powers.

THE CHEROKEE ROSE.

And so it seems that this rose should never have been considered indigenous nor given a name of American aborigines. Mr. Falkner of the Rural New Yorker says: "Mystery and confusion that has finally been cleared long obscured the origin of the Cherokee rose, a vigorous climbing species with strong, hooked prickles and large single white blooms, that has been naturalized for more than a century in the Southern Atlantic States and adjacent Bahama islands. It was first botanically described in 1803 under the name of Rosa laevigata and was then considered native to Georgia, but it has since been ascertained that the real home of this most interesting species is China, though it is rarely found growing wild in that country. It is scarcely hardy north of the Carolinas, but is highly decorative where it succeeds, and in some parts of California it does admirably."

FLORAL DAY CELEBRATED AT GEYSERVILLE.

The Geyserville Grange gave a very pleasant entertainment on the evening of Saturday, May 15, in Woodmen's Hall. A charming representation of Flora's Court was given, Miss Edna Metzger taking the part of the fair goddess, her dignity being well supported by four maids of honor and twelve fairylike little girls, who with their wreaths performed many graceful evolutions, under the able direction of Miss Mabel Metzger.

A paper was read by Mrs. Wilcox, on the culture of flowers.

Mrs. Grace Hurwood also gave a paper. Mr. Mansell, of the University of California, gave the address of the evening, on "The Modern Care of the Plant."

The music throughout the evening was excellent. A taking song was given and much applauded, and the duet by Mrs. B. M. and Miss M. Metzger was generally commented on as being especially fine.

The Master of the Grange, Mr. J. Metzger, presided over the entertainment, which was appreciated by a large audience. Dancing was enjoyed by the young people at the close of the exercises.

WOMEN GARDENERS.

The women gardeners of England are doing a great work in their country. For the most part they are young women of good social position, who have taken up with their vocation because it is more attractive to them than other callings that are open to the English woman, and because, also, it is fairly remunerative, whether they work for others or operate on their own account.

Many of them are employed on large estates, where they hold the important and responsible posts of head garneders; others are specialists, having charge of certain branches of the agricultural work which their employers carry on. A great many of the women, however, are in business for themselves, operating on lands which they own or control under lease. But whether these women gardeners work for others or on their own account, they are able to apply to their operations the scientific methods with which they have become acquainted in some one of the schools and colleges of England which undertake to prepare women for the proper discharge of the duties of farmer and gardener.

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CALIFORNIA HORTICULTURE, The Fruit Grower's Guide, fully illustrated, describes 2000 different varieties of trees and plants. Contains valuable information. Sent postpaid for 25 cents in stamps.

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SPRING SPRAY

for fruit trees, ornamental trees, vegetables, nursery stock, garden plants, hot house plants, berry bushes, hops, vines.

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contains petroleum oils and makes immediate and permanent emulsion with water. No oil separates on standing.

EFFICIENT FOR

Scales — All kinds
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RED SPIDER CATERPILLARS CANKERWORM

Sold in bbls., 10 gal. cases, 1 gal. cans and qt. cans. Diluted to 25, 30, 40 or 50.

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Fruit Marketing.

A PROBLEM IN FRUIT FINANCE.

A marked change in the handling of California canned and cured fruits is claimed by Mr. E. F. Adams in his writings for the San Francisco Chronicle, in this way: Twenty, and even ten, years ago it was the custom of jobbing grocers throughout the country to contract, during June and July, for very large quantities of these fruits, to be delivered when ready. With these contract prices as a basis the travelers of all these houses, who would be starting on their longest trips for the fall trade as early as August, would take orders for enormous quantities of these fruits, which to a great extent were contracted even by retailers before the later fruits were off the drying trays. The packers on this Coast protected themselves by outright contracts, or more largely by advances to growers, or sold what they had not bought, relying on their judgment of being able to buy at a profit. There was a great deal of complaint among growers that the market was "manipulated" by "short sales," but the goods moved in prodigious quantities, and it was very rarely indeed that growers who held for a better price did not lose by it. The same condition prevailed in the canned goods trade. The packed goods were sold before nearly all the fruit was purchased. Under those conditions it was easy to do business. Packers could borrow reasonable sums from their local banks to start business, and as fast as the goods were ready could ship them on orders on their books, make a sight draft against the shipment, which their banks would cash, and the money was ready for more growers.

The result of all this was that before the end of November in each year ownership of the great majority of our dried and canned fruit had passed into Eastern and European hands and been paid for. The goods were carried until they reached the consumer by Eastern capital. What was not sold early was easily carried by local capital until sold out during the winter and spring. All that has changed. Eastern buyers now refuse to order in large quantities for future delivery. Not having bought heavily, they do not push sales to retailers, and the fruit does not sell. In dried fruits this change has been gradually taking place for some years, and the beginning was doubtless in the efforts of our fruit growers to co-operate, not in a non-speculative, businesslike way, but for the purpose of cornering the market and holding for higher prices. Year after year we have seen this effort in raisins and other dried fruits. Almost never were these efforts successful. There was always outside underselling quite sufficient to supply the demand for goods which jobbers were pushing less and less every year, because less and less every year could they know what they would have to pay with any assurance that they would not be undersold by competitors. In the case of dried fruits there has not been a staple market price for years. In canned goods, of course, there has been fair stability.

But the panic of 1907 completely knocked the bottom out of the market for sales for future delivery. The crash caught all dealers with great stocks of California fruits which, if sold at all, must be sold at a heavy loss. In that year the prevailing speculative fever had extended to all dried fruits; all growers who were so foolish as to refuse exorbitant prices in the hope of getting those still more exorbitant had sold or contracted, and in time they got their money. The losses to all classes of middlemen were enormous. Some failed. Many more were crippled. All with one accord are saying now that they will buy California fruits as their trade calls for them, and no faster. Consequently, for the present year at least, our dried fruits, raisins and canned fruits must for the most part be carried until demanded for consumption by our local packers, banks, and the growers themselves.

THE PRUNE PROBLEM.

To the Editor: The story of the prune industry in Santa Clara county and the efforts of the Committee of Fifty to improve the conditions surrounding the industry are as follows:

The prune orchards of this county cover about 50,000 acres and contain nearly 4,500,000 trees. The fruit produced is the finest in the world. This great industry, representing investments of millions of dollars, is in a deplorable condition owing, it is said, to a lack of organization and intelligent action on the part of the prune growers.

With the hope of bringing about a change for the better fifty prominent fruitgrowers of this county were assembled in the rooms of the Chamber of Commerce in the city of San Jose on the 16th of last March. These gentlemen were called together for the purpose of formulating a plan for the organization of the fruitgrowers of this county, tne purpose being to place the fruit industry upon a safe and profitable basis.

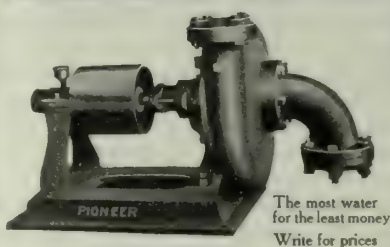
A committee of five was selected by the Committee of Fifty, and these gentlemen were instructed to make a thorough investigation of the conditions surrounding the fruit industry and to present a plan for organization. The plan, after receiving the endorsement of the Committee of Fifty, was submitted at a mass-meeting of fruit growers held in the Empire theater on the 3rd of April. The general idea presented in that plan, and which received the unanimous endorsement of the meeting, was to have a contract signed by at least 75 per cent of the growers of the county. It was also understood that an advertising fund should be created and used for the purpose of establishing new markets and increasing the consumption of prunes. Notwithstanding the endorsement of the plan by the growers at the mass-meeting, it became apparent almost immedately that there was no possibility of securing the signatures of 75 per cent of the growers to any sort of contract involving the pooling or concentration of the prunes.

The committee then proceeded under the general plan of organization in operation among the orange growers and walnut growers of California, which means simply local organization of growers who pool their fruits and dispose of them through a central selling agency. In this case the central agency would be composed of delegates from the various organizations throughout the county and would not only serve as a selling agency, but would also act as a bureau of information through which the fruitgrowers could keep in touch with fruit conditions throughout the world, and also receive information through the various experiment stations and Government bulletins relating to everything pertaining to soils, orchards, insect pests, etc. In other words, everything that the fruitgrower should know relating to his orchard would come to him through the bureau of information conducted by the central agency.

Arrangements can be made for the packing and marketing of the growers' products. These arrangements are such that it is reasonably safe to assert that every pound of prunes now growing in Santa Clara county can be placed during the coming season at prices that should be entirely satisfactory to the growers. All of this means that the result of the deliberations of the Committee of Fifty is the presentation of a very simple business proposition to the fruitgrowers of this county. I shall be glad to explain matters in detail to any fruitgrower who will call on me at the rooms of the Chamber of Commerce, 40 North First street, San Jose, between 9 a. m. and 4:30 p. m.

H. A. De Lacy.

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NOTICE TO STOCKHOLDERS.

Notice is hereby given that the Annual Meeting of the Stockholders of the Grangers' Business Association, (a corporation) for the election of Officers to serve for the ensuing year and for the transaction of such business as may come before it, will be held at its principal place of business at the Merchants Exchange Building, No. 431 California Street, San Francisco, State of California, at 10 o'clock A. M., on Tuesday, June 8, 1909.

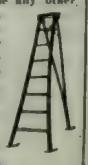
A. D. LOGAN, President,
R. H. CHILDS, Secretary.

Dated, May 28, 1909.

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Gallon can, 85 cents; 5 gallon can, $3.75. Prices f. o. b. Los Angeles, but if not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Satisfaction guaranteed or money back.
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We have positively demonstrated that WE CAN CURE THIS DISEASE.
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Is known to be the lightest and strongest made. A ten-foot ladder weighs 30 lbs. We have been making these ladders since 1895. All fruit growers like them. Many of the big office buildings in San Francisco will not use any other. We make them with three or four legs as preferred. We keep in stock Fruit Ladders 6, 8, 10 and 12 ft. and House Ladders 4, 5, 6, 7, 8 and 10 ft. We make longer Fruit Ladders up to 24 ft. at short notice. Our House Ladders are made with a safety lock to prevent the legs from spreading. We will ship one or more to any S. P. R. R. station in California and prepay freight on receipt of price, 30 cents a foot.

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Live Stock and Dairy.

A MODEL HOLSTEIN DAIRY.

Written for the PACIFIC RURAL PRESS
By A. J. LLOYD.

In order to observe Holstein dairy cows under the most favorable feed and dairy conditions, a visit was paid to the D. O. Mills dairy at Millbrae, under the management of Mr. J. C. Robb. This is one of the oldest dairies in the State, and admittedly unsurpassed in methods and equipment. The herd has hitherto been composed of pure-bred Holsteins, and for the past few years the Durham cross is being introduced. The management has still a marked liking for the Holstein, and has not yet demonstrated that the Durham infusion produces a superior milk animal, although possibly one with a larger proportionate percentage of butter-fat.

The Holstein has a very much longer period of lactation than other breeds, and nearly twice as long as the common average California cow. They have also the hereditary quality to a marked degree of imparting their milking characteristics very surely to their offspring.

While the Jersey leads in percentage of fat in milk, the Bulletin of the U. S. Department of Agriculture shows that the Holstein-Friesian cows head the list in quantity of fat actually produced, which amounts to a daily average of 1.61 pounds, because of their large yield of milk.

The smaller proportion of fat makes the Holstein's milk preferable as a diet for infants, and its use for this purpose is strongly advocated, it being found to correspond in proportions and assimilative qualities most nearly with the baby's natural sustenance. Milk having a very large proportion of butter-fat compared with the other solids of course permits of dilution with water when above ordinance requirement. The latter being aimed only at the amount of butter-fat, would thus seemingly permit of the admission of water, although milk so watered down to standard is of course more or less deteriorated in its other solids. The San Francisco ordinance calls for a percentage of 3.4 butter-fat. There are individual Holsteins in the Millbrae dairy herd that attain as high as 4 per cent, but 3.3 is considered the Holstein average. In any event it is presumable that, if necessary, cream can be added. It would certainly be an unobjectionable "adulteration," comparatively unknown to ordinary milk vendors, and certainly preferable to the dilution of very rich milk by adding of water. The fact that the Holstein milk is preferable for cheese proves a large proportion of solids.

The quality of imparting hereditary strain to offspring is a valuable trait in any good breed, for in selecting dairy cows it should be remembered that each individual cow has her own certain composition of milk, as surely defined as the grain of the flesh or any other constitutional feature. You can increase the quantity, but cannot vary in any degree the quality, beyond the animal's natural standard.

Every breed has its ardent advocates, and the Holstein has deservedly grown in favor. It is a large, bony animal, vigorous, and a large feeder, with an assimilative capacity that gives good account in milk for every pound of fodder. They have the Dutch repose of character and attend strictly to the business of turning fodder into milk, without being easily disturbed or distracted. This equanimity of disposition is an excellent dairy quality.

The thoroughbreds of the Millbrae dairy ranch are registered in the books of the Holstein-Friesian Association at Brattleboro, Vermont, and contain many illustrious pedigrees. One of the sires of the herd is a grandson of Sarcastic Lad, winner of the world's prize at the St. Louis Exposition. Another is a grandson of Hengerfeldt-Dekol, considered the best dairy bull in California.

Last year a band of heifers was sold from this ranch to a Japan dairy company which had been selecting the choicest Holstein stock. These heifers sold for $100 each. Milk sells for 20 yet or $2 a gallon in Japan, so that such money is well invested.

Along with the present pasture feed at this season there is fed 5 pounds of bran and middlings, with a liberal allowance of green barley hay. In winter 17 pounds of hay and 8 to 9 pounds of mill feed is the ration.

The 340 cows are milked in 12 strings radiating like wheel spokes from the central milk room, which is very completely equipped with the most approved appliances and has a concrete floor.

When weighed the milk is deposited in an enameled vat, which is kept inverted when empty. After each milking this vat is rinsed with cold water and then steamed with hot soda water. The milk is forced through a prepared cloth filter. It then passes through coolers into the great receiving vat below containing 400 gallons, everything being protected with screens. From this vat it is run off into cans for shipping.

Each cow is milked in a separate roomy stall, which is considered preferable to stanchions, as the animals cannot interfere with each other's food supply.

After every milking the floors of the strings are swept carefully and then covered with gypsum, which is a ready absorbent, so that no suggestion of the barnyard is detectable by sight or scent.

Altogether, this dairy is unsurpassed in the State for thorough equipment and sanitary methods.

BIG MARES FOR LARGE MULES.

A writer in the Breeders' Gazette believes in breeding larger mares simply to serve as mothers for large mules. He says:

If our reasoning is sound and the experience and observation of mule and horse breeders are trustworthy in an economic study on which they directly bear, it would pay the generality of farmers in the mulebelt to add to the stature of their farm mares with the special object of breeding larger and better mules. One cross of draft horse blood would effect the needed improvement. Bred to draft stallions of standard size native mares would produce capital types from which to breed 15 to 16-hand mules. A second cross of draft blood in some cases might be used in the interest of an extra big type of mule, but in the majority of instances the initial cross would suffice. It is obvious therefore that in founding a big-mule industry on a secure commercial basis the draft stallion must precede the mammoth jack. Importers and breeders of draft stallions are coming to appreciate the Middle South as a market for their horses, as attested by their annual exhibits at the Fort Worth show. Their gradually expanding trade among farmers occupying the southern border of the corn belt and the northern fringe of the cotton belt indicate that the two interests are getting together with larger and better mules as the ultimate object.

Mule mares need not be of standard draft size. If a mare is big enough to classify as a drafter she would probably be more profitable as a producer of draft geldings than of draft mules, although where mule raising is largely followed this might be debatable. It does not appear advisable to raise the native equine stocks to draft stature for the purpose of breeding heavier mules, but larger mares than the average found in mule-breeding districts in the border States are essential to the founding of the industry. Our present stocks of big mules represent one or two crosses of draft blood in their maternal ancestry. Drafty mares rather than draft mares are the sort from which $200 to $300 mules can be bred. Draft mules have all the economic virtues of the smaller hybrids and in addition possess that higher degree of propelling force which comes from greater weight. Their superior pulling power places them decidedly ahead of their lighter kin in drawing wagon or plow, giving them a wider range of usefulness and multiplying their economic efficiency. They do not lose any of the mule's proverbial toughness through the helpful dash of draft horse blood. Experience shows that added size is secured without any sacrifice of the leathery constitution and welcome tenacity which mark the best types of the native small mule. Weight is a valuable factor in power animals, and so long as it harmonizes with the frame it is desirable up to a high point in both horses and mules. A mule that is heavy because he is big is more valuable for motive power than one that is heavy because he is fat. Small fat mules are less efficient than big thin mules of equal aggregate weight. Fatten the big thin mule and his draft power is increased, so that his power possibilities compared with those of his smaller relative are always materially greater.

Farmers who breed mules agree that they are easier and cheaper to raise than horses. It is also declared by experienced men that the cost of maintenance favors the mule as against the horse. Still another advantage is claimed in the comparative freedom of the mule from many of the ills to which the horse is heir. Considered on the basis of cost of raising and

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SHEEP AND GOATS.

R. H. CRANE, Santa Rosa, Cal. Breeder and Importer of South Down Sheep.

current values for big well-broken mules hundreds of farmers who are raising small mules would find the draft type the most profitable live stock that they can produce.

Several thousand farmers have suitable natural conditions under which to raise draft mules at substantial profits. Strong markets await their offerings. Draft stallions with which to establish the right type of mule-mares are available at moderate prices, and there are plenty of jacks to complete the evolution of the big mule.

For big mules an active and increasing demand exists in the Middle South, especially in the border States of Missouri, Kentucky, Tennessee and Virginia. Oklahoma and parts of Texas also may be classified in an extensive belt in which big mules are wanted, and the southern section of Illinois, Indiana and Ohio represent an exceedingly friendly territory for these hybrids. Other regions further north harbor a growing request for farm mules of size and quality, so that altogether the present outlet for this class of live stock is larger and more inviting than it ever before has been. Last week mules 15 to 16 hands high sold in St. Louis at $125 to $275, in Kansas City from $125 to $225 and in Fort Worth from $170 to $200. Spans 15½ to 16 hands high and weighing 1400 to 1500 pounds are selling readily at from $500 to $700 in various parts of the country comprehended in the mule-belt. Draft mules are scarce and the demand far exceeds the supply.

A GOAT AND A POET.

There resides in a somewhat remote part of Sonoma county Mr. Geo. Ray Batt, who writes from Annapolis to the Oregon Agriculturist a pean of praise for California and for the goat, which is delightful to read. It was evidently written last winter, as is shown by its moist character. He says:

I am never going to knock my glorious California, and if she has her trying seasons, it is not half so bad as it is somewhere over yonder. We can pass through earthquake, fire, flood and drought, and still lend a helping hand to those in distress. Now, look at this picture: Between the 1st of November and the 1st of April the heavens sent us 60 inches of real good rain. True, it kept us a whole lot in the house, but still it was profitable, as we lost quite a number of layers of unholy ignorance by being forced to read.

We wept over losing half of our kids, but found time to rejoice in that our springs would live forever at those licks. It blocked our roads with landslides and big trees, and made us prisoners for months, compelling us to live on goat milk, carrots, and rutabagas, and lo! we are growing yellow, for behold the great big 20-pound salmon that, with a little help, swam right into our frying pans. Moss-fattened game came to our doors to be in at the feast, and we could really laugh at the water-logged warden 50 miles away, and chant indoors and out, "necessity knows no law."

Well, the rain let up, and the sun came down. We pruned our orchards and vineyards, repaired two and a half miles of private road and hauled home provisions, then plowed our garden, and in so doing we had the gall to pray for a little more rain, after being blessed with 60 inches, but it did not come, so we had the pleasure of sweating for days at intensive cultivation on that acre of precious ground. Then we were very thankful that we had plenty of water to soak the seed before planting.

Now, sir, many will not believe this about our soil. If that seed grows we will have a fine garden, although it never feels a drop of rain. I shall hoe it at first, and then cultivate it with the horse once a week as long as I can, and there you are. Further, we regret to see the grass drying up, hay promising only half a crop, and orchards and vineyards unplowed, but I dance a jig when I look up at those 1200 fruit trees all loaded with fruit. My swine are seeking the yard gate for fallen fruit a little too soon. The cows low for green feed a month before time. This is severely trying.

Leaving these scenes, let us step over to the Angora goat yards. Then joy wells up in my heart as the sleek band goes contentedly to the evergreen mountain to everlasting feed. I sing aloud, "I fear now no starvation."

A GOOD WORD FOR THE BRONCHO.

Mr. O. E. Daniels writes from South Dakota of the broncho to the Rural New Yorker. His words are an equine education at the East and are acceptable even where everyone already knows from experience how true they are:

"He is a broncho; I do not want him."

"How do you know he is a broncho?"

"Don't you see that brand?"

That settles it. Brand and broncho mean everything that is mean and despicable in a horse to an Eastern man who does not know the range horse. No matter how fresh an egg is, throw it at a man and it is rotten. Brand the truest and tried old family horse, and he is a broncho. Suppose you and five or ten of your neighbors have from one to 500 horses each, all running together in a township or county. How are you going to tell them apart? You may think you can without a brand, but you cannot, and you must decrease their value from 10 to 25 per cent by putting a brand on them. Is it right for you to insist that a brand ruins a horse's character? A range horse is born and raised out in the open air. Nine-tenths of them never were in a barn or were fed even hay until some one wanted to work them, and many of the brood mares have died of old age and always rustled for themselves; never have known the use of halter or barn. Is it any wonder they fight for their liberties? They have had to fight for existence, and if you fight them they are true Americans, and are apt to fight back, but with a person who understands them they are easier trained or broken than your farm-raised horses. You know just what to expect of a range horse. Of a farm-raised one you do not.

For the last eight years we have had nothing but range horses, not one of them afraid of the cars, automobiles, or anything of the kind. If a tumble-weed blows under them while traveling along the road they step over it as they would a snow drift, and not change the point of their ears. In all this country I do not know of a blind, balky, runaway or kicking range horse. They do not know any better than to pull. I have a team that never weighed 1800, the two of them, and I have hauled 2800 of millet hay off the stubble ground out of the windrow.

All stallions are turned out on the range. Each of them chooses his band and herds them as well as a person can. If one gets too far away you will see him start after her, first walk, then trot, then run, and lay back his ears; then she will start for the bunch. They will seldom let a strange one come into the band, and to try to take one out is sometimes very dangerous, as the stallion will often fight. If two riders find one they want they get on the opposite side from the way they want the horse to go, put spurs to their horses, give an unearthly yell, and away they go, sometimes for to five miles without slacking up. What would your farm-raised horse be at that time?. They never step in a hole if it can be seen. How can they do this? They are raised in the pure air, on pure food, and are never pampered or overfed. They will live on the prairies with 16 inches of snow on the ground, and many of them come out hog-fat in the spring. Because one man has an even good-natured temper it is no sign they are all that way. A horse is no better than a man. If some of them do know more than some men, the horse should not be blamed for it, and it is often true.

If you do not believe it come here and try to rope a cow or horse. You cannot be mean to them and have them gentle and kind. When I was a boy we lived 11 miles from the county seat, and we always took an early start to make the trip in good time. Here we are 18 miles from market, and we do not get up any earlier to make the trip than we used to to make the 11-mile trip. Three hours is plenty each way, but it oftener takes but 2½ hours, which would be ruinous to the horses on the old farm.

THE UNIVERSITY CAN SELL DAIRY PRODUCTS.

Concerning this matter, which was presented at some length in our last issue, Judge Wood of Amador county, sitting for Judge Waste last week in Oakland, overruled a demurrer to the complaint of the Berkeley dairymen against the University of California, but he denied the milkmen's petition for a temporary restraining order. The decision is far reaching, in that it sustains to a certain degree the contentions of the university.

According to the allegations of the Berkeley dairymen, the dairy farm, being in receipt of financial support from the State, is in a position to undersell the regular dairymen some 3 cents and 4 cents on the quart of milk. This, it was argued, is doing the milkmen a grave injustice.

Their complaint asked that a temporary injunction, restraining the authorities of the dairy farm from selling milk, be granted pending the hearing of an application for a permanent injunction. A request was also made for $500 damages for injury already sustained to their business.

Judge Wood declared that inasmuch as the disposition of milk was only a secondary consideration of the university, he did not believe the dairymen were within the truth when they characterized the institution as "a subsidized dairy."

Though ten days were granted in which to amend the demurrer, it is believed that the decision forecasts the ultimate disposition of the case. The ruling passes upon the vital portions of the complaint and defines the attitude of the court toward them.

EXPERIMENTS WITH FEEDING CACTUS.

The many who are thinking about smooth cactus and cactus made smooth by burning, will be interested in an outline of experiments with these fodders by Mr. David Griffith of the U. S. Department of Agriculture at the last meeting of the Texas Dairymens' Association, as follows:

It is not necessary to tell the average Texan about the use of prickly pear as an emergency feed. You all know that well enough. You have been feeding it here since the time of the war, and earlier; anad across the border they have been feeding it from before the time of Cortez.

I think it was in 1894 a gentleman from Colorado sent in a very interesting letter to the department, talking about the cone

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cactus of Colorado. This, together with a great deal of correspondence from southern Texas, interested some of the department people, and I was asked to look up the matter in southern Texas.

I gathered considerable information as to the feeding. We started some experiments at San Antonio. Our objects at first were rather to determine the value of the materials as it grows native. At the same time we started, what was considered by the majority of the people, a huge joke. One man said laughingly: "Why, Griffith is cultivating cactus down there in southern Texas. Those people want to get rid of it." We began to test it and measure up the yield, and, under thorough cultivation, we were able to secure on the soils in the vicinity of San Antonio a yield of 2 7tons per acre per year of prickly pear. That means roughage for one cow on one acre of ground. Point out to me regions in the United States that produce roughage for one cow on an acre, and I will show you land worth $100 an acre, and you will show me some of the best farming regions in the United States. Few regions produce this. I heard a gentleman, Prof. Spillman, who is probably better posted on feed production, estimate that on a 30-acre farm, the most that a man could expect under ordinary good farming conditions was to furnish roughage, pasture and hay for about 13 or 14 cows. If we can furnish sufficient roughage on one acre for one cow, we are doing pretty well under Texas conditions. We are comparing very favorably with good farming sections of the United States.

A Dairy Test.—We have conducted several experiments, and I wish to detail the results in a very brief way. I shall simply touch the high points. The first experiment that we concluded was one on feeding prickly pear to dairy cattle, and that was conducted by a farmer member of this association, Mr. A. Sinclair of San Antonio. He was using native pear as it grows. We did this: We put two cows, an average of his 100-cow herd, in a small tract with a shed, where they were fed. We weighed everything that they ate, and weighed and tested their product. We fed to these cows the regular concentrated ration that was being fed the general herd, which was cotton seed meal and rice bran. We fed prickly pear for a period as the only roughage, and sorghum hay another period as the only roughage. We got from the experiment figures running something lige this: The cattle ate approximately 140 pounds of prickly pear a day each. They ate from 8 to 12 pounds of rice bran, and I think it was 3 pounds of cotton seed meal. We got a yield from that ration, and then the same ration was fed with prickly pear, and for another period with sorghum hay. That was the only change in the roughage. We got a yield of 1¾ pounds of butter on an average per day. The ration cost us 1-3.05 cents per day. Being on a ranch, we did not have an opportunity to weigh the cattle, and were obliged to judge on that point, but it was the universal opinion that the cattle were in better shape at the close of the 120-day period than at the beginning. One cow was for 40 days on a pure ration of prickly pear, and thrived, did well and kept up her milk flow. As a comparison between sorghum and prickly pear, we nad a little better result with prickly pear than with sorghum hay.

A Beef Test.—The next experiment was under the supervision of Mr. Tom Coleman of Encinal, Texas. He fed for us a carload of steers, under controlled conditions, and these conditions were controlled simply enough to give us the data. The steers were put on a small tract—about four acres. They were fed the same ration, practically, that Mr. Coleman had been feeding for years and that others have been feeding in that region. Beginning with a couple of pounds of cotton seed meal, and running toward five or six toward the end. The prickly pear they were fed was hauled in and chopped up and fed in a trough, the cotton seed meal being sprinkled on the pear. We got from that experiment a gain of 1¾ pounds per, on an average of 105 days period, at a cost of 3½ cents per pound. The cattle shipped as well as the average shipments which have been made from the ranch.

Food Value of Cactus.—The composition of a feed is one thing, commonly all that is taken into a cow, but it is not the whole story. We must know how much of the feed is digestible, and that we have determined by conducting different digestible experiments. These were conducted by Prof. Hare of the Agricultural College of New Mexico. Some were conducted at San Antonio and some at the college. Prickly pear is low in nutritive value from a chemical standpoint. They will give you a ratio of 1 to 18. I believe the common feeding ratio as recommended by the majority of feeders is about 1 to 5, or 1 to 6, consequently the ratio is too weak on the carbo-hydrates and the nutritious substances. However, that does not prove that it is not valuable by a long ways. I know good results are secured by feeding beet pulp, which is 95 per cent water, while this feed contains about 12 per cent of organic matter. There is no better beef and mutton produced in the world than is produced on the British Isle on turnips. The results we have secured, it seems, too, justify us in the conclusion that this substance can be fed, and fed with profit.

Planting Cactus.—There are unlimited areas in southern Texas where it grows spontaneously. In the vicinity of San Antonio you will find prickly pear within eight miles of the city. There would be more of the prickly pear fed could it be secured; the question is, how can it be secured? We have striven to answer that question by conducting experiments on its cultivation and production. We have produced, as I stated to you before, 22 4-5 tons to the acre, an average of that for three years. How did we do it? We have broken the raw prairie, planted cuttings and cultivated as we would cultivate any other crop. We planted in this way: At first we put cuttings into the ground with a spade, which was very slow. We saw this was not practicable, so we finally adopted this plan of thoroughly preparing the ground, marking it off in six-foot rows and planting the cuttings of prickly pear with a pitchfork, the cuttings consisting of single joints. These distributed on the row on the surface of the ground will root readily. We did not open the furrow any more. We turn them in and partially cover them. We handle these with a pitchfork, as it is difficult to handle them in any other way.

Feeding Spring Cactus.—The cultivation is probably a little more than is necessary to grow corn, but after the crop is grown, it is necessary to prepare it for feed, and we have simply adopted the practice that has been in use in southern Texas since the early '90s. We take a lamp torch and burn the spines off, and feed it as it stands. When you are feeding concentrated food at the dairy you are returning more to the land than you are taking out of it. It is an easy crop to harvest and an easy crop to handle. It does not have to be protected by fences; cattle can be turned in on it at any time. The young growth that starts on in April and March cattle will refuse to eat. This is a peculiar thing. It is practically spineless, still cattle will not eat it. There is something about it which we do not know. We cannot tell why, but cattle refuse to eat it if they have plenty of feed. They will not eat the old growth at any time in the year. When we were feeding the cows at San Antonio, we had all that cold weather. There was one cold day when the prickly pear was frozen like an icicle, but they ate over 90 pounds apiece of that frozen material. They did not suffer any great inconvenience that we could see.

There are large areas in southern Texas that are being opened up to agriculture, and it is a big problem to get rid of the prickly pear on these grounds. Let me tell you what one rancher has done this winter. He had a lot of cattle and wanted to clean up some ground. Instead of going into the field and hauling off, he put some Mexicans to work with gasoline torches and singed off the spines, and then turned in his steers and let them eat the pear off. He cleaned off the land and marked off a small area for 650 beeves that he put on the top of the Fort Worth market, and got his land cleared off at the same time. I do not know of any better method than this.

While the spineless prickly pear has been known for about 150 years, it is not easy to get a stock of it. We have been growing it as fast as we could, but I have had to limit myself to three or four varieties.

DEEP SEATED ABSCESS.

I wish you would tell me what is the matter with a cow that has a swelling between her front leg and body, above the elbow joint. It is quite hard, and seems like a wedge about four inches thick, causing the leg to stand out from the body. The cow has a calf about three weeks old, and appears well otherwise.—Reader, Booneville.

A deep-seated abscess, aggravated by the depletion of blood owing to calving. Apply the following ointment and give medicine as directed:

Medicine.—Hyposulphite soda, ½ lb.; milk of sulphur, 2 oz.; pulverized nitrate of potash, 6 oz. Mix; give heaping tablespoon 3 times daily in a hot bran mash.

Ointment.—Simple cerate, 3 oz.; crystals iodine, ½ oz.; iodide potash, ½ oz. Mix, and apply to most prominent part of swelling two times daily after hot water fomentation.

Dr. Edw. J. Creely.

J. A. Onstott has purchased 116 head of cattle and a carload of hogs and placed them in his 460-acre alfalfa patch near Gridley.



PEARL MILLET.

This plant, Penicilaria spicata, which was introduced into California more than a quarter of a century ago, and is still grown to a small extent in the hottest places, seems to have made a stronger strike in Colorado, for the Farm and Field says:

We never thought very much of penicilaria as a forage crop, because of the excessive booming it received in certain seed catalogues, all of which made us suspicious as to its real utility. However, for the last three or four years a Prowers county man has been showing excellent specimens of it at the fairs, so that we are beginning to think there may be something in it after all. This so-called billion dollar grass is a warm weather plant, and is especially valuable in that it may be seeded after some other crop has failed, or a stand of alfalfa is killed out in winter. It is an annual plant, having long, broad foliage, and if allowed to develop fully will attain a height of from 10 to 12 feet, and bear numerous heads from 18 to 20 inches in length and one inch in diameter. The heads are completely covered with thousands of seeds, much relished by poultry. Numerous suckers are thrown out from each plant. If cut as soon as it reaches the height of two or three feet, penicilaria can be mowed four to six times, according to locality, and will yield several tons of hay to the acre.



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The Poultry Yard.

FEED AND FEEDING.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

The poultry keeper, especially the farmer, should arrange the time for the feeding and care of the fowls as conveniently as possible so that it may nick in with his other work. But he should have a regular time and stick to it. Any time is pretty sure to be no time. A few points, however, in connection with feeding poultry should be kept in sight:

The morning feed should be small grain and scratching foods which will keep the fowls rustling the earlier part of the forenoon. This should be supplied at night, for the fowls will be up and at it by peep o' day. Right here is where many flocks get a backset. They are kept shut up without a morsel of food until 6 or may hap 8 o'clock in the morning. At this time of the year a lively hen is getting off her perch shortly after 4 a. m. A poor reward truly for the early bird—to be shut up for 3 or 4 hours with never a chance at the worm! No surer way could be taken to check the egg-yield or to make egg-eaters and feather-pullers. Just after the fowls have settled for the night, the poultry keeper should clean the scratching shed, or a portion of the yard, and throw in a bundle of hay or of cut grass and over this scatter the grain rations for the morning; then rinse and fill the water fountains. Long before sun-up the hens will be scratching and singing and warming-up and manufacturing hen fruit. If night prowlers necessitate the closing of the trapdoor of the hennery, then the keeper must descend from his own perch at dawn of day long enough at least to open the trapdoor for his fowls. Some ingenious poultrymen have the trop connected by wire or string with their sleeping quarters. For a fact, if the poultryman wants to insure his changes for eggs and healthy growing fowls, he must get them out feeding at dawn.

For the evening feed of both young and old poultry nothing equals hard grain and tender greens. This has staying qualities and is conducive to good health and sound digestion. The mash should be fed some time between 10 a. m. and noon. It should be well dried with bran or shorts and fed in boxes which prevent waste or fouling. The following I have found better than anything for the purpose, not excepting patent hoppers, and they are certainly the most simple and inexpensive: Small shallow grocers' boxes with a slat nailed across the top. The most convenient size is some three inches, or less, deep; ten inches across and as long as may be. Nail a two-inch strip across the middle; this leaves a four-inch space on each side for the fowls to eat from, which allows plenty of room without hitting their combs and yet prevents them from getting onto the feed. For chicks, the boxes should be little more than an inch deep with the open space the same. These may be made by cutting down boxes, or by nailing a lath on each side and the ends of a four inch board and another across the middle of the top.

Practical poultry keeping has demonstrated that some hard grain should always be accessible to fowl. How to provide this without the wholesale fattening of sparrows; also how to keep the grain out of the droppings in small yards and give the yarded fowls exercise in scratching for it, is one of the poultryman's problems. A scratching shed with plenty of clean litter naturally suggests itself; but coming down to the existing order of things, how few of the coast poultry raisers have scratching sheds, and how few of the few scratching sheds are properly supplied with litter! Hay or even plain straw is too expensive to be used freely for this purpose; dry grass is not always obtainable, for almost every bit of commons is pre-empted by somebody's cow or goat. During our dry season, light, sandy soil kept clean and mellow makes good scratching material; while everything in the way of leaves, grasses, etc., should be garnered and stored for litter during the wet season. For small yards of fowls, large boxes some 18 inches deep may be partly filled with dry grass or straw and the grain kept therein. The fowls cannot scatter the litter out and one filling will last some time. In this way the grain may be kept clean and the sparrow cut out.

In the form for an egg-record given in the RURAL PRESS of May 15 the point which makes for convenience was omitted. There should be six spaces connected with each day of the week, and each space should be divided into two parts; the upper one for the date of the month corresponding with the day of the week, and the lower one for the number of eggs laid that day, thus:

	2	9	16	23	30
Sunday					

Poultry Notes.

And now they are trying to make out that the rooster is more intelligent than the hen, and therefore has a right to his crow. This is a case that should be looked into by the hen suffragists.

Entries to the poultry show of the Alaska-Yukon-Pacific Exposition close August 28, and the birds must be in Seattle September 27.

A German professor, Dr. Katter, has concluded after years of experimenting that laying qualities in fowls are more generally transmitted by the male than by the female, and this conforms with a law of nature which regulates the milk production in cattle, as discovered by agriculturists in Germany many years ago. Since when they have paid special attention to the breeding of the "milk bulls," meaning bulls bred from heavy milking cows. The professor advises: "Breed laying strain cockerels, or cockerels from the heaviest laying hens, to reproduce heavy egg-production."

Through an auction sale the editor of Farm Poultry in Boston has secured some agricultural reports of that State dating back to 1838. He finds the first mention of poultry in a report of 1847. The Franklin & Hampden Society prefaces the report on "Poultry" for 1853 by a short treatise on poultry keeping. We of the present day rather pride ourselves upon our superior knowledge of the subject, but if the general care of fowls has ever been stated in a more complete, concise and down-to-date manner by any present-day writer we have failed to see the article. This treatise, which follows, can give points to the poultry raiser of today:

"Four important requisites to success in managing fowls are: that they have ample space, thorough ventilation, perfect cleanliness and a sufficiency of good food. They probably never do so well closely confined as when allowed an extensive range. Too many individuals should not be kept together. Thirty are as many as will thrive and a less number would be better. Food should be kept constantly before them. They will not eat as much, and yet keep in better condition than when fed at intervals. Corn appears to be their favorite article of diet. A saving is made by boiling it, or by using meal mixed with potatoes, or some other vegetable and fed warm. This is very desirable in cold weather. Vegetables and fresh meat are necessary to health, and are highly conducive to the production of eggs. It is absolutely necessary to have some proper material within their reach of which to make the shell, such as old mortar, pounded oyster shells, burnt bones and coarse gravel. In selecting the kind of fowls to be kept, the particular object to be attained will somewhat vary the choice. If the flesh be sought, some of the larger kinds, or perhaps a cross of the larger and smaller, will best answer. But it is believed that at the same cost of keeping the smaller breeds will produce the greater weight of eggs. All hens will lay well if properly cared for, but there are some breeds which have a particular inclination to do so. Among these stand foremost the Bolton Grays, Poland and Spangled Hamburgs, and even the common barnyard fowl will not suffer in comparison with many of her more showy competitors. Every dooryard has a supply of the latter, which if judiciously managed, can be brought into a profitable way with but little expense; thus avoiding the necessity of paying the extravagant sums demanded for some of the new varieties."

At a fair held by this same society at Northampton September 8 and 9, 1851, a certain J. H. Wilson exhibited "White and Red Shanghaes and Dorkings, and with them submitted a statement thus reported by the committee:

"The oldest Shanghaes were hatched on the 17th of last April, and the Dorkings on the 29th of April and the 14th of July. One of the April Shanghaes commenced laying on the 29th of August, at four months and twelve days old, and laid for the first four days two eggs a day! The others began to lay at four months and fifteen days old and have laid every day since. He further mentioned a pair of his Shanghae pullets, of last year, which commenced laying October 14, 1850, and continued to the middle of June, 1851, with an interruption of only ten days, in January!"

Surely, Mr. Harker's Poultry Ananias Club was needed even at that early date. After a careful perusal of the exploits of those Shanghae pullets we may congratulate ourselves upon the fact that though we can do no better in poultry writing than those old-timers, we can do no worse in poultry lying.

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The Home Circle.

Trifles.

The griefs that fall to every share,
  The heavier sorrow that life brings,
The heart can nerve itself to bear—
  Great sorrows are half holy things.

But for the ills each hour must make,
  The cares with every day renewed,
It seems scarce worth the while to take
  Such little things with fortitude.

And he before whose wakened might
  The strongest enemies must fall,
Is overcome by foes so slight
  He scorns to hold them foes at all.

The Pie and the Sparrow.

"First get your lobster," runs an old recipe for lobster salad; so with sparrow pie: first get your sparrow. Perhaps the editor can add to his happy suggestion for making a good bird out of a bad sparrow, a further one for bagging the game. The English sparrow divines a trap by instinct, and is inclined to laugh at you and your gun; but if he finds that you can occasionally hit him he "vamoses the ranch."

Should you, however, be lucky enough to secure a few dozens of this elusive bird you will have the foundation for a delicious pie. In preparing, the birds should be picked dry; then dipped into boiling water and skinned; after cleaning them, wash and let stand in very cold salted water for half and hour. Now wipe the birds and put them in a granite saucepan, pour a pint of boiling water over them, cover tightly and let them stew slowly until tender. In the meantime prepare a rich biscuit dough; roll a quarter of an inch thick and line the sides of a deep pudding dish; skim the birds out of the broth, lay them into the dish and season them with salt and pepper. Mix smoothly with a half cup of butter enough flour to make a very thin gravy; stir the butter and flour into the broth and pour over the birds in the dish; now add three or four eggs, boiled hard and sliced thick, also a little of either celery or onions chipped fine. Moisten the euge of the crust in the dish and put on the top crust, pressing the two edges securely together, and make a large cut across the center. Bake in a moderately hot oven till nicely browned, taking care to have plenty of gravy in the pie when done. This is a dainty dish to set before any one. The sparrow is sweet and plump, for he ilves upon the fat of the land and the fruit of others' toil.

There are people whose misguided sympathies will lead them to abjure the pie and protect the sparrow. We recently read in the New York Sun of one of this class living near that city. In his suburban home, his favorite seat overlooked a rustic arbor. He was delighted this spring to notice a pair of robins locating among its heavy network of vines. With interest he watched the building of the nest, and his pet sparrows seemed to regard it with equally amiable feelings. This greatly pleased the bird-lover, for he had always contended that the sparrow is not as black as painted. By and by the nest was completed and the pretty eggs were laid in its downy softness. Mrs. Robin had barely settled herself down to the work of incubating them, when, as if by preconcerted signal, the sparrows came with shrill shrieks from every direction and darted upon the unsuspecting motherbird. Her mate flew to her assistance and they put up a brave fight, but they were soon routed by numbers. Some of the little fiends chased after the robins while the rest tore the nest to pieces and destroyed the eggs. After the wreck was complete they allowed the robins to return. "The poor birds fluttered about their ruined nest with pitiful cries, while the sparrows watched them, chattering like fiends, enjoying their discomfiture and seeming to exult in their work. The robins flew to a limb of the apple tree near and sat there contemplating the ruin of their home and hopes, then flew away to return no more." This erstwhile friend of the sparrow concludes: "It was a case of premeditated vandalism of the most heartless kind, and not only changed my opinion of the English sparrow, but changed it so thoroughly that I am scattering lead among them with a shotgun instead of crumbs with my hand."

In the Home Garden.

The novice in gardening is pretty sure to set his shrubs or plants in the ground and then to supply the water with a daily sprinkling thereafter. In hot weather this may answer, but there is danger of the roots rotting before the rootlets take hold and the plants begin to grow. In either case the soil is not properly prepared for best results. In transplanting tomatoes and like things, first dig holes some three feet or more apart, eighteen inches in depth and about the same across; put three or four inches of good manure in the bottom; mix the earth thrown out with sand if the soil is heavy and work out all clods. Now pour one or more buckets of water, according to the dryness of the soil, into the hole; as soon as the water begins to settle fill in the prepared earth. With a small stick make a hole in the center, insert the roots and holding the plant straight with one hand, with the other pull the earth about the plant and press firmly; level the ground, which will be thoroughly wet by the water from beneath, and cover this wet surface with a dry mulch of fine dust. This prevents the drying out of the soil and the baking of the surface. No further watering should be given until the plant puts on a thrifty growth. With good cultivation, the tomato requires little more water, as it has a reserve in the well-prepared ground which is kept from evaporating by the dry mulch. Too much water makes the tomato run to foliage and delays the ripening of the fruit. If very dry give the earth about the roots a moderate soaking, but do not spray the plant. We have had complaints about the blossoms falling. The first blooms are always abortive; the later ones will "set." In the home garden a low trellis for the vines to rest upon will improve the fruit.

Who dares to say that California is not a good place for old men? In Sonoma county recently six witnesses at the Gird estate contest in the Superior Court had a combined age of 480 years, and each walked to the witness stand spry and hearty. Some of them spoke of the late pioneer, Henry Gird, as "Old Man Gird," when in reality all of them were older than he at the time of his death. Another fact in connection with "Pioneer Day" at the Gird trial was the presence of 30 men who have lived in Sonoma county, in the same section, for half a century or longer.

They were arranging their plans for the summer.

"What I should like," said Gwendolin, "is a large shady place where I could stay as long as I wish, regardless of expense."

"Well," responded her father, "why don't you put on your hat?"—Washington Star.

Mr. Henpeck—We're going to remove to the seaside, doctor.

Doctor—But the climate may disagree with your wife.

Mr. Henpeck—It wouldn't dare!—Philadelphia Inquirer.

Helps and Hints for the Home.

(This department is open to questions and sugestions.)

Storing Winter Clothing.—Do this as early as possible in the spring, before the moth miller has located in them. Hang all such out in a brisk wind and bright sunshine; dust and air thoroughly; then fold each article neatly and wrap in newspaper. Purchase some of the large paper bags, one for each article, which lay in smoothly. With some good flour paste, to which has been added a little copperas or carbolic acid, seal the paper bag tight, and label it with the name of the article inclosed. If the article be too large for any bag obtainable, take heavy light-brown wrapping paper and paste together the size needed, being careful that the edges are perfectly tight. A new dry-goods box is better than an old trunk for storing these packegs. One may often get the paper-lined barrels in which roasted coffee is shipped for this purpose. They are neat and clean, and the odor of the coffee is an excellent moth preventative. Clothing packed as above are moth proof, and the disagreeable moth balls are unnecessary. Few things are more unpleasant than to come in contact with a person whose apparel has been in moth ball storage. If any scent is used to keep away the moths, let it be an agreeable one, which is just as effective. Good sachet powder, or even lavender blossoms or the rose geranium leaves and the like will answer every purpose and leave a delightful perfume on the garments.

Orange Marmalade.—Cut the yellow part of the orange peel into tiny strips, some half inch in length, with the scissors; remove the white peeling from the orange and the white skin and linings and all stringy portions and seeds; cut the pulp fine. Put the finely cut peel into sufficient cold water to cover it, and boil till tender; add the juice and pulp and measure; boil this 20 minutes and then add an equal measure of white sugar; boil briskly 10 minutes and put in glasses. This is easily made and first class.

Preserving Fruit in Its Freshness.—Consul Blake writes of a new method in England: "A correspondent in Stirlingshire writes me that he has recently conducted some successful experiments in preserving fruit without the aid of refrigeration. His method is simply to pluck the fruit at height of sun, to avoid all dampness, and immediately pack in prepared cases containing granulated sugar. Care must be taken that the sugar be devoid of moisture, and the cases should be so constructed as to be as nearly as possible impervious to atmospheric vapors."

Orange and Lemon Peel for Flavoring.—Grate the yellow portion of the peel (the white part has no flavor and is bitter) and add four times the bulk of grated peel in dry white sugar. Put in bottles and cork tight.

Rhubarb Jam.—Cut fresh crisp rhubarb into half inch pieces; mix with an equal weight of white sugar and let stand over night. Drain off the syrup in the morning and boil till it begins to thicken; then add the rhubarb and boil carefully for 25 minutes. Put in tumblers. This jam keeps well and is excellent.

Nothing Extraordinary.

Johnnie Payne tells of an American tourist hailing from the West who was out sightseeing in London. They took him aboard the old battleship Victory, which was Lord Nelson's flagship in several of his most famous naval triumphs. An English sailor escorted the American over the vessel, and coming to a raised brass tablet on the deck he said, as he reverently removed his hat:

"'Ere, sir, is the spot where Lord Nelson fell."

"Oh, is it?" replied the American blankly. "Well' that ain't nothin'. I nearly tripped on the blame thing myself."—The Meddler.



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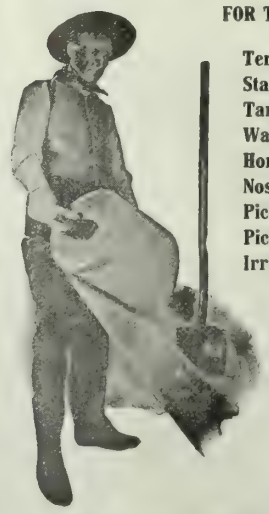
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THE MARKETS.

San Francisco, May 26, 1909.

(Unless otherwise noted, quotations represent prices paid to growers.)

WHEAT.

Eastern markets have shown considerable activity and increasing firmness, with new high records in the principal markets. The Coast markets, however, have continued quiet. Stocks are closely cleaned up, and the small available supplies are closely held, both here and in the North. Prices here show no further advance, as the milling interests are unwilling to meet the figures now demanded by holders.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	@2.20

BARLEY.

There is no trading in brewing and shipping grain, offerings of which are light. The speculative market is fairly active, and the December option shows considerable advance. There has been a sharp rise in spot feed grades, and holders are getting top prices without difficulty.

Brewing	Nominal
Shipping	Nominal
Chevalier	$1.70
Good to Choice Feed, per ctl.	$1.67½@1.70
Common Feed	1.57½@1.65

OATS.

The market presents nothing new, the light supplies available being closely held at the former values. Sales are of very small volume, as few buyers care to pay the present prices.

White, per ctl.	$2.15	@2.25
Gray	2.10	@2.15
Red, choice		2.20
Common	2.10	@2.15
Black		Nominal

CORN.

Moderate shipments of Western grades are arriving at interior points, but supplies on the local market are small, and buyers show little interest. The Western grades are quite firm at the recent advance, quotations remaining unchanged since last week.

California Small Yellow	$2.00	@2.10
Western State Yellow, bulk		1.80
Mixed, in bulk		1.78
White, in bulk		1.82
Egyptian White		1.90

RYE.

The demand here is very small, and the only supplies to be had are held in the East. The quotation has been advanced again, but is little more than nominal.

Rye, to arrive	$2.15

BEANS.

There is hardly as much activity in the market as there was a few weeks ago, though some varieties are still in good demand. The market remains very firm on most descriptions, but there is little change in prices, small and large whites and bayos being slightly higher. With very little stock arriving, the supplies remaining in growers' hands appear to be extremely small. Buyers in other markets are taking considerable interest in the coming crop of limas and blackeyes, and present supplies of limas are moving off rapidly. It is too early to say much about prospects for the new crop.

Bayos, per ctl.	$5.35	@5.50
Blackeyes	3.50	@3.65
Cranberry Beans	Nominal	
Garvanzos	3.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	5.85	@6.00
Large Whites	4.90	@5.00
Limas	4.15	@4.25
Pea	5.80	@6.00
Pink	3.25	@3.35
Red	Nominal	
Red Kidneys	3.75	@4.00

SEEDS.

The demand has fallen off almost entirely, and there is little movement in any line at present. Supplies in general are light, and the quotations on some descriptions have been advanced. No new stock is expected for a month or two.

Alfalfa, per lb.	18	@19 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.	3¾ @	4¼c
Canary		4¼c
Flaxseed		4 c
Hemp		4½c
Millet		2¾c
Timothy	5¾ @	6½c
Yellow Mustard	Nominal	

FLOUR.

No further advance is quoted, but all grades are decidedly firm at last week's figures. Large lots are arriving from the North, as the local interests are limiting their operations. The high prices have brought about a very quiet condition in the market, and buying at present is almost entirely for current necessities, with practically no movement to other markets.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

A number of the producing districts now have their hay on the market, and the arrivals of new hay this week have been quite liberal, though the greater part of the arrivals so far have been oat and barley hay, which finds only moderate demand. Barley hay is considerably lower, but oat hay shows only a slight reduction. Only small lots of new wheat hay have arrived, and this description still moves at lower prices than good old stock, though quotations on all descriptions show some reduction. Consumers are buying very carefully, as some further reduction is expected in prices as arrivals increase, and some local dealers state that the crop is larger than has generally been estimated, but so far the decline has been comparatively small.

Old Wheat, choice, per ton	$22.00	@23.00
Other Grades Old Wheat	15.00	@21.00
New Wheat	14.00	@17.00
Wheat and Oat	17.00	@21.00
Tame Oat	17.00	@21.00
New Barley	12.00	@15.00
New Wild Oat	11.00	@14.50
Alfalfa, first cutting	8.00	@11.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

Feedstuffs show very little change, but all lines are firmly held, and the demand tends to increase, though the high prices on several descriptions limit the activity to some extent. Rolled barley is $2 per ton higher, following a sharp advance in the raw grain. Corn meal and cracked corn are also higher.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@ 26.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	33.00	@35.00
Mixed Feeds	30.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	35.00	@36.00
Shorts	31.00	@32.00

VEGETABLES.

New red onions are coming into the market in increased quantities, and while they meet with a fair demand, the price is lower. Bermudas receive little attention from buyers, and move slowly at still lower figures. Good Australian stock, however, is firmly held. Offerings of new garlic have caused a slight decline. Cucumbers are now arriving from several quarters, but are still bringing good prices. Rhubarb and ordinary grades of asparagus find a much better market than last week, and move readily at a slight advance. Tomatoes have advanced again. String and wax beans are plentiful and lower. New Southern chili peppers sell up to 20 cents per pound.

Onions, new red, per sack	$ 1.00	@ 1.20
Australian Onions	4.00	@ 4.25
Bermuda Onions, per crate	1.00	@ 1.20
New Green Onions, per box	35	@ 50c
Garlic, per lb.	6	@ 10c
Green Peas, sack	1.25	@ 2.00
String Beans, per lb.	5	@ 7c
Cabbage, per ctl.		2.00
Tomatoes, per crate	1.40	@ 1.50
Cauliflower, per doz.	65	@ 75c
Asparagus, extra choice, box	1.75	@ 2.25
Asparagus, common to choice	1.25	@ 1.50
Rhubarb, per box	1.25	@ 1.50
Turnips, per sack	1.00	@ 1.25
Summer Squash, per box	60	@ 75c
Cucumbers, box	1.50	@ 1.75

POULTRY.

California poultry is arriving in smaller quantities again this week, and there is no heavy supply of Eastern stock at present, though several cars are expected before the close. Prices in general have been well maintained, all lines being in good demand at former prices with the exception of fryers, which are easier.

Broilers	$ 3.50	@ 4.50
Small Broilers	2.50	@ 3.00
Fryers	6.00	@ 7.00
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons	1.00	@ 1.25
Squabs	1.50	@ 2.00
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

The butter market remains in good condition, though prices show a little fluctuation from day to day, and the upper grades are at present a little lower than last week. The arrivals are more than can be taken up by the local consuming demand, but there is no pressure to sell, as accumulations are easily disposed of in the north.

California (extras), per lb.	25½c
Firsts	25 c
Seconds	24½c

EGGS.

Extras stand the same as last week, though there has been considerable fluctuation, and the price broke to 24½ cents a few days ago, on increased arrivals. The feeling is still rather weak on the street, though all grades are described as firm by the Exchange. Local transactions are moderate for this season, as large purchases for storage are being made in the producing districts.

California (extras), per doz.	27 c
Firsts	25 c
Seconds	23½c
Thirds	23 c

CHEESE.

Fancy Y. A.'s are now arriving in good quantities, causing a decline of 1 cent. Fancy flats are slightly higher, and there is a little better movement, though stock is still plentiful. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	13 c
Firsts	12 c
New Young Americas, fancy	16 c

POTATOES.

The supply of new potatoes is limited, and all arrivals are readily disposed of at a further advance. Interest in old stock has fallen off materially, and the market is quiet, with some decline on both local and Oregon goods. Arrivals from Oregon have been quite liberal of late, and local buyers are not inclined to purchase ahead of present requirements at the present range of values.

River Whites, per ctl.	$ 1.90	@ 2.10
Oregon Burbanks, per ctl.	2.25	@ 2.40
Sweet Potatoes, per ctl.	1.25	@ 1.50
New Potatoes, lb.	3½	@ 4c

FRESH FRUITS.

Berries are now an important feature of the market, with offerings of all seasonable varieties, though so far strawberries are the only plentiful article. They still meet with ready sale at former prices. Other lines are lower than last week, but will probably decline further within the next few days. Cherries are lower again, though Royal Annes still sell up to 90 cents. A few figs are coming in from Arizona, and the first apricots have arrived from the Vacaville district, prices on both being lower than a few days ago.

Raspberries, basket	8	@ 10c
Gooseberries, drawer	50	@ 75c
Currants, drawer	50	@ 75c
Loganberries, crate	$ 1.00	@ 1.25
Blackberries, crate	1.00	@ 1.25
Strawberries—		
Longworths, per chest	$ 5.00	@ 8.00
Large varieties	3.50	@ 5.00
Cherries—		
Black, drawer	65	@ 85c
White	40	@ 50c
Apples, per box	1.00	@ 1.50
Figs, per box	1.75	@ 2.25
Apricots, drawer	75c	@ 1.25

CITRUS FRUITS.

Navel oranges are again lower and weak at the quotation, with some pressure to sell. While the demand is fairly active, receipts have been liberal, and the dealers are carrying more or less surplus. Lemons, limes and grape fruit meet with about the usual demand at the former quotations.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.25
Standard	1.00	@ 1.25
Limes	4.50	@ 5.00
Oranges—		
Fancy Navels	1.25	@ 2.25
Grape Fruit	2.50	@ 3.00

DRIED FRUITS.

The market presents a little more active appearance locally, both packers and growers showing rather more disposition to trade than for some time past. The prices quoted in different quarters show considerable divergence, however, as some growers are still asking higher prices than most packers are willing to pay. Apples are again higher, with little stock in the hands of growers. Figs and apricots are also practically nominal. Peaches are inclined to weakness, sales being reported as low as 3 cents. So far there has been little or no business in futures. Growers are asking 8 to 8½ cents for new apricots, and with prospects for a small crop offers have been made of 8 cents. A tentative quotation of 2½ cents is made on new Sonoma prunes, and 3 cents on Santa Claras. Prunes are pretty closely cleaned up in the East, and there is a steady demand for choice stock. The latest estimates of the remaining stock of raisins is rather low, though there is considerable poor stock offering. Packers are still quoting 1¾ cents, sweatbox, on general offerings, though 2¼ cents has been paid for a choice lot. Nothing new is reported in regard to new crop raisins.

Evaporated Apples	6¾ @	7¾c
Figs, black		4 c
Figs, white		4 c
Apricots	7½ @	11 c
Peaches	3½ @	4 c
Prunes, 4-size basis	2½ @	2½c
Pears	3 @	5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$ 1.00

NUTS.

Prices are unchanged. Almonds are decidedly firm, and almost nominal, with very little stock held in any quarter. There are still plenty of walnuts to be had, and there is no pressing demand for them, though holders remain fairly firm in their ideas as to price.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

The first of the new crop is now coming forward from some sections, and quotations will probably be established in another week, though so far the local dealers are not naming prices. A good demand is expected for the first offerings, as the market has been bare for some time.

All grades nominal.

HOPS.

Hops are now quite firm, and the holdings of old crop remaining in growers hands are moving off rapidly at advanced prices, most offerings now bringing about the top figure. None of the growers are now making contracts for the new crop below 11 cents, and some are getting 11½.

Hops, Old, per lb.	6	@10 c
New Crop		11½c

WOOL.

A liberal movement of wool is reported all over the world, and the local market continues very active, the spring clips being bought up about as fast as they are placed on the market. Higher prices are offered for choice southern stock, of which there is little remaining, and the Humboldt clips, which are now coming into the market, are bringing top prices.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Arrivals in most lines have been fairly liberal, though there is some scarcity of veal, which is higher. Beef is a little lower and sheep and hogs are inclined to easiness. Large shipments of beef and cattle are being sent north.

Beef: Steers, per lb.	7	@ 7½c
Cows	6	@ 7 c
Heifers	6	@ 7 c
Veal: Large	7½	@ 8½c
Small	8½	@ 9½c
Mutton: Wethers	7	@ 8 c
Ewes	6	@ 7 c
Lambs		9 c
Spring Lamb	9½	@10 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	4¼ @	4½c
No. 2	4 @	4¼c
Cows and Heifers: No. 1		3½c
No. 2		3¼c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½ @	4 c
Sheep: Wethers		4½c
Ewes	3¾ @	4 c
Lambs: Yearlings		5 c
Spring Lambs		5½c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾ @	7 c
Common Hogs, lb	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

By T. C. Tucker.

Sacramento, Cal., May 26.—The first box of California cherries was shipped by express April 22 and was sold in Philadelphia on the 29th for $31. On the same day another box was sold in New York for $21. On April 30 there were several boxes sold in Chicago for $5 each.

The first carload of cherries was shipped on the 8th of May and sold in New York May 17 on an average of $2.77 per box for all varieties. May 20 another carload was sold in Chicago, and the range of prices was: Rockport, $1.35 to $2.05; Tartarians, $2.10 to $3.65; Chapman, $2.10 to $3; Advance, $2.75. There have been several cars sold since that time, the average being about the same as the above. However, Monday the market declined a little owing to the increased supply, and the reports received were as follows:

New York, May 24, Royal Annes, $1.35 to $4.50; Tartarians, $1.35 to $2.50.

Chicago, May 24, Tartarians, $1.25 to $2.60; Rockport, $1.10 to $2.05; Governor Wood, $1.20 to $1.50; Bing, $1.50 to $2.10; Chapman, $1.85 to $2.05; Royal Anne, $1.20 to $1.50.

A large percentage of the Placer county output has been shipped by express to various markets in the East and North, and has averaged f. o. b. $1.25 to $1.50. The crop of Tartarians in this section of the State is now picked, and growers are receiving some very handsome returns at the present time for this variety. Royal Annes are now coming in quite freely, but the quality is only fair, consequently but a small percentage is going out on express orders, the bulk of the receipts being shipped in cars for Eastern markets. There are a few Bings and Black Oregons coming in. The supply will increase considerably toward the end of the week.

The first crate of apricots was shipped May 15. They were of the Pringle variety. There are a few crates of Royal Cots and Cherry Plums, also a few boxes of Alexander peaches going to market at the present time. Apricots and peaches will be coming in quite freely in about ten days' time.

Special Citrus Market Report.

Los Angeles, Cal., May 26.—No change for the better in Monday's auction market; rather the prices were lower except in New York City, where they were 10 cents higher than at the close of last week. Other markets, Philadelphia, Boston, in fact all six of the other auctions reported, were very low and sales of navels at over $2 a box were the exception rather than the rule.

The off varieties, sweets, seedlings and St. Michael's, are ruling low in sympathy with navels, although the mikes are high in comparison. Seeds and sweets are hardly paying expenses.

No prices are being made on oranges at this end except as regards Valencias. To quote navels at present values would be ridiculous even if there was inquiry, which there is not. Any shipper would rather roll his fruit and take the long shot of a possible rise rather than take the low price that present conditions would warrant at this end at the present time. The auctions are showing a wide range on the ordinary fruit, from $1.50 to $2.50 a box delivered, according to condition. The high-grade fruit like the Elephant, Cerrito and Alta Cresta brands are ruling very high comparatively, showing that there is a trade that is willing to pay good money for the best, regardless of what market conditions are.

The Valencia market does not seem to improve. No Valencias in quantity are yet appearing in the auctions. The established price at this end seems to be $2 cash, with some shippers cutting under about 10 cents a box. Orders are not plentiful even at the low prices and probably

will not be until the navels are out of the way.

Lemons selling in the auctions are hardly bringing expenses, yet shipments continue heavy. The good cured fruit is in some demand for storage, but good stock is scarce and that which is showing up so poorly at the present time is soft, tree-colored stuff that will not keep. Lemon quotations at the present time range all the way from $1.25 to $2.25 a box f. o. b. and no good keeping stock should be sold for less than $2, as it will be valuable this summer when stock is scarcer than it is today.

The shipments have eased up quite a bit this past week and on Friday, Saturday and Sunday combined but 289 cars of oranges were sent forward. This may tend to help the situation some, but it must be remembered that the shipments of the past ten days are yet largely unsold and that this stock must clean up before there can be any great revival in price conditions, and by that time it will be too late to expect much for the over-ripe and weak navels.

The shipments up to and including Sunday have been 22,656 cars of oranges and 3284 cars of lemons.

Eastern Fruit Conditions.

The California Fruit Exchange on May 25 gave out a bulletin of fruit conditions over the country, from which we cull the following:

MARYLAND.—Peach crop in tidewater counties totally destroyed, small fruits with exception of pears are small crop.

WASHINGTON AND IDAHO.—Fruit will average about 65 per cent of normal crop. Shipments two weeks late on account of cool weather.

DELAWARE.—Peach crop very light owing to May day frost.

COLORADO.—Notwithstanding May day frosts, the peach, pear and apple crop will be a good one in the Grand valley.

TEXAS.—Twenty-five per cent of the peach crop expected.

MICHIGAN.—Crop will be late; no estimates made as to size.

GEORGIA.—The peach crop will be shorter than expected, will be about 2500 instead of 3500 cars.

UTAH.—Peaches about 25 per cent of normal, apples 65, pears 75, sweet cherries 15, sour cherries 65, berries average.

Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

THE BEET SUGAR INDUSTRY.

In response to a resolution of inquiry by the United States Senate, Secretary Wilson has forwarded a report on the beet-sugar industry in the United States. This report contains an interesting summary of facts and figures relating to this industry.

In 1896 there were six beet-sugar factories in operation and one building, having altogether a capacity for slicing 4000 tons of beets daily. In 1908 there were 64 factories, with a total capacity of 50,000 tons of beets daily—more than a twelve-fold increase.

From 1898 to 1906 our production of beet sugar grew from 36,000 tons to 484,000, an increase of more than thirteen-fold in eight years.

In 1896 41,000 acres of beets were harvested; in 1906 376,000 acres, or more than nine times as great an area.

The price of beets, like prices of other farm crops, has risen steadily. In 1896 the factories paid $4.10 per ton; now they have to pay $5.35.

In 1898 the farmers had 364,000 tons of beets to sell to the factories, for which they received $1,564,000. In 1906 just eight years later, they had 4,236,000 tons of beets to sell, and received for them $21,604,000 — a twelve-fold increase in beets and a fourteen-fold increase in money returns.

The total amount paid out by factories for beets during the past 12 years amounts to $121,000,000.

The total capital invested in beet-sugar plants in this country is about $70,000,000, and this does not include investments made by factory owners in farm lands, irrigation work, etc.

Among other things the Senate called on the Secretary of Agriculture to state how much beet sugar can be produced in the United States. The Secretary replies that we have demonstrated conditions of soil and climate favorable to beet culture in an area of at least 274,000,000 acres, and that it will only take one acre out of every 200 of this to produce all the sugar we now import from foreign sources.

He estimates that if the sugar beet were grown throughout these portions of the United States adapted by nature and with the aid of irrigation to its culture, with a system of rotation including the cultivation of the beet every fourth year, 15,000,000 tons of beet sugar could be produced in the United States annually, or more than the world's total production of sugar at the present time.

Beet sugar factories are now in successful operation in 16 States.

Colorado leads all other States engaged in the industry, having 16 factories. In 1907 these produced 169,000 tons of sugar, or enough, if it had been passed around to give all the people in the United States four pounds apiece.

California and Michigan follow Colorado at a respectful distance in the race for second place. Michigan has the same number of factories as Colorado, but their product is considerably smaller. California has only nine plants, but some of the latter are very large. From year to year the production of sugar is about the same in the two States.

Utah has five factories and they are strong producers. Idaho and Wisconsin follow with four each, and there are 10 States with one factory each.

The most eastern factory is at Lyons, N. Y. Hamilton City, Cal., has the most western factory; Los Alamitos, Cal., the most southern; and Billings, Mont., the most northern.

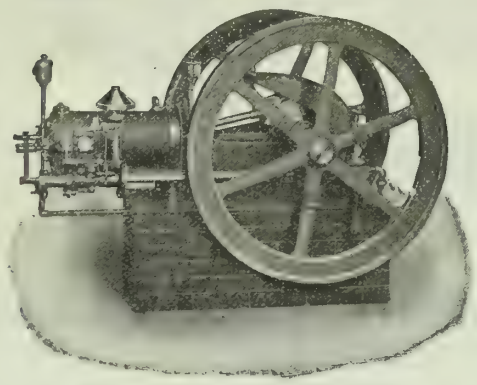
The largest factory in the United States, and one of the largest in world, is the one at Spreckels, Cal., which is able to slice 3000 tons of beets in a day, or 100 carloads of 30 tons each.

The oldest successful factory in the United States is at Alvarado, Cal., which was established in 1879, and has been making beet sugar for 30 years.

The Otto Engine

Master of them all.

Not "cheap" if first cost alone be considered



BUT

"The Recollection of Quality remains long after price is forgotten."

Over 100,000 Engines in actual use. Built by a people having 33 years experience. From the Centennial, 1876, to Jamestown Exposition, 1907, never failed to capture the HIGHEST award against all competitors.

Catalog O for Full Details.

HENSHAW, BULKLEY & CO., Agts.

San Francisco.

PUBLISHER'S DEPARTMENT.

AS OTHERS SEE US.

It is always pleasant to have kind words said of us, and the following coming from the editor of the Rural Californian, in its last issue, is thoroughly appreciated, as Mr. Kruckeberg is a man of discriminating judgment. Here is the bouquet:

"Under its present management and editorial supervision, the PACIFIC RURAL PRESS is certainly coming into possession of its own. Easily the foremost agricultural weekly in the State, it is also the one with the strongest personal following, due chiefly to the fact that its editorial policy has been guided for thirty years by a man in touch and in sympathy with all that is best in California horticulture. No man has a stronger following than Professor Wickson, and no paper a more loyal number of readers, covering a quarter-century of time, than the Rural Californian's elder brother, by the shores of the Golden Gate. Gaining strength with its rejuvenation, the PACIFIC RURAL PRESS already is a visitor to upward of six thousand rural and suburban California homes, which number will have reached ten thousand ere the ides of January shall have come and gone."

L. Cunningham of Morgan Hill is advertising a clod pulverizer in this issue. Something different and very practical. Look up the ad.

The West Coast Mill Co. of Los Angeles has an announcement in our advertising columns of interest to orchardists.

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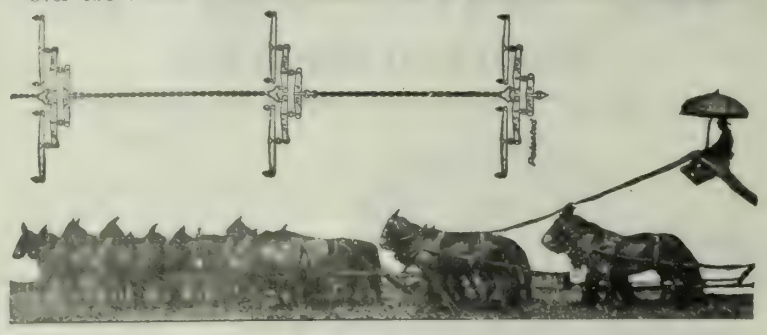
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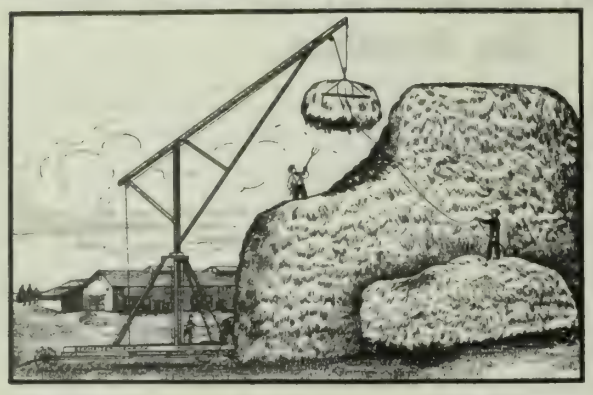


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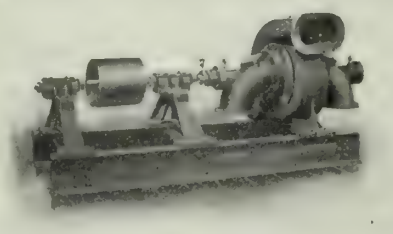
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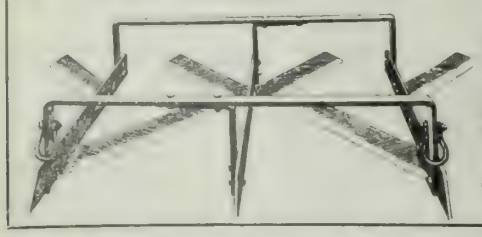
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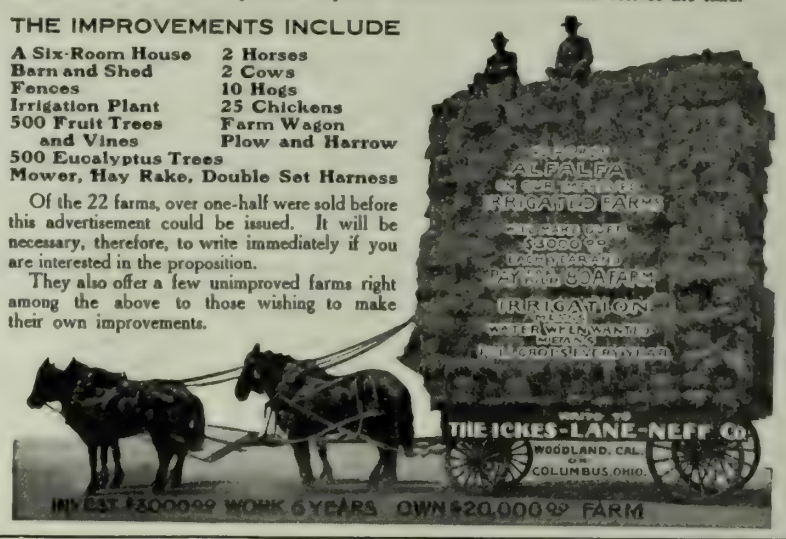
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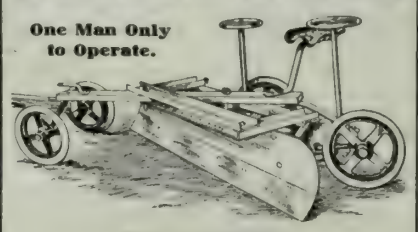
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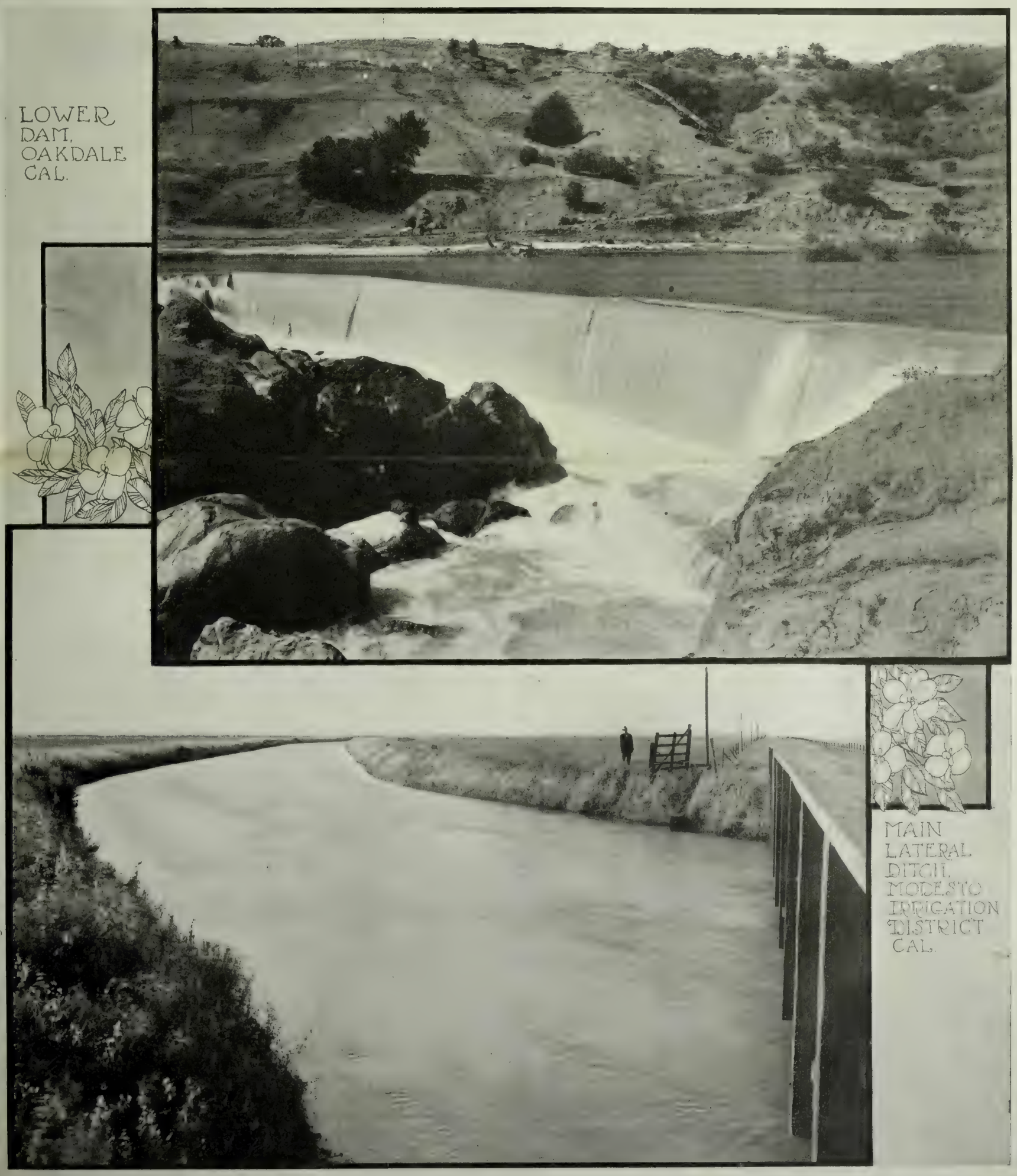
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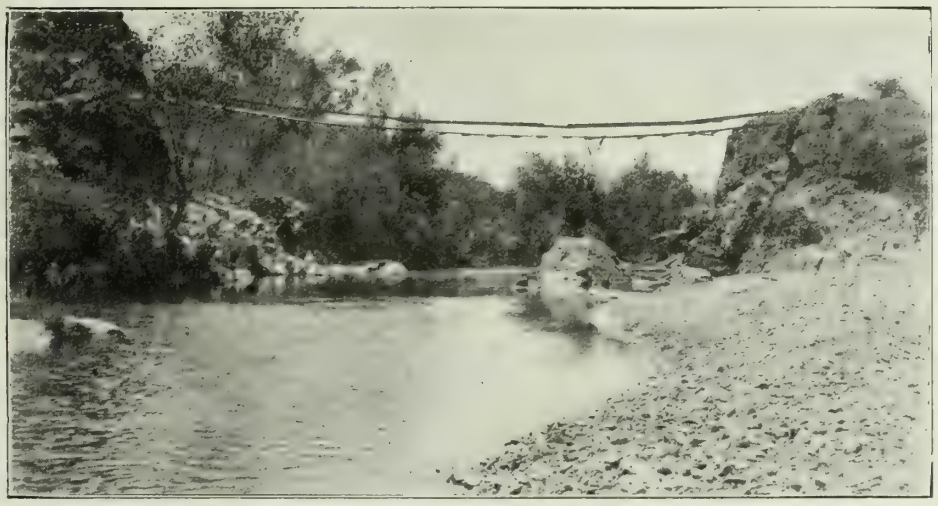
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 23. SAN FRANCISCO, SATURDAY, JUNE 5, 1909. Thirty-ninth Year.

Irrigation and Development of Our Great Valleys.

By F. W. ROEDING, Irrigation Manager for California of the Irrigation Investigations, U. S. Department of Agriculture.

THE great central plains of California, otherwise known as the Sacramento and San Joaquin valleys, with a length of about 350 miles and an average breadth of 45 miles, contain 10,000,000 acres of deep alluvial soil, with a climate unsurpassed in its adaptability to diversified agriculture. It is here, unquestionably, that the State will see its greatest development. That progress has been slow as compared with other sections of the State may be attributed to several causes, the principal one dating back to the days of the Mexican grants, which were the forerunners of the large grain ranches, whose vast areas devoted to the growing of wheat have been the subject for authors and poets and the marvel of visitors from all sections. These grants, numbering 54 and containing about 1,700,000 acres, many of which are still undivided, became the nucleus of grain farming on a gigantic scale. The ownership of such immense areas by very few individuals is recognized as a detriment to development, and is primarily the cause of the lack of progress in bringing about growing of more valuable crops throughout this region and their more rapid settlement. Although in isolated places, orchards, vineyards and alfalfa could be grown without the aid of irrigation, it was early recognized that the artificial application of water to the soil throughout the hot, rainless summers was absolutely necessary in producing crops, outside of grain. The cost of securing an irrigation system to individuals owning these large ranches was prohibitive, while with wheat at a good price, and a virgin soil, they were able to make good returns on their investments. That the continuous cropping of the soil to the same plant would gradually exhaust its fertility was never considered.



Site of the Stony Creek Reservoir.



Large Irrigating Canal near Willows in Glenn County.

The San Joaquin valley first felt the effects of this exhaustive method of farming, due to lighter soils and a smaller rainfall than its northern neighbor, and we therefore find irrigated agriculture well established and rapidly developing in this region, while grain farming, although practiced to a large extent, has seen its best days. In the Sacramento valley, however, the cereals are still produced extensively, but the poor price and the decrease in crops are generally turning the attention of the grain farmer to his more prosperous neighbor whose land is under ditch. That grain farming will always be a feature of both valleys cannot be doubted, but it will be on smaller areas than heretofore and under more scientific methods, both of rotation and seed selection—the former in connection with summer crops, such as sugar beets under irrigation.

It is needless to state the increase in value of lands under irrigation, or the returns which are to be secured from these; the facts are too well known. The question then arises, can sufficient water be secured from the streams draining this region to irrigate it? In considering this question it is necessary to divide the two great valleys and consider them separately.

The San Joaquin valley, whose northern boundary is considered on a line passing east and west through Lodi, contains 70 per cent of the land included in the boundaries of the great central plains. Of this, approximately 1,250,000 acres is swamp and overflow land, a large proportion of which has been reclaimed. This land can then be eliminated from our consideration, as here drainage alone is the feature of its reclamation. There are also about 1,250,000 acres which are and can be irrigated under existing irrigation systems. This leaves 4,500,000 acres to be irrigated. Of this area about one-third lies west of the trough of the valley, and there are no streams in the Coast Range whose flow could be relied on for irrigation even during the rainy season without complete storage. The development of this region will therefore depend largely on pumping, except that portion close to the San Joaquin river, which is at present largely under ditches. That pumping is feasible is evidenced by several plants on the higher lands.

Water for gravity irrigation comes therefore entirely from the Sierras, and the average annual flow of all the streams may be placed, in round numbers, at 15,000 cubic feet per second. Placing the duty at one cubic foot per second to each 160 acres, and not considering the present status of our water laws or litigation which would arise from any subsequent diversions from these streams, this amount of flow would be sufficient to irrigate about 2,500,000 acres, or, in other words, double the present area under irrigation. This acreage could also be augmented by the prevention of waste through seepage and evaporation.

(*Continued on Page 421.*)

Pacific Rural Press

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California Weather Record.

The following rainfall record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., June 1, 1909:

STATIONS.	Total rainfall for the week.	Total seasonal rainfall to date.	Normal seasonal rainfall to date.
Eureka	.62	42.73	45.05
Red Bluff	.02	30.81	24.59
Sacramento	T	21.75	19.95
San Francisco	T	25.57	22.11
San Jose	.00	18.26	12.93
Fresno	.00	9.79	9.60
Independence	.00	8.00	9 46
San Luis Obispo	.00	31.37	20.43
Los Angeles	.00	19.07	15.57
San Diego	T	10.23	9.99

The Week.

The publisher has ordered all hands on the water-wagon this week, and if the present issue should strike the reader as damp, leaky, weepy and demnibly disagreeable, he alone is to blame for it, and those who fail to find the customary number of dry and dustry paragraphs should stop their subscription. We have waded around in the wet so long in collecting so many columns full of juicy articles that we feel like stopping to ring out our editorial socks before finished the job. Only one thing, however, remains to be done, and that is to tell every reader just how to irrigate everything under the sun—including himself. It would please the publisher if we would tell everyone just how much water to use, how many times to use it and how many hundred dollars a year he could get for every acre of it. If he could print such information he could go out through the State and with the greatest ease take from every man, woman and child a subscription of $2 per year, strictly in advance, for such an enlightened and practical journal!

But our editorial contract does not carry compensation enough to justify us in making plain proclamation of that important secret. Like other great mystics and cryptographers to whom the world denies gold, we shall bury the truth so deep that only the most penetrating minds can read it, and even then be not quite sure whether they have it or have it not, until by wisdom born of age and experience they are assured of the priceless possession.

If we could prepare plain schedules of the amounts of water to use for different crops, with the dates at which the water should be applied, and could make such a schedule in all respects conducive to the highest success with all of the plants specified, the service would be worth more to the country than all the millions of dollars which the Government has expended in irrigation development. But no one can ever perform such a valuable service—in fact, no one can ever make out such a schedule for a single one of the numerous crops which are grown by irrigation which would be more trustworthy than was the old "farmers' almanac" as a weather prophet. It is a wise man who knows just when to use water and just how much to use for the best growth of the crops on his own farm. It is beyond human wisdom to prescribe times and amounts for all crops in all places. This proposition should be generally understood, for it is fundamental in irrigation practice, and the following truths are involved in it:

a Different plants require different amounts of water, and the same plant may require different amounts of water at different times in the growing season.

b Different soils require different amounts of water to produce satisfactory growth of plants.

c Different local climates, chiefly because of the different degrees of thirst in the air, require different amounts of water and different intervals between applications, for the same crop.

It appears, then, that the irrigator must know the needs of his plants, the water-capacity of his soil, and the rate of use by the plant, as well as the rate of waste at different times of the year. It would be exceedingly hard to express any of these mathematically, and with such variable conditions the most accurate expression of that kind would have very narrow application. Fortunately, however, the plant itself is an unerring revelator, and gives signs of thrift, content, productive ability, or the reverse of these, as the case may be, and these are the signs which the irrigator must learn to recognize, for they convey the deepest meaning to the intelligent observer. Do not look, then, for easy recipes for irrigation. Receive suggestions from the methods of others as they appear in print or are demonstrated in garden, field, and orchard, but do not look upon the practice of other men on other lands as a thing to be imitated by you without thought to see whether the plants show you that they are fully suited, and thus prove to you that your conditions are like those of the other men. When this is done there is often much to be gained by imitation.

To know a plant's condition by its looks is not always easy or simple, but the beginner must learn to do it. Of course, for this brief outline we must rule out all unthrift of plants caused by insects or plant diseases or by alkali or other defects of the soil. Attention must be confined wholly to the influence of adequate moisture and of the lack of it.

Indications of adequate moisture are:

a Full and free growth of each plant according to its nature, and one must learn by experience what that growth should be.

b Good size, substance, and color of leaf; freedom from curling or drooping, or other indication of distress: in the case of vegetables, freshness and crispness.

c Satisfactory size, quality and commercial acceptability of fruit, grain or vegetable. This is the ultimate test of adequate moisture and is assurance that moisture remains until the close of the season, which is a most important consideration.

The opposite of the foregoing indicate the need of more water; and, if irrigation is practiced, either the use of more water or the application at shorter intervals is necessary.

There are also indications of excess of water, either from natural retention in an undrained soil or from excessive amount or frequency of irrigation:

a Too lush and rank growth, causing weak stems and lack of erectness in the plant, or watery, flavorless condition in esculent parts.

b Failure to set fruit because of excessive vegetable activity, as in the case of the tomato.

c Disease of the root, resulting in decay thereof, manifested by the dying back of the spring growth and by gumming and dying back of the branches later in the season. Dieback is also caused by drouth, but is then preceded by other signs of suffering.

These things being true, it follows that any rule for the irrigation of any plant will fail in many cases because it cannot include consideration of all soils; and any rule for the irrigation of any soil will fail in many cases because it cannot include consideration of all plants. The only rule which will be universal is that the amount or frequency of irrgiation must vary in accordance with the character of the soil, the requirements of the plants, and the dryness of the air at the time—which is merely a formula of variables and no rule at all.

And yet one should not be discouraged by such a confession. It is proof that irrigation is a rational proceeding and cannot be mastered without close local observation and earnest thought. Growing plants by irrigation is a higher art than growing them by rainfall: it produces richer results, and reaches them with greater certainty. Nature is intensely cruel to plants. Nature, for example, destroyed the finest forests which she ever grew, and yet Nature, operating according to her own plans and selecting plants for different situations, produces better results than when man chooses the plants and situations to meet his own desires and calls upon Nature to nourish them without effort on his own part to assist in bringing plant food and water to meet the needs of the plant.

People sometimes exalt the beneficence of Nature in agriculture, forgetful of the fact that even before the dawn of history man had learned that agriculture is in its very nature artificial and not natural, and that the grandest work of Nature is the mind of man, with power to direct natural forces and assemble them for his own purposes. The same mind of man which learned the advantage of irrigation in the Garden of Eden must still give its best powers to determining what are the best uses of water for every plant desired upon every acre chosen for its growth in very climate which presents desirable temperatures. This is the most important lesson the intending irrigator has to learn, and the sooner he makes it the foundation for his future courses the wiser he is and the more prosperous he will be.

Queries and Replies.

How Much Water for Fruit Trees?

To the Editor: Our land is mostly deep soil, loam or clay, inclined to be lacking in humus; precipitation is about 12 inches, a great part of which is snow, and often lost to the land through melting while the frost is still in the ground; our summer is generally pretty warm, running up as high as 104, but not often reaching 100. Under such conditions, what would you say was a safe allowance to make for water for irrigation for an orchard in full bearing, (1) under clean cultivation, and (2) under clover? Our unit of measurement is acre-feet.

You will see by the discussion on the preceding page that the amount of water, the time of application, etc., are all conditioned upon character and depth of the soil and features of the growing season. The best way to arrive at rational conclusions in any one place is to study the effect of different applications upon the growth of the tree, character of the fruit, bearing, etc. What would be considered a safe or average amount would be

too much in one place and not nearly enough in another, so that there is really very little satisfaction in undertaking to indicate an average or arbitrary amount, because it would fail twice where it succeeded once, on the average.

An Irrigation Problem.

To the Editor: I have a piece of land (about an acre) which is so low that when irrigating it seems as though the water comes into it from all sides, through gopher holes either in the ditch banks or the levees of adjacent checks being irrigated. The original stand of alfalfa has been drowned out, and it seems impossible to get another crop started, as the young alfalfa will not stand the water. The land has had no crop now for two years, this being the third summer. It is impracticable to haul dirt and fill in, as the distance would be too great and my time too limited. I have been advised to try "Russian rye grass," but have been unable to find it listed in any seed catalogue at my disposal; also timothy, red top, Italian rye grass, water fescue, reed canary grass, etc.; but as I am not acquainted with any of them I am writing this to ask your advice on the subject. It has not yet developed any tendency to alkali. Would the tame cheat which we used always to sow in Oregon on our wet spots do any good? My question is, what would be the most profitable forage crop to raise on the land in question?—Farmer, Stanislaus County.

Grasses which would be most likely to take hold and endure in the position which you describe are Australian rye grass and Paspalum dilatatum. The former is a good winter grower; the latter is dormant in the winter, but makes a good summer growth, providing there is moisture enough present. The "tame cheat" is another rye grass (Lolium temulentum) which it would be a good thing to try, but we do not know where you can get the seed. Aside from permanent growths of this sort, the use of the land for a summer growth of sorghum or Indian corn, squashes, or pie melons, seems to be the only thing which suggests itself.

Young Orange Trees.

To the Editor: When young orange trees are defoliated when received from the nursery, will you advise me what you would consider to be the very best method of protecting them from the sun after they are set out? Would it be all right, and would it do any good, to whitewash them all over? Or would this in any way be detrimental to the growth of new leaves? Would they start their new growth all right if a gunny sack was hung over each tree so it dropped to the ground all around them, or would that shut off too much light and air?—Planter, Tulare County.

We would certainly whitewash the trees. It would not injure them in any way. A gunny sack would probably reduce the light too much; a white cloth cover would not have this effect, but the difficulty of maintaining any sort of a cover would be far greater and more uncertain than the application of a coat of whiting. Sometimes apprehension is felt at the use of a fresh whitewash of caustic lime on young bark, and to avoid this you had better stir in tallow while the lime is slaking hot, using at the rate of one pound of tallow to eight pounds of quick lime.

Those Eucalyptus Fiddles.

To the Editor: I noticed an enquiry in the PACIFIC RURAL PRESS of the 22nd issue, wherein a party wants to know who has made a violin out of the eucalyptus. I beg to say that I have, up to date, made four violins out of a variety of red gum, presumably the Rostrata, grown on the Kearney ranch (which is now University of California property). I find the eucalyptus wood admirably adapted for violin making—in fact, it is superior, in my opinion, to maple and other hardwoods. The eucalyptus takes on a good natural polish, the figure of the wood is prettier, and carries a perfect toning quality, as far as I have experimented and can judge this instrument. At some future time I intend to make both a bass and cello instrument out of eucalyptus, to test this material in making larger instruments. There are many red gum varieties which I am sure will eventually find a market among the piano firms of the United States. The wood is nearer to mahogany than any other species of timber grown, and it can be polished to give it a very fine finish.—W. J. LUCAS, Violin Maker and Repairer, 511 P. St., Fresno, Cal.

This is right off the bat. We always like to know just who is doing good things in and for California.

Places for Fruits.

To the Editor: What part of the State is best adapted for the olive, and in buying land for planting to olives, what sort of land should one be careful to select?—F. H. C., San Francisco.

There is no particular place which is best for the olive, nor for any other particular fruit, in California. Similar conditions prevail through hundreds of miles of distance, and the way to begin is to try to understand the requirements of the different trees, and then to plant them wherever such requirements—soil, moisture, and temperatures—are found, having in mind, of course, always the value of land, situation with reference to markets, social desirability of the neighborhood, etc. It is impossible to treat these things in this column. We have undertaken to cover some of them in our book on "California Fruits," and good information on the different fruits and local success with them is contained in nearly every issue of this journal. The olive tree takes kindly to quite a variety of soils—in fact, any good soil will carry the tree if it is well cared for and has enough moisture.

Canadian Field Peas.

To the Editor: Kindly inform me if the Canadian field pea, such as is grown by most farmers in Ontario, Canada, for hog feed, can be successfully raised in southern California and Arizona. This appears to be the home of the sweet pea, as it is extensively grown by seed men, yet nothing is known of the common field variety.—M. C. A., Los Angeles.

The Canadian field pea is very largely grown in southern California as a winter crop for green manuring of orange orchards. Seed has been brought into your part of the State by the carload. You can get information concerning it by conversation with the leading seedsmen of your city. In southern California and Arizona this pea must be grown during the winter season, for it resents the high heat and dry air of the midsummer, even when irrigated. It is doubtful whether the plant can be used just in the same way that Canadian growers use it; at the same time it is hardy and prolific, and will doubtless be valuable when we learn fully how to adapt our conditions to its requirements.

Too Little Lime or Too Much Water?

To the Editor: I have a little plot of land in Elmhurst, consisting of what they call adobe soil. I have planted it in alfalfa for poultry. Now it seems to me that it is affected with "clover sickness." During its growth I had to weed clusters of the sorrel grass, which is, I believe, an indication of acid in the soil. Now would a top dressing of air slaked lime bring beneficial results immediately, or what treatment would you prescribe, stating doses and frequency of application? I would say that the alfalfa has a tendency to remain dwarfed and turn yellow.—S. F. D., East Oakland.

The application of lime would certainly be desirable to try for the trouble which you find in your alfalfa. If it is simply a matter of soil acidity, over-compactness and too much moisture retention in the soil, or the lack of lime itself, which is very acceptable to alfalfa, such a treatment as you propose would be corrective. You can apply lime at the rate of 500 pounds to the acre, two or three times during the year, without getting an excess. Of course, this treatment might not meet the difficulty, because the presence of common salt, or alkali, or some other deleterious substance, may be bringing the plant into distress.

Berry Borers.

To the Editor: I wish to ask about some pest which for two years has been killing the new growths of my Mammoth blackberries, Logan and raspberries. The shoots start in the spring strong and grow to 10 to 18 inches high, then something bores a little wee hole in the stock from two to eight inches from the top. Right there the cane stops growing, the top wilts and bends downward and finally dries up and dies. Out of over 200 feet of rows this spring I have only five new canes left, and will have no berries next year. What is the trouble, and what the remedy? No matter how closely I examine these injured canes, all I can find is this little hole. Splitting the cane open discloses no worm or bug. Is there a remedy?—J. S., Trinity County.

We cannot tell just what it is that is boring the shoots of your berry plants. The common cane borer is usually found in its burrow. It will be necessary for you to find the culprit before we can tell you much about it, and it may be necessary to look not upon the wilted shoots, but on the others, because the entrance must be made some time before the wilting occurs. We never heard of such a large percentage of infestation as you mention. Perhaps the insect could be discouraged by spraying with an offensive compound like whale-oil soap not stronger than four ounces to the gallon of water. This might be repellent, but would have to be applied frequently as the growth continues. Please look closely and send us anything you discover in suspicious nearness to the shoots.

Irrigating Old Oak Trees.

To the Editor: Some of our old oak trees are in very good condition, whereas others seem decrepit and far from vigorous. It has been suggested that rather large sized holes be dug near each tree, filling these holes with good soil and fertilizer and thoroughly water through the holes so that the moisture would surely reach the roots. The subsoil is clay and it is possible the roots have become smothered in some way. Is this a good plan?—Reader, Oakland.

Stimulation of growth of trees not having already passed their usefulness can certainly be secured in the way you suggest, but we would not confine treatment to places too near to the bole of the tree. Trenches at the outer edge of the circle of foliage, into which fertilizers and water can be introduced, would bring the material nearer to the roots which are able to make use of it. Water can be used in any amount to advantage, but care must be had not to apply too much concentrated fertilizer in that way. Surface scattering of fertilizer at the beginning of the rainy season would be a safe and rational proceeding.

Salt Bushes.

To the Editor: I want to plant some salt bush, and would like to know what variety is best suited to this section, and where I can get the seed?—Farmer, Tulare County.

There is only one salt-bush which is now prominently discussed and that is the Atriplex semibaccata or Australian salt-bush. You can get seed of that from seedsmen advertising in our columns. It is still on trial and cannot be confidently recommended. Each grower has to try a little for himself and see whether it suits his purposes. It is almost useless to try to start the plant from seed at this time of the year; the seed should be sown at the beginning of the rainy season.

Horticulture.

IRRIGATING DECIDUOUS FRUITS.

We are always glad to receive accounts of irrigation methods and results because they are not only directly suggestive to our readers, but also constitute the data from which interesting generalizations can be made. The following are a few which we receive from widely separated parts of the coast:

Sacramento Valley.—We have irrigated more or less for three years. The second year we put twice as much water on the ground as the first. The past year we used very much more than the second. We first used flooding, covering the land six inches and more with water, and in two weeks repeating the operation. We next furrowed out the rows, making four furrows between the trees and running water in them for forty-eight hours. This we decided to be the better method for our orchard. We commence from the 15th of May to the 1st of June to go over the whole orchard twice or three times. We have determined that to get the best results you must keep moisture at the roots of the trees "continuously" from the time you start till the fruit is picked. This is for deciduous fruits. An experienced foothill grower tells the writer he put 72 solid inches of water on his orchard last year from first to last, and that while he had irrigated all his life, two years ago was the first year he learned the value of water, to use his language, "in excessive quantities." There is no question in my mind as to value of irrigating, as last year we raised the largest peaches by use of it we ever did, while most growers had very small fruit.

In the Foothills.—I have about 2000 deciduous fruit trees, about 150 orange trees and an acre and a half of white clover pasture, besides garden and lawn, and I find 1½ inches of water is amply sufficient for my needs. I generally begin irrigating my deciduous fruit trees in June and keep it up through October. I make one furrow as close to each row of trees as I can, circle each tree with a ditch and let the small stream of water run from 12 to 24 hours, and I find that about once in 10 days is amply sufficient. Our soil is the red slate soil, which does not absorb as much moisture as the granite soil, neither does it require as much. My land is quite rolling and I find that the best way to irrigate it is to make the ditches straight up and down the hill, being very careful not to let in much water at a time. I divide the inch and a half up between the 32 rows of trees until the ditches are well established, then as my rows are 40 rods long I generally put it all on 16 rows for 24 hours and the other 16 for the next 24 hours. In laying out my ditches I try to keep my head-ditch as level as possible. I then tear a gunny-sack up into 16 pieces and put one piece by each row of trees where I want the water to run, being careful to imbed the inner side of the gunnysack in the dirt to prevent the water from washing under it. I irrigate my orange trees about the same as I do my deciduous fruit trees.

Santa Clara Valley.—The ground is flooded twice to the depth of 6 or 8 inches each time. As soon as the ground has been flooded once it is immediately gone over again. I flood the ground by building checks or banks about 18 inches high. These checks enclose large blocks, as large as the surface will permit, provided water is cheap and plentiful. Would put a levee around the whole orchard and flood it all at once if the surface was level enough and water cheap enough. If the water is furnished by pumps at a cost of $2.50 per 60,000 gallons the blocks are made smaller and the embankment not more than 12 inches high.

Los Angeles County.—We plow furrows as deep-ly as we can and about one-third the distance of the spaces between the trees, one furrow on each side of each row. This makes all the furrows equidistant with two furrows to each tree. When we have our reservoir to draw from we adjust our outlets into each furrow and let it run for 48 hours. By that time the ground at the surface is damp for two or three feet on each side of the furrows.

In Idaho.—The number of irrigations in a season depend entirely upon amount of rainfall in the spring and age and condition of bearing of the trees. With periodical rains up to the middle of May or first of June, the first season of planting the trees, six or seven irrigations. Same conditions with trees in bearing; add enough water to "plump" out the fruit and assure the proper setting of fruit spurs for the next season. This generally requires two more irrigations, although there are many who do not consider it necessary. If the rains cease in February or early in March, add two more irrigations for first-season trees and one for older ones. The foregoing relates to a soil of clay consistency which, when once thoroughly wet, holds moisture a considerable length of time. If the soil should be sandy or mucky, the irrigations should be at least a third and perhaps a half more. If the most thorough and constant cultivation, at the time when the soil is friable, is not given, the foregoing is not a safe basis by which to go. In fact, I consider that the two go so much hand in hand that neither amounts to much without the other. A dust mulch, in which the capillary tubes are broken at least once every two weeks, will hold moisture in clay ground here for from six to eight weeks in the very hottest of our weather.

Another Idaho Case.—For deciduous and small fruits, located by sub-lateral ditches, 6 inches for small and 2 feet for large fruits from plants or trees. For average sandy loam soil six hours run of water in the ditches is about right. For some soils, for instance, clay without hardpan, you must run water six to ten hours, while on soils with hardpan near surface two to four hours will do, and for sandy, gravelly soils about six hours. Again, we have soils that will sub-irrigate many feet from ditch; that is, for apple trees 30 feet apart a single ditch through center 15 feet from trees will do, while on other soils the ditch must be within one foot or less. Ordinarily, however, two feet is about right. Again, the latitude regulates the amount of irrigation; for high lands that above stated is about correct; for lower lands contiguous to streams or underground flows once may be enough to irrigate orchards in a season.

Still Another.—For trees and berries I advocate the furrow system by all means. Water should not touch the trunks of trees nor the stems of berries. With young trees I run the furrow next the trees about the same distance from the trunk as the extent of the branches, and on the rest of the ground a furrow about every five feet. In other words, four furrows in rows 20 feet apart. When the water reaches through from one to the other, turn it off, and then, as soon as it will work, get on with a cultivator. On side-hills I cut a lateral furrow on the up side of the tree so that the water does not rush by it too quickly.



Furrow Irrigation in an Orange Orchard in Southern California.

Citrus Fruits.

HOW SOIL MOISTURE MAY BE AFFECTED BY IRRIGATION.

In preparation for a close study of the distribution of moisture from deep and shallow furrow irrigation (the general conclusions from which were given on page 225 of the PACIFIC RURAL PRESS of March 20) Dr. R. H. Loughridge conducted a number of preliminary observations to determine how soil moisture may be found distributed through different depths of the soil from irrigation practiced at an earlier date. These are given in detail in his publication on "Distribution of Water in the Soil in Furrow Irrigation," which

is Bulletin 203 of the Office of Experiment Stations of the U. S. Department of Agriculture.

What we have in mind in the compilation which ensues is to give the reader an idea of how variable the distribution may be in ordinary irrigation practice and to assure him that pouring water on the ground and having it do down does not produce such a uniform condition of soil moisture as the beginner in thinking of such things might imagine. Of course, the character of the soil is the ruling factor in the distribution of moisture, but character cannot be wholly determined by surface observation, as is clearly indicated in the particular case which Dr. Loughridge describes. A careful study of his conclusions will convince the reader that he may have more complex problems under his feet than he has previously thought of.

Soil Moisture.—Water exists in the soil chiefly in two conditions, namely, hygroscopic and free, the former being what is held as a thin film covering the surface of each grain of soil and not free to move except when vaporized by heat, while the free water is that which is free to move from place to place in soils, either by percolation under the influence of gravity or by capillarity under the influence of surface tension. The free water is alone to be regarded as of any value in promoting growth and productiveness, and in the following it alone is mentioned. Its movement is limited by the texture and water-holding power of the soil. The height to which it will rise above the source is controlled by the soil texture. The coarser the soil the less in height will water rise by capillarity. The depth of percolation for a given amount of water is limited by the water capacity and freedom of movement.

The soil beneath the furrows can be examined easily, and the results are often full of surprises for the irrigator. In some of the orange orchards in the regions of both Corona and Riverside it was found by examination that after a three days' run of the water it had reached a depth of only 10 or 12 inches, instead of several feet, as it should have done.

Character of the Land.—The soil of the orchard under examination is a sand loam of good texture, more or less micaceous and granitic in origin, being derived from hills on the south, in which are great masses of granite composed of quartz, orthoclase feldspar, and biotite or black mica. The soil throughout the tract is underlain by a highly micaceous and more or less gritty loam at depths varying from 2 to 5 feet, as was shown by the preliminary examination. The grit consisted of small fragments, partly granitic, with its minerals still intact, and of single grains of feldspar and quartz loosened from the rock by weathering agencies. It is irregularly distributed, sometimes in pockets or small bodies of little else than grit enclosed in the loam. Occasional pieces, the size of gravel, of either granite, quartz, or feldspar were met with in the examination. Still deeper down this mixed loam and grit is underlain by a bed of almost pure grit of the same character, and reaching in places many feet in thickness.

The beds of grit are nearer the surface in the southeastern portion of the orchard, which is nearest a high hill of granitic rock, to which the land slopes. Here the coarse grit is within three feet of the surface, while on the west it appears only at seven to nine feet.

In the lower part of the orchard the overlying loam is thicker than on the northeast and the coarse grit beds are deeper below the surface. These grit beds give to the land excellent underdrainage toward the lower plains on the north, and in the case of storms or excessive irrigation will prevent stagnation of water and consequent injury to the soil and roots of trees. It is believed by many of the orchardists of the Riverside region that water is thus lost from orchards and leaky ditches, as well as from head ditches constructed in the soil without cement protection. The gritty material often forms very compact beds—so much so that in many places the auger failed to penetrate them. With the loam the grit forms a kind of hardpan, especially in the eastern half of the orchard tract. It is, however, not wholly impervious to water, for water loosens it quickly and affords easy penetration to the tree roots. On drying, it again becomes hard and firm and may prevent proper aeration of the soil below. The western half of the orchard has not this hardpan. A soil of this nature has but a low capacity for holding water, and the maximum capacity or saturation point of this was found to be 38 per cent of its weight.

The weight of the sandy loam of the orchard, which was ascertained in order to determine the amount of water in the soil, was 110 pounds per cubic foot when well compacted. In a loose condition (such as mulch) the weight was 92 pounds per cubic foot.

The thickness of the upper sand loam varies from point to point. Beginning on the southeast, in the upper part of the orchard, we find in passing westward that the surface of the underlying grit forms a waving line, 2, 3 and 4 feet below the surface for a distance of 525 feet, then sinks to 6 feet, and deeper to the end.

Across the middle of the orchard from east to west it was found to be farther below the surface and in a waving line of 4 to 5 feet, rising in one place to 3 feet. Across the lower part of the orchard the depth of the loam is still more irregular, beginning with 3 feet, soon sinking to 4 feet, then to 5 feet at 200 feet distance, varying between that and 3 feet until, at 410 feet the soil bed assumes a thickness of 8 to 9 feet above the grit. The deepest bed of loam is therefore on the northwest and west.

Moisture Content Before Irrigation.—The last application of water previous to the experiments was in October. In the following winter there was a rainfall of 16 inches (as recorded by the foreman of the ranch) and at one time a flood of water from the south poured in over a portion of this orchard. By the latter part of June, after a lapse of several months, the total quantity of water in the soil to a depth of 13 feet was the equivalent of a depth of 15.7 inches over the surface, as ascertained by the many examinations made at that time.

The preliminary examination for moisture content in the orchard gave the following results:

The surface mulch varied from 6 to 8 inches in depth and was loose and dry. The examination of samples from several points in the orchard showed very little or no free moisture. Evidently the little that rose from below into the mulch by capillarity was vaporized by the high heat of the soil, leaving only a little hygroscopic moisture.

The soil immediately below the mulch, which completed the first foot in depth, showed by the darker tint some free moisture, varying in amount in each hole dug. The lowest percentage was 1.63 and the highest 5.68 per cent. The driest soils were along the upper part of the orchard, the general average of the first foot being 2.9 per cent. The next were in the middle, with an average of 3.4 per cent. The lower part of the orchard shows higher percentages, averaging 3.9 per cent. The reason for these progressive differences is not apparent. We again found that the amounts in the first foot were, in general, less in the eastern than in the western half of the orchard, the averages being, respectively, 3.2 and 3.6 per cent. The general average for the first foot for the whole orchard is 3.4 per cent.

One of the most striking results of the preliminary examination was the great variation in the amount of water, not only through the orchard from place to place, but from foot to foot, in each soil column itself to depths of 13 feet. We would naturally expect to find at least some near approach to uniformity in the soil after the several months that had elapsed since the last rainfall; not the same percentages from the surface down, but a gradation downward from low to higher, and rising to a maximum in the lower depths. Naturally we find, as a rule, that the lowest percentages are in the upper two feet because of the evaporation; we usually find from 2 to 4 per cent in the soil just below the mulch and a little more in the second foot. Then in the next foot there is usually an increase of 1 to 2 per cent and sometimes as much as 4; and in 66 cases out of 93 examinations another increase of 1 to 5 per cent in the fourth foot. On the other hand, there is frequently a sudden diminution in the amount of water found in passing from one foot to that immediately below—a difference in some instances of several per cent.

Reasons for Variation.—These abrupt and large differences may be accounted for in several ways: (1) Capillary movement upward; (2) differences in texture of the soil; and (3) absorption by tree roots.

Sometimes the grit layer at depths of eight or more feet was found to be very moist to an extent beyond natural field capacity; the excess was doubtless seepage from the irrigation water in orchards above, on the slope of the mesa. It was much more noticeable on the eastern side of the orchard, where the thick bed of coarse grit was penetrated, and in the lower portion of which we usually found 10 to 14 per cent of water.

At similar depths on the west in the gritty loams the percentages of 4 to 6 per cent were usually maintained. Here the bed of coarse grit occurred at a lower depth than was reached by the auger, and no doubt the flow of waste water would have been reached in the lower portions.

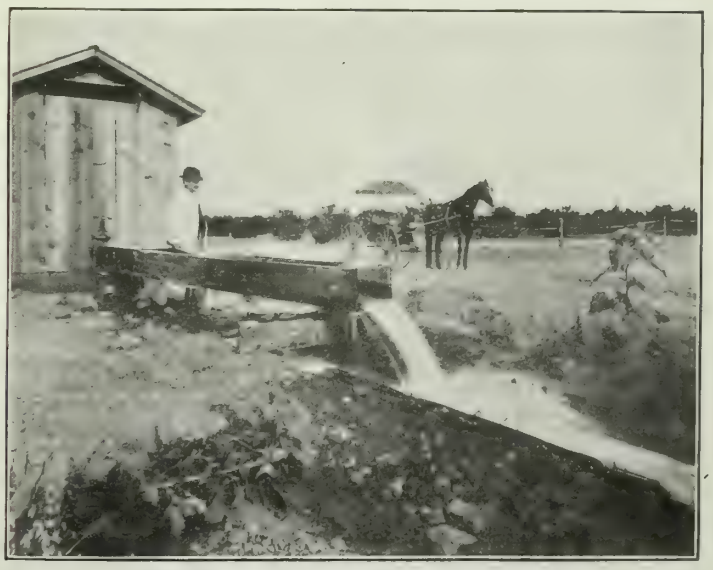
It is well known that plants and trees all draw their moisture supply from the soil by means of the microscopic root hairs which cover the ends of the fine rootlets, and not through other parts of the root system, which are covered with a bark that is impervious to water. We would, therefore, naturally expect to find the soil surrounding the rootlets to have a lower percentage of moisture than that away from them. This has frequently been found to be the case with trees of all kinds, and to this action of the rootlets may be attributed many of the instances of low-moisture content.

The maximum depth of penetration by the roots, observed in this orchard, was about 6 feet, but only as a rare exception. The great mass of feeding roots kept within 4 feet of the surface, though frequently they occurred in a mass in the upper two feet.

These facts show the importance of depth of soil as a reservoir of moisture which can rise by capillary movement to the layer occupied by the roots rather than as an area to which the roots will directly penetrate. This condition is influenced, of course, by the soil character and rooting habit of the plant itself.

ELECTRIC PUMPING FOR IRRIGATION.

To the Editor: There are now 75 miles of suburban three-phase electric lines in the neighborhood of Dixon. The power is in use by the majority of the farmers, more especially on smaller ranches with diversified farming, such as dairying, berries, alfalfa, and small fruits.



Electric Pumping Plant in Tulare County.

The wells thereabouts are 90 feet in depth, having a 12-inch bore. The cost of boring such a well averages $125, making an entire pumping outfit and well amount to $800.

A well delivers from 1000 to 1200 gallons per minute. When the pump is running, the water in a 90-foot well stands at 25 to 30 feet from the surface, and when not working, at 16 feet, normal water level. It costs $1.30 per day to run a 10-horsepower engine. The power is utilized for very many other purposes, such as chopping feed, sawing, lighting, washing, ironing, and milking.

Many farmers abandoned electric milking machines because of cows' withholding their milk, but several Solano county dairymen are operating

the machines successfully, and state that any difficulty arises from lack of care or skill in adjusting them.

In the vicinity of Dixon, 35 plants of 10 horsepower, and 10 plants of 15 horsepower have already been installed, pumping water for about 1100 acres of alfalfa and orchard and milking about 150 cows with machines twice a day. All the farm houses within ten miles of the town are lighted by electricity, and it is used for household and laundry purposes. The operation of the power is extremely simple, requiring little or no attendance. It is also very free from danger. The voltage required is only 220, not sufficient to seriously injure a person coming in contact with the current. A. J. L.

The Irrigator.

METHODS OF MEASURING IRRIGATION WATER.

Compiled from Various Authentic Sources for the Pacific Rural Press.

THE MINER'S INCH.

Although the miner's inch, as commonly measured, is open to objection because of inaccuracy, from an engineer's point of view, it is so easily applied that it must remain a popular recourse. It consists in causing the water to flow through an opening, the capacity of which is known, and which is readily capable of adjustment to the flow in any case. A simple form of this device and its use is shown in Fig. 1. The illustration represents a board 1 inch thick, 12 inches wide, and about 8 feet long. The opening is 1 inch wide and 50 inches long, and the distance from the top of the board to the center of the opening is exactly 4 inches on the up-stream side. On the down-stream side the opening is beveled so that the hole presents sharp edges to the stream. A sliding board is hung upon the top of the first board, with a strip screwed along its upper edge, this sliding board being wide enough to cover the opening on the up-stream side. In the slot there is a closely fitting block, made to slide on the beveled edges and fastened by a screw to the sliding board. It is obvious, then, that when the sliding board is moved backward or forward, by means of its end, which is extended for a handle, the block moves in the slot and determines the length of the opening.

In operation the board is placed in the stream as shown in the figure, so as to dam the flow completely, and the sliding board is moved backward or forward until the water is all passing through the slot, the water being kept up to the top of the board, or 4 inches above the center of the opening. The length of the opening measures the number of miner's inches of water flowing through. If the flow is too great to pass through the opening 1 inch wide, the opening may be made wider, the water still to be kept 4 inches above the center of the opening. The laws of several States provide that in devices for measuring water for sale by the miner's inch the opening shall be 6 inches high, and shall be provided with a slide as shown in Fig. 1. The number of miner's inches then discharged is equal to the number of square inches in the opening. The assumption made that the discharge is proportional to the size of the opening is not true, but the error in measuring small quantities is not great enough to be taken into consideration. By converting the results of measurements in miner's inches to gallons, cubic feet, or some other familiar unit, it may be determined how long it will take the stream to fill a reservoir or cover a given field with the necessary depth of water. This unit is readily convertible into cubic feet or gallons or acre-inches of water, according to the time the water flows.

The following data will be helpful in computations: One miner's inch, as described above, equals 0.1496 gallon per second, 8.976 gallons per minute, 538.56 gallons per hour, 12,925.44 gallons per day; 0.02 cubic foot per second, 1.2 cubic feet per minute, 72 cubic feet per hour. One acre-inch of water (that is, 1 inch in depth over an acre of surface, equals 27,152 gallons, or 3630 cubic feet, and 1 miner's inch will supply this quantity in about 50.4 hours. Thus a simple calculation shows that a little stream of 5 miner's inches will supply enough water to cover an acre 2.3 inches deep in about 23 hours—a fair amount for one irrigation of soil of average character if it has not been allowed to become too dry before the application; In fact, this is an average amount actually used for an irrigation of shallow-rooted plants like most field and garden crops.

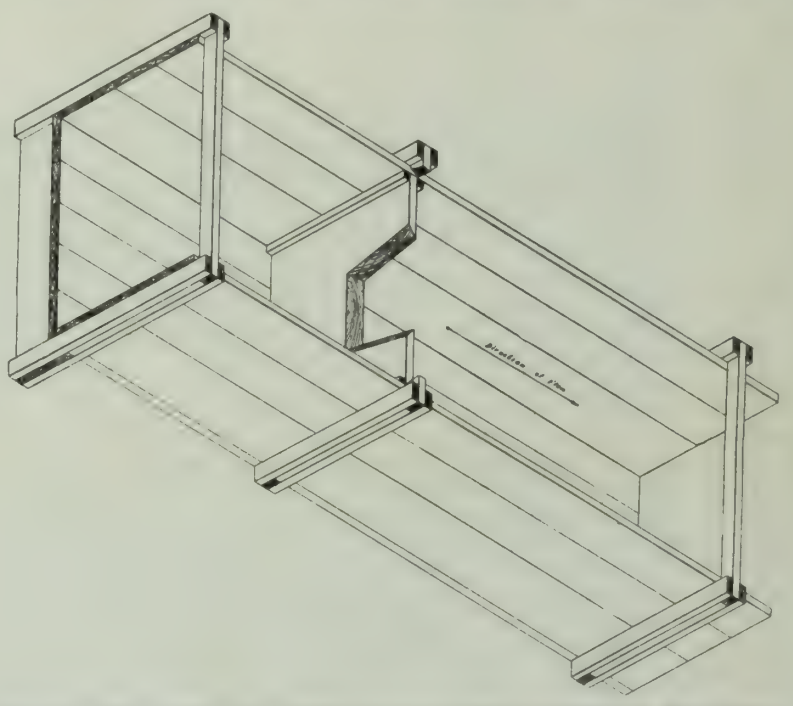
WEIR MEASUREMENT.

The term "weir" is not always understood by those who use it. The term can properly be used only for structures designed to allow the water to flow over the crest with a considerable fall on the down-stream side. There are a large number of forms of weirs, taking their names from the shape of the weir notch, or the form of crest. The triangular weir has a V-shaped notch. The rectangular weir has a horizontal crest with vertical sides. Both of these forms of weir are good, when used by the expert irrigator or engineer who understands the principles and factors which enter into their calculations. In order to avoid the variable factors which enter into the calculations for the flow of water over weirs, Cipoletti invented the form of weir which has taken his name and which is in general use throughout the irrigated sections of the world.

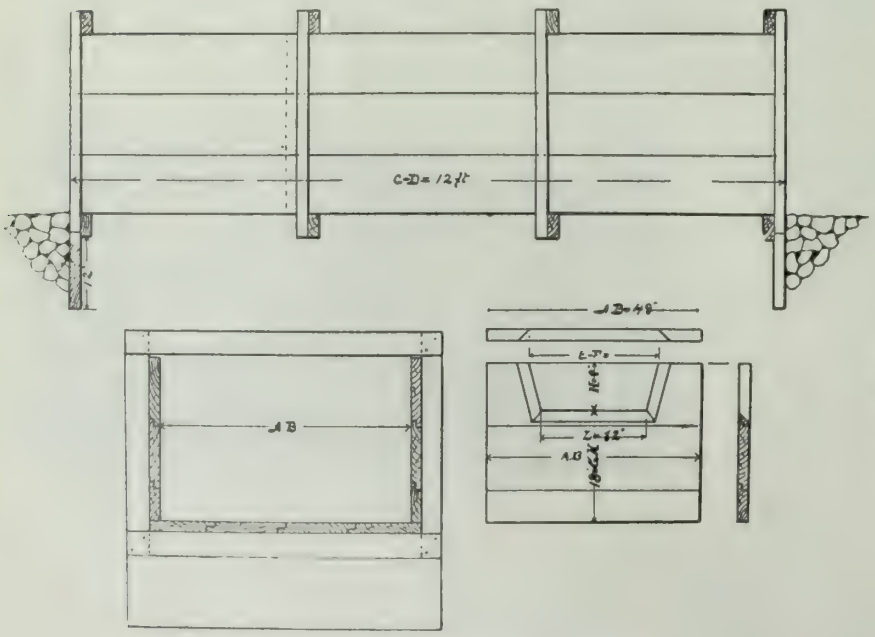
The Cipoletti Weir.—The Cipoletti weir has a



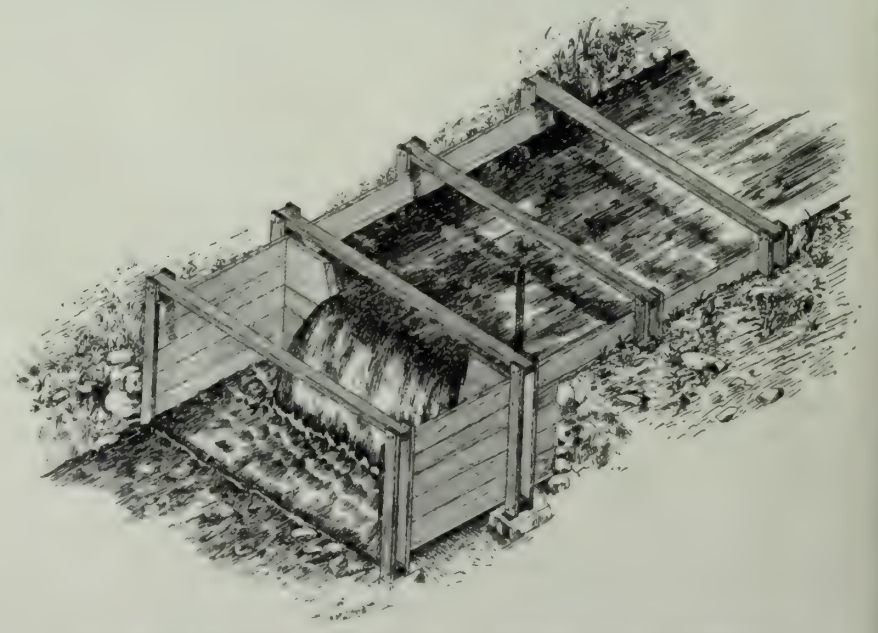
Measuring Miner's Inches in a Small Stream or Ditch.



General Plan of Weir Box Showing Beveled Edged Opening for Water-Flow.



Working Drawings for Construction of Weir Box.



Weir Box in Operation Showing Rod for Measuring Depth of Stream.

thin horizontal crest, the sides of the weir notch sloping back from the vertical at an angle equal to one inch in horizontal for every four inches in vertical. This, for each additional inch in depth the weir notch widens on each side one-fourth of an inch, or a total addition of width of one-half inch. A weir having a length of crest of one foot, and designed to be eight inches in depth, will have a top width of notch of 16 inches. The working drawings herewith show how such a weir can be constructed.

When the weir box is placed, care should be taken to have the bottom of the notch, or crest, level. An ordinary carpenter's spirit level may be used for this purpose. When the crest is horizontal, one end of the spirit level is placed on the center of the crest, and when level the other end will mark the point for the zero of the weir gauge. In rough work a nail may be driven part way into the side of the box, the top of the nail being level with the crest of the weir. A thin plate of brass is to be preferred to a nail. In other cases gauges are inserted on the sides of the flumes and properly marked in tenths of feet or inches. At other times a post from 1 to 2 inches square is placed in the center of the box and several feet above the weir board. The top of this post is on a level with the crest.

How to Measure Water Over Weirs.—The method to follow can best be shown by examples. Let us suppose that a farmer has made and placed a box similar to the one shown in the drawing. After turning in the water and allowing it some time to attain a uniform flow he proceeds to the weir box and with an ordinary rule measures the depth of water flowing through the weir notch. Bear in mind that this measurement is not made at the weir board, but at the regular gauge, whether it be a nail, brass plate or post as already described. We will assume that the depth as found by the rule is 3½ inches. Now by referring to the table below he follows down the first column until 3½ is reached. The weir used is one foot, and under the column marked '1-foot weir' and opposite the figure 3½ already found he finds the cubic feet per minute or the gallons per minute flowing over a one-foot wear when the depth of water is 3½ inches. The equivalent flow in gallons per minute for any given length of weir and depth of water over the crest was obtained from the following table:

DISCHARGE OVER CIPOLETTI WEIRS.

Depth of water on crest.	1-foot wear.		1½-foot weir.		2-foot weir.		3-foot weir.	
Inches.	Cubic feet per sec.	Gals. per minute.	Cubic feet per sec.	Gals. per minute.	Cubic feet per sec.	Gals. per minute.	Cubic feet per sec.	Gals. per minute.
1	0.08	36	0.12	55	0.16	73	0.24	109
1⅛	0.10	44	0.15	65	0.19	87	0.29	130
1¼	0.11	51	0.17	76	0.23	101	0.34	152
1⅜	0.13	59	0.20	88	0.26	117	0.39	175
1½	0.15	67	0.22	100	0.30	139	0.45	200
1⅝	0.17	75	0.25	113	0.34	150	0.50	226
1¾	0.19	84	0.28	126	0.38	168	0.56	252
1⅞	0.21	93	0.31	140	0.42	187	0.62	280
2	0.23	103	0.34	154	0.46	206	0.68	308
2⅛	0.25	113	0.38	169	0.50	225	0.75	338
2¼	0.27	123	0.41	184	0.55	245	0.82	368
2⅜	0.30	133	0.44	199	0.59	266	0.89	399
2½	0.32	144	0.48	215	0.64	287	0.96	431
2⅝	0.34	154	0.52	231	0.69	309	1.03	464
2¾	0.37	166	0.55	248	0.74	332	1.11	497
2⅞	0.39	177	0.59	262	0.80	355	1.18	531
3	0.42	189	0.63	283	0.84	378	1.26	566
3⅛	0.45	201	0.67	301	0.90	402	1.34	602
3¼	0.47	213	0.71	319	0.95	426	1.42	639
3⅜	0.50	225	0.75	338	1.00	451	1.51	676
3½	0.52	238	0.80	357	1.06	476	1.59	714
3⅝	0.56	251	0.84	376	1.12	502	1.68	753
3¾	0.59	264	0.88	396	1.18	528	1.76	792
3⅞	0.62	277	0.93	416	1.24	554	1.85	832
4	0.65	291	0.97	436	1.30	582	1.94	872
4⅛	0.68	304	1.02	456	1.36	609	2.04	913
4¼	0.71	319	1.07	478	1.42	637	2.13	956
4⅜	0.74	333	1.11	499	1.48	665	2.22	998
4½	0.77	347	1.16	521	1.55	694	2.32	1,041
4⅝	0.81	362	1.20	543	1.61	723	2.42	1,084
4¾	0.84	376	1.26	564	1.68	753	2.52	1,129
4⅞	0.87	391	1.31	587	1.74	782	2.62	1,174
5	0.91	406	1.36	609	1.81	813	2.72	1,219
5⅛	0.94	422	1.41	633	1.88	843	2.82	1,266
5¼	0.97	437	1.46	656	1.95	874	2.92	1,312
5⅜	1.01	453	1.51	679	2.02	906	3.03	1,359
5½	1.05	469	1.57	703	2.09	938	3.13	1,407
5⅝	1.08	485	1.62	727	2.16	970	3.24	1,455
5¾	1.12	501	1.68	752	2.23	1,002	3.35	1,503
5⅞	1.15	517	1.73	776	2.31	1,034	3.46	1,553
6	1.20	534	1.79	801	2.38	1,069	3.57	1,603
6⅛	...	...	...	...	2.46	1,102	3.68	1,653
6¼	...	...	...	...	2.53	1,136	3.80	1,704
6⅜	...	...	...	...	2.61	1,170	3.91	1,755
6½	...	...	...	...	2.68	1,205	4.03	1,807
6⅝	...	...	...	...	2.76	1,240	4.14	1,859
6¾	...	...	...	...	2.84	1,275	4.26	1,912
6⅞	...	...	...	...	2.92	1,310	4.38	1,966
7	...	...	...	...	3.00	1,346	4.50	2,020

IRRIGATION AND DEVELOPMENT OF OUR GREAT VALLEYS.

(Continued From Page 413.)

and better methods of distribution; but as the two former would mean a tremendous outlay for ditch linings and piping, they cannot now be considered, although eventually it may pay to follow the system adopted in southern California. Pumping for irrigation is already largely used throughout the upper portion of the valley, and aside from the increased cost of installation and maintenance is entirely successful.

In the Sacramento valley we find conditions far more favorable for gravity ditches than in the San Joaquin valley. With an area of about 3,000,000 acres, one-fourth of which is swamp land, we have streams flowing throughout the year from the Coast Range as well as from the Sierras. Stony, Cache and Putah creeks, with proper storage, can take care of the greater part of the land west of the Sacramento river. We also find that the tributary watershed has an average flow of about 35,000 second feet, or sufficient to irrigate the entire valley without particularly affecting navigation on the Sacramento river. It is therefore to be expected that when the benefits of irrigated agriculture are more fully realized, the Sacramento valley will awake to its opportunities and become a community of small farmers with an endless variety of high-grade crops.

In conclusion, there is nothing to prevent the early settlement of all the good lands throughout the great central plains, and that this settlement is going on and increasing is largely due to the energy and enterprise of the various communities interested.

The Irrigation Investigations of the U. S. Department of Agriculture has just published a bulletin on irrigation in the Sacramento valley, by its chief, Dr. S. Fortier, and a similar publication on the San Joaquin valley is now in preparation. These will be of interest not only to residents, but to intending settlers in this great future field of our State's wealth.

IRRIGATING STRAWBERRIES.

To the Editor: In the beginning of strawberry growing in our section the first step is to get the ground in condition to irrigate. This is usually done with a four-horse scraper. The beds between ditches are generally six feet wide, with ditches about 16 inches deep and 20 inches wide at top on level of ground. The water fills these ditches to within 4 or 5 inches of the top, causing sub-irrigation, so that the water reaches the root system of the plants without causing the surface to become too wet, which would cause the berries to decay. We irrigate twice a week, but many growers keep water in the ditches at all times.

Preparation for Planting.—The ground should be plowed and thoroughly worked before making the ditches, and if fertilizer is used it should be applied the year previous and thoroughly worked into the soil. In fact, we believe it a better way to manure the ground a year previous to planting and work the soil all through the season, to kill all weed seed possible, and it leaves the ground in fine condition for the planting.

We have tried many experiments in fertilizing, and we find that working manure into a growing strawberry bed makes all foliage and but few berries. In one of the experiments we used well rotted manure between two ditches, and wood ashes in the row alongside, and the manure made a wonderful plant growth and the ashes produced about three times more berries than the manure.

In growing berries for great yields and fine fruit we prefer to grow our own plants. Having bought such varieties as we want, we select from the best producers that have the size and quality desired, also thriftiness of plant. In all the strawberry culture that we have ever seen we have never seen a grower select plants for production. The usual way is to go out into the plot and dig up the plants as they come, and plant any old way.

In planting we prefer to set a double alternating row, and keep off all runners. By this method we can work all around the plants. After having selected the best producing plants to make new plants for future plantings, we use a plot for plant growing aside from the berry growing plot.

We consider May and June the best time to plant, because we do not have the spring weeds to contend with, and the first buds set during the autumn for the next spring's crop. After one season's fruiting the plants are taken out and give place to new plants, which have been set in to fruit the season following. Plants produce their largest and best berries the year after planting, and it is the fine large fellows that sell. We have never had competition in selling. Our competitors (mostly Japanese) set the price, but we always find a ready sale for good berries.

In conclusion we might summarize the principal points as follows: Thorough preparation of soil and grading of ditches before planting, cutting of runners, thorough weeding and cultivation.

To produce early berries it is well to run ditches east and west, exposing the north side of the row to the sun.

Where we plant pistillate varieties we usually plant a row of staminates to every three of the pistillates.

In growing plants the mother plant should not be allowed to produce more than eight plants, and only one plant to the runner.

Elk Grove, California. CLAUDE D. TRIBBLE.

GYPSUM.

Written for the PACIFIC RURAL PRESS.
By H. B. MATTHEWS.

One of the important minerals found in soils is gypsum, or sulphate of lime. It is found over a wide area in the United States, much being found in the lime districts of Nevada and those of southern California. It appears in three forms in nature—a white, sugar-loaf gypsum, much resembling marble; selenite, resembling mica, and a disintegrated gypsum, resembling sand. When gypsum is calcined, that is, the water is burned out of it, we have plaster of Paris, which is used for wall finishing in buildings; but when the raw rock is ground to a fine powder, we have land plaster, which is largely used by the farmer and is being sold by three or four gypsum companies in California for his use.

Gypsum is well known as a soil regulator or soil stimulant, but many people dispute its place among fertilizers, while others who have applied it to their crops and have noticed good results in the yields obtained, have pronounced it a regular fertilizer. The commercial fertilizer agent would tell you that compounds containing forms of phosphoric acid, potash and nitrogen were the only fertilizers. But let us take up the man's case who has received such heavy crops; suppose it is alfalfa raised from adobe or clay soil—the gypsum here may have liberated potash which was in some small particles of stone called feldspar, the alfalfa takes up the potash, has a good growth on account of it, and the farmer claims that it was gypsum which the alfalfa took. But gypsum was only an agent to set the potash free. Again, the clay or adobe being a heavy soil, the alfalfa roots could not penetrate so very far down before the gypsum was applied. In this case the gypsum flocculates the fine grains of clay together, making coarser grains, similar to sand. Now the physical condition of the soil has been changed and the soil is said to be in a more friable state; in other words, the soil has been changed from a heavy soil to a light and more granular soil, hence the roots of the alfalfa can penetrate farther for water; the alfalfa has had an extra good drink, and the farmer says that it grew fat upon gypsum. But still the gypsum has done that alfalfa further good; it has helped the alfalfa to take up nitrogen from the air and hold it as ammonia; the alfalfa fed upon the ammonia, and the farmer claimed it was gypsum. The critical man who claimed that gypsum was a soil regulator would say that was all it was in the above case. Gypsum just helped the alfalfa to take up the potash from the soil, fixed the soil so the roots could go farther for water, and then held the ammonia so the alfalfa could feed upon the ammonia as it needed it.

This is all true, but what will Mr. Critic say to the sulphate which leaves the gypsum to form potassium sulphate, which enters the plant to form legumin. Here the gypsum has furnished a plant food and must be considered a fertilizer; consequently it is both a fertilizer and a soil regulator.

Mainly we must consider gypsum the soil regulator, though it is a fertilizer to some extent; and the regulation of the soil should be studied as carefully as the fertilization. Gypsum will not only help to change a clay or adobe soil to a lighter, more workable soil; but it can be used upon sandy soils, causing the sand to hold more water; it will sweeten a sour soil; and with a black alkali soil (the alkali being sodium carbonate) the gypsum changes it to the white alkali soil (sodium sulphate), which is less harmful to plant life. Used with other fertilizers, it modifies soil and helps the fertilizers to do their work.

Wherever gypsum is sown, we find the plants have taken on a greater and healthier growth, either from food the gypsum brought them or by its helping the plants to get more food from the soil, or go farther for water. Not only is a heavier crop produced for the farmer, but he has hardier plants which can better withstand the ravages of insects and plant disease.

A year ago the writer had a talk with a fruit grower in the South, who had an orange grove near some marble quarries which had some deposits of gypsum in them. He said that his trees were not troubled with scale, and his oranges were firm and sold each year at a good price.

Gypsum thrown behind cattle or other animals in the barn will produce a more sanitary condition, and at the same time preserve ammonical compounds which before ran off in the urine of were lost by the manure through fermenting.

The rancher can buy the gypsum in one hundred pound sacks at a very low price per ton, which price will depend largely upon the freight rate from the quarries to his town. Where soil conditions are right and the gypsum is wanted for alfalfa, 100 to 300 pound doses are recommended, and the rancher can apply such doses at a cost of from 50 cents to $1.50 per acre. To correct the heavy condition of the soil, a ton of gypsum to the acre may be applied, at a cost of about $10 per acre. The gypsum should be drilled or strewed upon the surface, just before an irrigation or before the rains come on.

In many parts of California we find grain fields giving way to fruit orchards because the ground has been worn out by the many crops of grain without fertilizer ever having been applied. In the southern part of the State the ranchers are said to be more scientifis farmers, and fertilize about ten times as much as the ranchers of any other part of the State. In the northern and central parts of the State the ranchers for the most part are wearing out the soil, like the grain growers have. We can see the branches of trees and the tops of plants, but not the roots of the trees or plants; if a new insect lights upon a tree or smaller bush, we worry until we have found out how to kill the bug—we just look upon the surface of things. Let us find out what are the wrongs with the soil, why the roots cannot get the necessary food or take up the food as they should. Fertilize according to the requirements of the plant and the conditions of the soil.

CULTIVATION INSTEAD OF IRRIGATION.

The whole strenuous effort which now goes under the name of "dry farming" is in reality a tribute to the value of irrigation, because it shows how hard it is to get along without it. We were once trying to tell an enquirer what was meant by "dry farming," and condensed the affair in this way: The whole undertaking consists in keeping moisture enough in the soil to make a crop." He replied: "Dry farming is then a most difficult form of wet farming"—and so it is.

In the outline of secrets of success with dry farming, which we take from a recent publication by the Wyoming Experiment Station, one can hardly fail to be struck with the fact that the methods prescribed are designed to meet the principles previously disclosed by California experience with rainfall farming; also by our conclusions as to methods which are most effective for conservation of moisture in connection with irrigated farming. California has been, in fact, the pioneer in all these policies, and though the term "dry farming" is new, the secrets of its success have been known and practiced here from the beginning of the American occupation.

1. There are about 14,250,000 acres of land in Wyoming with a rainfall of over

$15 per Acre Cash

BALANCE EASY ANNUAL PAYMENTS

This land is subdivided in tracts of 10 acres up, ranging in price from $65 to $100 per acre.

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Send for folder, for full particulars relative to these lands, and other testimonials taken from the books of the Atwater Cannery. Also relative to the great ALFALFA output. Dairying, poultry and hog raising. This is a rare opportunity, as these lands have never before been offered, and prices will soon be advanced. All statements absolutely reliable and guaranteed. References: California State Board of Trade, San Francisco, or any bank in California.

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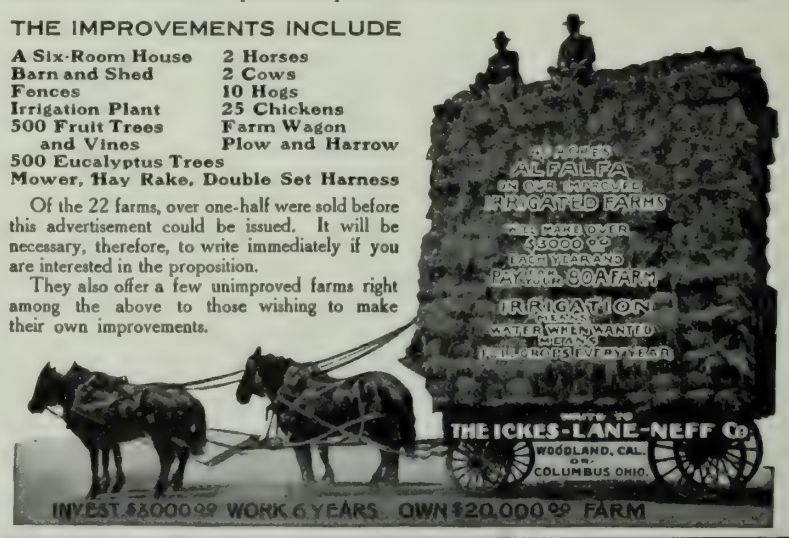
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Mower, Hay Rake, Double Set Harness

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



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15 inches. It is safe to say that the plow land of this area can be profitably farmed on natural precipitation, by thorough practice of dry-farming methods.

2. There are about 29,500,000 acres of land in the State with an annual precipitation of between 12½ and 15 inches. Practically all of the plow land in this area will grow profitable crops by dry farming in a majority of seasons. It is a safe prediction that very much of this land subject to homesteading under the 320-acre law will eventually come under the plow.

3. Of the 18,750,000 acres under 12½ inches, 10,250,000 acres probably receive less than 10 inches of rainfall. It is barely possible that a precipitation of 10 to 12½ inches coming largely during the growing season may suffice for the growing of such crops as have become adapted to semi-arid conditions.

4. Under the most favorable conditions, crops have been successfully grown on a precipitation of less than 10 inches, and while it is possible to succeed with certain crops on this limited supply of moisture, with other conditions right, it would be distinctly hazardous for a settler to venture much in the hope of gaining a livelihood on a 320-acre homestead where he was confident that 10 inches of precipitation was the average, and that in one-half of the seasons it would fall short of that amount.

5. Total annual precipitation is no conclusive guide in locating districts where dry land farming can be successfully practiced. The quantity and character of rainfall during the growing seasons, together with altitude, length of season, amount and severity of wind, hailstorms, early and late frosts, are factors which contribute to the solution of the question.

PLOWING.—From the evidence presented there seems to be no question as to the desirability of having the plowing done some considerable period before the time of planting, and that the land should be so handled during the fallow period as to render it capable of taking up and holding every particle of moisture possible. Fall plowing is recommended where it can be practiced, for spring crops and for seeding the following autumn. It is sometimes impracticable to plow in the fall, but whenever possible the ground should be left as rough as can be, in order that it may catch the snow. For summer tilling, fall plowed land is better, but a summer tilled ground for a fall sown crop may be plowed early in the spring. Where possible a depth of eight inches should be maintained, while some advocate plowing ten inches.

HARROWING.—As a rule, all land should be harrowed almost immediately after it is plowed, the only exception being fall plowed land, which should lie rough during the winter. As a rule, summer tilled land should be plowed after each shower or heavy rain, especially when the storm has compacted the soil in any degree. The harrow should be used on cereal grains in the spring and on cultivated crops, should the ground become encrusted before the crop is sufficiently far advanced to cultivate. The disk or alfalfa harrow should be used on permanent meadows and alfalfa fields early in the growing season to aerate the soil and mellow the surface to as great an extent as possible.

THE ROLLER.—The roller and the subsurface packer are valuable implements in the hands of the dry farmer, if used with caution. The ordinary smooth roller should be discarded for the corrugated roller, which serves to pack the ground, and at the same time it leaves a roughened surface from which the moisture does not readily evaporate. The sub-surface packer performs the same kind of work, and on fresh plowed mellow soil may be more desirable. The corrugated roller serves many purposes, and does not leave the hard, smooth surface which seems to encourage rapid evaporation.

WEEDER.—The most useful of implements for rapid work in light cultivation is the weeder. This cultivates the surface of the ground to a depth of one to two inches, is operated very easily, and one team can cultivate a large surface in a short space of time. It is practically a light harrow, and does the work much more cheaply than the ordinary harrow, wherever the ground is in such condition that the weeder will penetrate to the necessary depth.

For the cultivation of cereal crops, the first process would naturally be to harrow with the ordinary spike-tooth harrow. Following this, one or two cultivations should be made with the weeder, which may be operated on fields of grain until the growth is a foot or more in height. It serves to preserve the soil mulch, break the crust, and promote ventilation.

DRILLS AND SEEDING.—While the reports indicate that a variety of drills have proved successful, it is universally conceded that some form of press drill is necessary to get the best results from dry land farming. Any means whereby the soil is well compacted around the seed, produces the desired result. Rolling the land, however, should be followed with the harrower or weeder, in order that the surface may be roughened and evaporation checked. Where one is compelled to sow broadcast, the corrugated roller is recommended. Even the ordinary smooth roller may be employed to compact the ground after seeding, but the process should be followed at once with some sort of light cultivation.

CROPS.—The dry farmer, more than the humid land or irrigation farmer, must select and grow crops adapted to his local conditions. The developing of varieties capable of contending with aridity is progressing rapidly. Rotation of crops, conserving and utilizing of farm manures, and maintaining a full complement of live stock are essential to the highest degree of success in dry farming. Some of the crops that have demonstrated their adaptability to Wyoming dry land conditions are beardless barley, macaroni wheat, Turkey red winter wheat, winter rye, spring rye, oats, spelt, brome grass, alfalfa, potatoes, sugar beets, and, in the lower altitudes, Indian corn and Milo maize.

GENERAL CONCLUSIONS.—The dry land farmer must continually bear in mind that in order to succeed he must study the physical characteristics of his soil and take advantage of every possible means of conserving all the moisture that falls, whether it comes during the preparation of the land for seeding, during the growing period of the crop, or after a crop has been harvested. The foundation principle of conservation of moisture is to provide and maintain at the surface a layer of loose soil which serves to prevent the escape of moisture by evaporation. In the majority of cases it will be necessary to conserve the moisture of two seasons for a single crop; and early deep plowing, summer tilling of the land, and so arranging the crops that two seasons' rainfall will be largely utilized for each crop, are the means of securing the desired results. The dry land farmer cannot afford to be at all careless about any of these operations. He should also remember that every weed allowed to grow in his cultivated crop saps its proportion of the moisture from the land and robs him of a portion of his just dues.

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He Chose an Alkali Flat in Pennsylvania and with Gypsum Made in Large Letters on the Ground the Words,

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Gypsum will invigorate an exhausted soil.

Gypsum will neutralize the black alkali soil.

Gypsum is found by Alfalfa Growers to be a rich fertilizer.

Gypsum is used to preserve the ammonia compounds in barnyard manures.

Professor Hilgard, in a letter relating to the uses of Gypsum, says:

"In cases of alkali soils, Gypsum can be unqualifiedly recommended; in ordinary cases it can be positively recommended as a paying fertilizer for all leguminous crops, and in case of soils exhausted of potash. It can be recommended for the improvement of heavy clay soils and hardpan, which are thereby softened and made more tillable."

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AGRICULTURAL REVIEW.

The melon growers of Fresno and Stanislaus counties are discussing organizing local associations to market their crop through the Farmers' Union.

Selling at $1.34 the big wheat deal, engineered by Patten on the Chicago Exchange, came to a close last Saturday. Patten has cleared about $3,000,000.

The Frank Giannini winery located near Tulare was destroyed by fire last week. With the buildings there was also lost 75,000 gallons of wine and 50 tons of prunes.

Considerable damage was done to the grape crop in the northern part of Sonoma county by the recent frosts. Around Geyserville, in Alexander valley, and about Asti few vineyards escaped injury.

man; A. T. Garey of Los Angeles county, and Charles A. Bocks of Santa Clara county. This commission will constitute a board of horticultural examiners and county commissioners will act under their supervision.

The crop outlook around Gilroy in the southern part of Santa Clara county is reported as having improved very much of late. Good crops of prunes and other fruit are expected, and the grain and hay crops will also be fair.

The Oxnard Courier states that over half the lima bean acreage has been planted in Ventura county. So far the weather has been too cool for good results and the 30,000 acres planted had not made much growth.

Two cartons of bugs from South Africa are now at the State Insectary at Sacramento, where they will be kept till they become acclimated and multiply, when they will be turned loose in orange groves to war upon the black scale.

The cannery, storehouse and stock belonging to the California Fruit Canners' Association at Fresno was totally destroyed by fire last week, entailing a loss of about half a million dollars. It is announced that the cannery is to be rebuilt at once.

Rather heavy frosts visited the vegetable section around Stockton last week, cutting down potatoes and beans. However, beyond delaying the crop, it is thought very little damage was done. The acreage is larger than usual and the present indications are for a large crop of vegetables.

A news item in the daily press states that agents for J. P. Morgan of New York are in San Francisco this week in daily conference with local capitalists regarding a deal for taking over and colonizing 250,000 acres of land in Arizona under the irrigation system of the government in the Salt River valley. Also big land deals are talked of affecting sections in the northern part of California.

Last Saturday the Senate reached the agricultural portion of the tariff bill, and the import duty on barley was raised from 25 to 30 cents per bushel. The duty on hops was raised to 20 cents, on potatoes it was raised from 25 to 45 cents. The proposition to raise the tariff on imported lemons from 1 to 1½ cents per pound was opposed by Senator Root of New York and defended by Flint of California.

At a meeting of the Sebastopol Berry Growers' Association last week it was decided to accept a proposition of the Earl Fruit Company to handle all the apples raised by the members of the association this season. Prices were set for berry pickers as follows: Blackberries and Loganberries, 3 cents a drawer for canning and 3½ cents for shipping, or 20 cents a crate of 24 baskets; raspberries, 5½ cents a drawer for canning and 7 cents for shipping.

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Prune Organization Formed.

The Santa Clara Valley Fruit Growers' Association was organized at San Jose last Saturday at a meeting largely attended by prune growers. Temporary directors were chosen as follows: H. A. DeLacy, Coyote; R. P. Van Orden, Mountain View; J. T. Dunn, Palo Alto; A. M. Kelly, Morgan Hill, and William Topham of Berryessa, who represent the prune interests from all parts of the valley. Another meeting will be held Saturday, June 5, by-laws will be adopted and permanent officers chosen. An agent is to be secured to represent the organization in the East to at once commence selling the fruit of the association.

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PUBLISHER'S DEPARTMENT.

OUR IRRIGATION NUMBER.

This edition of the PACIFIC RURAL PRESS is the first special issue for several years, and we feel proud of it. We believe the matter it contains to be of general interest at this time to most of our subscribers. The paper will go for the first time to many new readers as a sample copy, and of them we ask that after a careful reading of its pages, if the PACIFIC RURAL PRESS seems worth while, that they send in their subscription.

This issue is a good "sample" of those we are printing each week, though the regular numbers have articles more diversified. To the fruit grower, stock raiser, and general farmer we believe the paper is worth many times its cost. Our effort is to make a paper that will help those who are making a living from the soil. We believe that the PACIFIC RURAL PRESS helps in the every-day needs and problems confronting the farmer—helps to raise more and better products and to secure more money for them. We know that the PACIFIC RURAL PRESS, through its editor, Prof. E. J. Wickson, has helped many hundreds of quarter-century and more readers; we know that it is helping the many hundreds of new subscribers; and to those who receive this issue for the first time, we know that you cannot make a better investment than by subscribing for it for a year.

Readers of this issue will notice many new advertisements of dealers who want your trade. We believe every house represented is responsible, and that your business will be appreciated by them. In writing to these advertisers you will confer a favor on us if you will mention seeing their ad. in the PACIFIC RURAL PRESS.

Look up the market report columns. These may not be the most interesting reading to some, but every good business man keeps close track of the cost and selling price of his goods. Our market reports are unusually ample, covering every feature of value to our readers, and as at this time the fruit growers are especially interested, we give extra space to this department. The reports are reliable and are well worthy of careful study.

The PACIFIC RURAL PRESS is the publisher of "California Fruits and How to Grow Them," by Prof. E. J. Wickson, price postpaid $3 per copy. The fourth edition of this valuable orchard book has been revised and enlarged, contains a third more matter and many handsome cuts over previous issues. The sale has been very gratifying, as only a few hundred copies are left of the large edition printed. Every fruit grower should send for a copy.

Live Stock and Dairy.

LIVE STOCK NOTES.

The work of erecting a mealfalfa plant at Modesto is to be commenced at once.

A train of 35 carloads of beef cattle was shipped recently from Merced county to Portland and Seattle, and on the same day six more cars of cattle were shipped to San Francisco.

Prices received for mohair this season by goat men in Tehama county have been much less than for past years, being about 20 cents per pound. The production of mohair in that county amounts to about 2400 bags annually.

News from Brown's valley, twenty miles east of Marysville, state that the cattlemen in that locality have decided to cut up their ranches and invite settlers. Approximately 50,000 acres will be placed under irrigation, for which there is plenty of water.

A big wild-horse hunt was held in Nevada last week, which was participated in by 500 herders. Fifty square miles of territory was covered in the district known as the Limbo country, north of Wadsworth. A big corral had previously been built, and when the horses were driven in the younger ones were taken and will be broken for saddle purposes.

The Holtville Tribune tells of profits in hog raising in the Imperial valley in the following instance: J. M. Prim has over 3000 hogs on his ranch, in every stage of development, from the little fellows that can just toddle, to the big fat porkers nearly ready for the market. His brood sows number 500. Last year he shipped ten carloads which brought him in about $1000 per car, or $10,000. As it costs him about $3000 to operate his ranch his profits were $7000.

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1909 UNITED STATES 1909

U.S.

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We have added **"working points"** and not fancy "talking points."

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A machine that will handle more milk. That will skim it more thoroughly. That will lose least in bowl flushing and that can be kept clean and sanitary with the least trouble.

These are **your** requirements, and a trial will **convince you** that the **latest model** U. S. embodies **all** of these **essential** features, to a **greater extent** than has ever before been reached in Separator construction.

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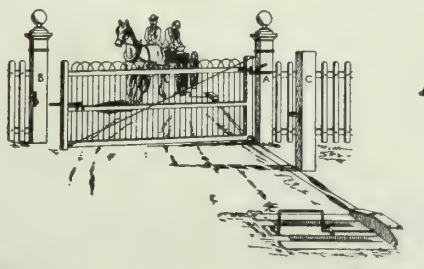
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Petaluma, Cal.



Thrifty Stock in the Stony Creek District of the Sacramento Valley.

The directors of Water Co. No. 5 in the Imperial valley have levied an assessment of $1.50 per share on the stock of that company to help pay indebtedness which has stood against the stock for several years.

There is a great quantity of water in Cache creek this year from the winter floods, and orchards and vineyards are now receiving the benefit. The Yolo Consolidated Company, which has control of the waters, has notified its patrons to be on the lookout as the gates are opened. A great acreage of sugar beets and barley is being watered as well as orchards and vineyards.

READING NOTICE TO AGRICULTURAL PAPERS.

The May issue of the Dairy Bulletin, published by the Vermont Farm Machine Co. to make better known the merits of the U. S. Cream Separator, is an unusually interesting and informative publication. Beside being well illustrated with half-tone engravings, there are several well written articles that will appeal to every farmer and dairyman (owners of Guernseys will be particularly interested in this issue), besides complete descriptions of the various models of U. S. Separators. A copy of this publication may be obtained free for a post-card request by addressing the Vermont Farm Machine Co., Bellows Falls, Vt.

ALFALFA GROWN BY IRRIGATION.

It is scarcely necessary to expatiate at length on the merits of alfalfa, as it has now come to be recognized as the choicest gift Mother Earth has to bestow on the dairyman and stock raisers, especially in the rich soils of the arid West where our chief water supply is by irrigation. Without irrigation we know it to be a most valuable product, giving an excellent return for all the care and labor bestowed upon it. There is none other that better exemplifies the text, "It is more blessed to give than to receive," deriving as it does, like other leguminous plants, its nitrogenous element from the atmosphere, treasuring it like a savings bank, and paying out again to the original depositor of the seed such a dividend as no other bank can pay, for alfalfa actually enriches the soil instead of exhausting it. Besides its large percentage of nitrogen taken from the air, it brings up from the subsoil considerable amounts of potash, phosphoric acid, lime and other mineral matters. The roots and stubble from an acre of alfalfa have been found to contain 90 pounds of nitrogen, 20 pounds of phosphoric acid and 38 pounds of potash.

Many growers are now learning to profit doubly from this soil enrichment. M. S. Garnett, who farms about 600 acres in Solano county, has 100 acres in alfalfa, and intends adding that quantity every year, at the same time plowing in 100 acres and sowing grain, probably barley. He will thus reap rich harvests of grain and alfalfa. This is in accordance with the plan as related in Hoard's Dairyman, adopted on its experimental farm in Wisconsin, from which a wonderful crop of corn was reaped from land previously worn out, but renewed by sowing it in alfalfa for two or three years and then plowing it in and resowing corn. The result is said to have been 90 bushels to the acre. Such results demonstrate the richness of alfalfa in nitrogen, which goes so largely to beef and milk production.

It is estimated that 40 acres of alfalfa will keep an ordinary worker and his family in comfort, and handling that area is about the limit of one man's working capacity. It is not like annual crops that require the labor and outlay of preparation and seeding, season after season, and this should be remembered in preparing the ground and sowing, so as to leave nothing undone to insure a good permanent stand, one that will last for many years, and whenever plowed in leaves an enriched soil for a grain crop if so desired to succeed it.

The best soil for alfalfa is a rich but sandy loam well drained. The writer's personal experience is limited to 30 acres of such soil on a creek bottom in Shasta county—rather sandy in patches—and no special care had been taken in preparing the soil. The seed was purchased in Salt Lake City and was clean and good and liberally sown, fully 25 pounds to the acre. There was no irrigation. Under these rather unfavorable conditions the 30 acres produced 95 tons the third year and a third crop that was pastured. After the fourth season it failed in spots where the soil was lightest, bunching in places and leaving bare patches. As a kill or cure remedy, thorough disking and cross-disking was tried, with markedly good effect. It seemed that the roots that were split up with the disks threw out fresh sprouts and thickened and evened up the crop.

Upon the subject of preparing land for alfalfa it would be scarcely possible to add any suggestion of value to an article by W. McCord in the PACIFIC RURAL PRESS in July, 1908. The field should be repeatedly plowed and harrowed, both before and after the water is put on, and in some, if not all soils, it should be rolled. As the article referred to points out, so long as there is moisture there should be no irrigation. The young tap roots will penetrate the better and become more drouth resistant. In Shasta county we found spring sowing preferable. If the seed lies in the ground during a wet, backward season it loses more or less of its vitality. Nothing is gained by fall sowing.

One lesson the writer learned for himself about alfalfa, and that is not to allow stock to pasture it too closely, and to turn all stock out before the rains come. If it is cropped very closely and tramped into the wet ground the result is of course most injurious.

The danger of cattle bloating on alfalfa is often referred to. It is probably greater where they are suddenly changed to the green food. During three seasons that we pastured alfalfa in Shasta county among 100 head of stock we had no instance of bloating. Perhaps the fact that they were hardy range cattle had much to do with their immunity. Our experience there showed it to be perfect hog feed. No pork can be better than the alfalfa fed, together with corn for a month or two. There is no necessity for brans or meals when feeding alfalfa.

The interior counties of California are ideal for the culture of this valuable legume, where there is not only the favorable soil, but the sunshine to cure it. Alfalfa will grow finely on Puget Sound, but there is not sufficient sunshine there to permit of harvesting more than a single crop, which fact practically prohibits its culture. A farmer with 40 acres of alfalfa in Solano or Yolo or similar counties can pay for a complete pumping outfit for irrigating his alfalfa from the proceeds of a single season's crop. The writer is informed of a 40-acre alfalfa field near Dixon that rents for $1200. Under irrigation the yield is eight tons a season to the acre, or 320 tons, which at very lowest price of alfalfa, say $7.50 a ton, amounts to $2400, leaving the tenant a net income of $1200.

A. J. L.



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My herd is headed by the Imported bull Inkerman of Cullen, No. 62268, assisted by the Blackbird bull Brechin, No. 64119. Both are splendid types of the breed. My cows comprise the Queen Mother, Princess, and Heroine families. Look up the record of this breed at the International Exhibition at Chicago, where all breeds compete. Here they have topped the beef breeds for fifteen successive years. Prices reasonable and correspondence solicited.

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Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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SHEEP AND GOATS.

R. H. CRANE, Santa Rosa, Cal. Breeder and Importer of South Down Sheep.

ALFALFA PESTS IN UTAH.

Evidently we have to look sharp against the introduction of alfalfa pests from Utah. The Deseret Farmer calls attention to a very serious danger threatening the alfalfa crop, prevailing at this time in Salt Lake valley. There seems to be two very serious diseases of pests affecting this crop. Prof. E. G. Titus, entomologist at the Utah Experiment Station, is making an exhaustive study of the ravages of these insects or pests. He informs us that the alfalfa weevil, so prevalent in the valley last year is unknown in the United States outside of the Salt Lake valley, although it is very prevalent in Europe. It is somewhat of a mystery as to how this pest could be introduced here for the first time, but it is probable that in the straw or packing of emigrants from Europe, the weevil made its entrance. However, that may be, the fact is that it is here, and it is likely to prove very detrimental to the alfalfa interests in this county, unless heroic remedies be adopted at once. So far as known, Prof. Titus informs us there is no positive remedy. However, it is certain that constant disking and harrowing of the field will mitigate the evil, and there should be no hesitancy on the part of alfalfa growers to adopt this suggestion.

Alfalfa can be safely disked and harrowed after the removal of the first crop, the second crop and the third crop; it can be disked and harrowed in the fall and in the spring, the only precaution to be observed in the matter is to not disk the field when it is so wet that the soil clings to the disk.

HINTS ON CASTRATION.

I have always disregarded the zodiac and other signs, writes F. T. Lupton for the Denver Field, and I have had good success doing whatever castrating was needed in about 100 head of cattle, horses and mules besides a few horses for the neighbors for several years. The main things to guard against are three—catching cold, stiffening and swelling the animal thereby, blood poisoning and bleeding to death. I try to select a fine day for the job, generally the last of May or early June. If the day appointed is bad the job is put off until good weather seems to have come. If the weather does turn bad afterward the colts are run into a shed for awhile.

Blood poisoning can be guarded against in several ways. The hands and knife or other instrument can be washed with a weak solution of carbolic acid and water. It is also well to wash the parts with the same solution. I like a special solid metal hawk-billed knife. A pocket knife may be in one's pocket along with a plug of tobacco,' some rusty staples and a rancher's handkerchief, and may have verdigris in the joints.

If a person is new to the business it is better to hire some one to do the work than to attempt it without previous knowledge, as a good colt is worth something and the job is rather particular. A dollar each is the usual fee. If money is short watch your chance and help some neighber who has a number and he may agree to exchange work. People differ as to the way of securing colts—some handling them standing or in chutes. It looks to me rather too dangerous, as a slight kick might hurt the operator very badly with the knife. It is best not to excite the animals any more than can be helped, and if a good man is handy I would just as soon have one fore-footed and twitched over as any way, then while some man secures the head, the two front feet and the left hind foot are tied solidly together. The colt should always lay on the left side. Then a rope collar is passed around the colt's neck and the right hind foot pulled up as close to the neck as possible.

A way that I like much better is to tie the front feet together and have some one hold them at the end of the rope so that no one gets struck by the front feet. An extra strong rope is noosed around the left hind foot, then passed under the body about the middle of the back and then over the right foot. The feet are then pulled as tight up against the sides of the belly as possible. Be dead sure the ropes are strong and secure, for bad cuts are often made on the operator's hands by the rope breaking or slipping. Mules are worse than horses to get loose and should be more carefully secured if possible.

DRIED POTATOES FOR HORSES.

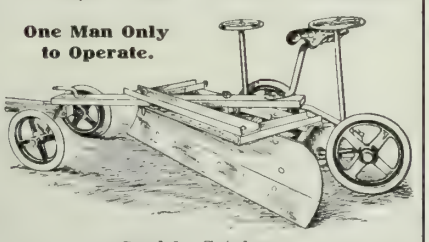
Potatoes are too high to dry this summer, but the experience which Mr. Pately Bridge gives the London Farm and Home may be useful some other time. Experiments have been conducted on the Continent to ascertain whether, and to what extent, dried potatoes can be given to horses as a partial substitute for corn, oats or other grain. The tests were made with the horses of a cavalry regiment stationed at Bonn, with an artillery regiment on a large farm, and with the horses of a transport company—in all 156 horses—and lasted four months. In all the cases it was found that the dried potatoes proved a useful food, and could be substituted without detriment for a third of the food given in the form of grain. In this proportion potatoes were found capable of maintaining the health and working capacity of the horses at the same high level as oats. In ordinary seasons, or under average conditions as to market value, potatoes would be too costly a food for horses, while torrification would probably present some difficulties, but it is useful to know of an outlet for superfluous potatoes.

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FOR
Horses, Cattle, Hogs, Sheep, etc.



27 Horses die from Colic where one dies from Fire.
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Daniels' colic cure is SURE, SAFE and QUICK!
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FRESNO AGRICULTURAL WORKS
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Another Infringer Nailed

SPARPLES SEPARATOR CO.

John Deere Plow Co. and Deere & Webber Co.

Sued for Infringement of DE LAVAL DISC Cream Separator Patents

For the information and caution of all whom it may concern announcement is made that THE DE LAVAL SEPARATOR CO. has brought suit in the UNITED STATES CIRCUIT COURT against the SHARPLES SEPARATOR CO. for infringement of LETTERS PATENT No. 743,428 by the manufacture and sale of cream separators containing DISC bowl construction covered by the claims of said letters patent.

And that similar suits have been or will be filed as quickly as possible against the JOHN DEERE PLOW CO. and the DEERE & WEBBER CO., who are jobbing such infringing SHARPLES separators to dealers in the Western States.

Attention is pertinently called in this connection to the recent hypocritical advertising tirade of the SHARPLES concern against DISC separators. We have known for some time that they were getting ready to bring out a DISC machine and thus moving up in line with more modern DE LAVAL imitators and would-be competitors. We have but now, however, been able to obtain one of these new DISC machines and the necessary evidence of infringement. The facts speak for themselves and require no further comment.

In addition to the above suits the DE LAVAL COMPANY now has infringement suits pending against the STANDARD, IOWA, PEERLESS and CLEVELAND Separator Companies and the Wm. Galloway Co., all covering the manufacture or sale of INFRINGING DISC SEPARATORS, which infringement applies equally to machines being made by different ones of these manufacturers and sold under their own various other names by several "mail order" and other concerns, as well as to EVERY USER of any such infringing separator bought of ANY of these parties.

To avoid any possible misunderstanding and dispel the pretense of some of these concerns that their machines are similar to the DE LAVAL, it is proper that we should add that none of the patents sued upon involves the DE LAVAL "SPLIT-WING" FEEDING DEVICE or its combination with the IMPROVED DISC construction utilized in the up-to-date DE LAVAL separators and that none of the machines is in any degree equal in efficiency, all-around practicability and durability to the IMPROVED DE LAVAL machines of today.

We have for years patiently stood for the appropriation by would-be competitors of abandoned, discarded or patent expired DE LAVAL inventions and types of separator construction, but have now determined to put a stop to the more brazen utilization of LIVE patents.

There are STILL OTHER infringers of DE LAVAL patents who will be held accountable in due course.

DE LAVAL DAIRY SUPPLY CO.

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1016 Western Ave.
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VANCOUVER, B. C.

The Poultry Yard.

GROWING GREEN FEED AND VEGETABLES FOR POULTRY.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

In "Sunny Stanislaus," where the landscape is checkered with irrigation ditches, the alfalfa, the bees, and the poultry flourish mightily, a bit of irrigated land is an amazing help to the poultry keeper in solving the feed problem. It is surprising how small a space, with proper management, will grow green stuff and vegetables for a large flock of fowls. In planting such a space to the best advantage, the vegetables best suited to the purpose should be selected and the arrangement should be such as to utilize every inch of ground. With rich soil and plenty of moisture, the rows may be very near together. An excellent arrangement is raised beds some four feet wide, while the small ditches for irrigation answer for the pathways when the water is not on. In irrigating, the water should flow till the ground is dampened through and through. The next day, or as soon as the surface is dried, the soil should be loosened and pulverized about the roots. This makes the plants fairly "hump themselves" and lengthens the time between irrigations. But the ground must not be allowed to become too dry before supplying water, else the vegetation will get a check, and the tendency will be to run up seed stalks instead of spreading out in luxurious growth.

The conditions conducive to lusty vegetation are likewise very attractive to vegetable pests; slugs, plant lice, worms and things increase and multiply and devour the tender greens. A simple remedy which the poultryman is pretty sure to have always on hand—and that's a point that counts—is air-slaked lime. Put it into a grain sack and dust it over and through the leaves and around the stalks of the plants when they are damp with dew. Repeat this treatment whenever needed; it does not injure the plants and it has always proved very effective in our experience. The use of California buhach as an insecticide for plants, as well as for poultry, seems to be more general in the East than with us. An ounce of buhach in three gallons of water is said to be an effective spray for cabbage worms and lice.

For poultry greens, Swiss chard or sea kale stands at the head of the list. With plenty of moisture it germinates quickly, and in rich soil grows luxuriantly and rapidly, so that in a short time the outer leaves may be used. These are so tender and so well liked by fowls that quite small chicks will eat the entire leaf without chopping and without waste. In fact, the white stalk, which is the "chard," is the most delicate part of the leaf, and is considered a great delicacy for the table, being cooked and served like asparagus; it is also used for pickling.

Cabbage is another vegetable which may be grown to advantage with irrigation all through the dry season. A head of cabbage hung up in the chicken yard furnishes the hens with fine egg-making material, keeps them busy, and is little trouble to the caretaker.

Sugar beets, the kinds producing green tops (Giant Half Sugar is good) are lusty plants, which furnish both green food and vegetable for poultry. The large roots should be cut in half and stuck onto two big nails driven part way into the side of a wall or the fence; this keeps them firm and clean for the fowls to peck at. Closely yarded poultry must have something of the kind to keep them happy and out of mischief. If poultry keepers who complain of feather-pulling and egg-eating among their fowls, would furnish them with with fresh vegetables, cabbage, or even pumpkins, to peck at, and clean litter with grain hidden in it to scratch for, there would be no egg-eating nor feather-pulling.

For a quick and temporary supply of green food, a bed may be sown to barley. This will furnish about three cuttings, when the bed should be spaded and replanted. Kale and alfalfa, of course, are good poultry greens; but unless there be plenty of irrigated ground, the other plants mentioned may be grown to better advantage, and the fowls like them better.

Now we come to a dry part of the subject, and are met by a difficult question: Green food and vegetables with irrigation is easy; but without irrigation—that's the rub! The majority of poultry keepers have only a hand pump to depend on, and this is not likely to get to the root of things. Already the grass is withering, and the supply of green feed is running short. This will be an unusually dry season for stock and poultry. The continuous rains prevented early planting in heavy soils, and the lack of spring rains has been disastrous to late planting. Succulent feed stuff will be at a premium, and the poultryman should be considering ways of supplying his fowls. Those who have no feed started and no water for irrigation will have to fall back upon alfalfa hay and sprouted barley.

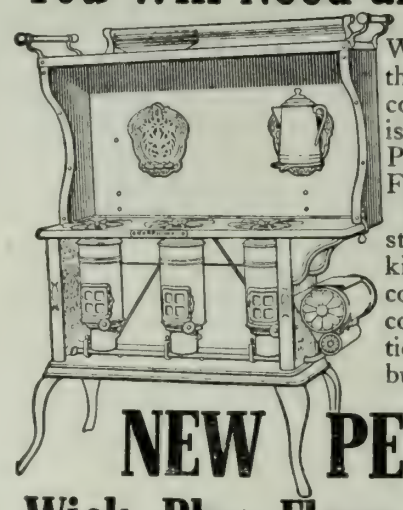
ALFALFA HAY.—This should be laid in early in the season, for the price rises and the supply gives out. A bale of this hay, together with sprouted barley, will provide green stuff for about 50 fowls until grass grows, or for some six months. It should be cut and steamed; then mixed with bran and fed in clean feed boxes. The fine leaves may be used to most advantage in the mash.

SPROUTED BARLEY.—For this ppurpose, large shallow boxes, with cracks in the bottom for drainage, but not wide enough for the grain to go through, are needed. Pour very hot water over whole or seed barley and let stand 24 hours; then turn into the boxes, in piles at first, and cover the boxes with burlap, one thickness, and pulled taut over the top of the boxes. Set them where the sun will shine into them all day, and keep the grain moist by sprinkling. As soon as the barley begins to sprout, spread it out over the bottoms of the boxes; it should not be more than an inch in thickness over the bottom. Begin to feed as soon as the sprout begins to show green. This is when the fowls like it best, and is the time when it is best for them, so do not sprout too much at a time, lest it become sour and matted. Do not let it dry out, and do not keep it too wet If it sours it is unfit for the fowls. Set the boxes up a couple of inches above the ground.

In sprouting it for the long green tops the writer has found the following the better method, as in the ordinary one there is much waste in the heavy mat of roots, and the liability of its becoming musty and sour. In the bottom of the boxes used for the long growth of the barley put a half inch of clean coarse sand that is free from soil; after soaking the grain in the usual way, sprinkle it over the sand in the boxes until the sand is thickly covered; then cover the boxes with burlap, keep them in the sun, and sprinkle night and morning. Do not begin to feed until the tops are some six inches high. The clean sand that clings to the roots is all right for the fowls. This will be found the best and most economical way of getting green tops, and it is one that the writer has evolved out of a long experience in sprouting barley.

GOPHERS.—The poultryman will find these pests very destructive in his green patch. The most effective method we have ever found in disposing of them is by the poisoned raisin route. The best poison for this purpose is the strychnine crystals, which may be bought in one-eighth ounce bottles at any drug store. Inclose a pinch of the crystals in each raisin, which should be a large one. If only small ones are at hand, use two by opening and pressing together.

You Will Need an Oil Stove

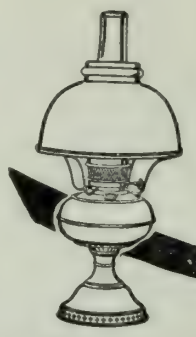


When warm days and the kitchen fire make cooking a burden—then is the time to try a New Perfection Wick Blue Flame Oil Cook-Stove.

Marvelous how this stove does away with kitchen discomforts—how cool it keeps the room in comparison with conditions when the coal fire was burning. The

NEW PERFECTION
Wick Blue Flame Oil Cook-Stove

is the only oil stove built with a CABINET TOP for holding plates and keeping food hot after cooking. Also has useful drop shelves on which to stand the coffee pot or teapot after removing from burner. Fitted with two nickeled racks for towels. A marvel of comfort, simplicity and convenience. Made in three sizes—with or without Cabinet Top. If not with your dealer, write our nearest agency.



The Rayo Lamp Just such a lamp as every one wants—handsome enough for the parlor; strong enough for the kitchen, camp or cottage; bright enough for every occasion. If not with your dealer, write our nearest agency.

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The Home Circle.

Fairies and Flowers.

Children, who gather common flowers at will
And leave them withering on the path to die,
Dream not that sprites in pain cling to them still,
And cannot wander till the moon is high.
When evening's hush is felt on hill and dell,
The fairies of all flowers round them meet,
And charm the night with tones ineffable,
And circle o'er the grass with glimmering feet.

The fairies gather'd round, with pity view
The broken flowers lying helplessly,
And trick out the crush'd leaves with diamond dew;
But when the moon is high, the sprites are free.
These long unhappy, now at freedom set,
Yet linger for a moment quite forlorn,
Droop o'er their faded flowers with regret,
Then fly to find new homes before the morn.

Good fairies guard and guide them through the night;
To waiting buds these lonely sprites they bring,
And to the beauty, yet conceal'd from sight,
Link them by magic of their wondrous ring;
The light flows round them with a happy tune,
While the uniting charm is made complete
With hands thrice waved toward the setting moon;
And the buds ope to give us flowers sweet.

Helps and Hints for the Home.

(This department is open to questions and suggestions.)

STRAWBERRIES.—Among the many pleasant things which come in the pleasant month of May is the strawberry season. This berry is one of the most delectable of fruits, and alack, the most perishable, the quickest to deteriorate in the handling. The person who cannot take it direct from the vine knows not the strawberry; its evanescent perfume and flavor have flown long before the commercial berry has reached the consumer. Few, alas, know or can know the strawberry. But what is the matter with the farmer that he cannot have this berry in its deliciousness and plentitude. Even he of the city and village lot may taste of its joys. Any one who has water for its irrigation and a bit of land to spare to it may eat of his own vine, with no danger of poisoning from sprays, mildew or the germ-laden dust of the mart.

The spring is the best time to start the berry bed; early in the spring is the proper time, but even yet it may be done. The best arrangement is in beds some four feet wide and as long as desired. These should be raised some six inches with an irragition ditch all around them. Have the ground deeply spaded and mixed with well-rotted manure and a little wood ashes; then raked and pulverized till it is mellow as meal. Set the plants some 18 inches apart, three rows to the bed, which will leave a six-inch space along the edges. Select a rich-flavored, red-blooded variety. The Sharples, which seems indigenous to the 10-cent box, is like so much pale vinegar. The Brandywine and Marshall are fine varieties. Where one has but a bit of room the old time method of raising the berry in barrels is good and highly ornamental. Take a large barrel—some saw it in two—bore holes in the bottom for drainage, and circles of large holes six inches apart, beginning six inches above the bottom and making the last row of holes six inches from the top. Put an inch of coarse gravel and pounded charcoal in the bottom; then sift in earth, well prepared as for the berry bed, up to the first row of holes; insert the roots of the plants in this row of holes and spread them out on the earth; sprinkle till the earth is damp to the bottom; now sift in earth again up to the second row of holes, and so continue to the top. On top set the plants six inches apart. Sprinkle well and be careful that the barrel does not dry out. Its condition may be ascertained by examining the soil through the middle row of holes.

STRAWBERRIES FOR THE TABLE.—Have a pan of cold water; wash a few berries at a time, draining them quickly out of the water; then hull. Sprinkle thickly with powdered sugar and serve with a spoonful of whipped cream over each sauce dish full, or accompanied by a pitcher of cream. Or place a layer of berries in a glass fruit dish, sprinkle with powdered sugar, and so on till the dish is full; now squeeze the juice from one orange to each pint of berries over the fruit; then cover with powdered sugar and serve.

STRAWBERRY SHORTCAKE.—Make a nice biscuit dough; have a baking pan the size and shape desired; divide the dough into four parts; roll to fit the pan and almost as thin as pie crust; spread with melted butter and lay over it, and so on till all are in the pan; the top layer brush with sweet milk and lightly mark in squares. Bake some twenty minutes to a delicate brown in a hot oven. Turn bottomside up on a bread cloth; take off the bottom layer, which is now uppermost, and lay it in a hot platter; have very ripe fresh berries thickly covered with powdered sugar and spread thinly on the layer of cake; on top of this put another layer of the shortcake and spread with berries; over the third layer pour the juice in the dish and the rest of the berries; place the top of the cake on this; sprinkle with sugar and serve warm with cream.

PRESERVING AND CANNING.—Never add a drop of water to the berries; by letting them heat slowly the juice will soon be extracted without the addition of water. Put up only a few berries at a time; cook as little and as quickly as possible or the bright color and delicate flavor will be lost; keep in a cool, dry, perfectly dark place; it is also well to wrap the jar in a thick brown paper or pull over it a portion of black stocking leg.

STRAWBERRY PRESERVES.—Take pound for pound of berries and white granulated sugar; put the berries in a smooth granite or porcelain kettle after they have been carefully prepared; let cook slowly till the juice is extracted; now boil ten minutes, add the sugar and let boil rapidly for ten minutes; with a hot ladle dip the berries into small glass jars that have been well scalded; let the juice boil five minutes longer, fill the jars brimming full, wipe, put on the rubber, have the lid hot and screw it down tightly on the jar and note if the rubber projects evenly all around the lid.

STRAWBERRY CREAM.—Soak a half package of gelatine in a half cup of cold water, and then stir it into a cupful of boiling water. When cool beat into this a cup of powdered sugar, then whip in to it the whites of four eggs beaten stiff; now stir in a pint of nice strawberries and turn all into cups or molds. When ready to serve, turn out upon fancy plates and pile freshly whipped cream about it.

STRAWBERRY JAM.—Use the same proportions as for preserves, mash the berries before heating; boil 15 minutes; add the sugar and boil 10 minutes longer; put into glasses and cover with paraffine or several thicknesses of paper dipped in white of egg and pasted down.

CANNED STRAWBERRIES.—Cook just enough at a time for one jar of berries; allow half a pound of sugar to one pound of fruit; as soon as the berries boil add the sugar; stir up gently from the bottom and as soon as it boils again place in the jar and seal hot with hot lids. Or fill the jars with nice berries and sprinkle the sugar between the layers; put the lids loosely on the jars and set them on a piece of perforated tin—or anything that will keep them off the bottom—in a wash-boiler of warm water within an inch of the top of the jars. Let the water boil 15 minutes; lift out the jars, fill with hot syrup from one of them brim full; place the rubber and screw down the lid.



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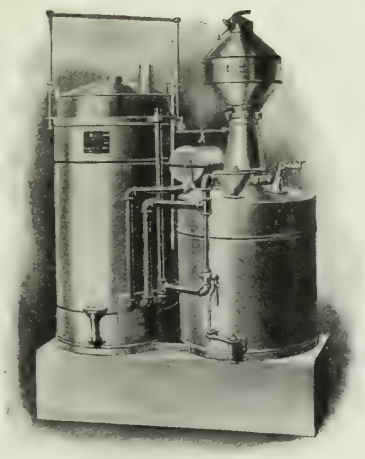
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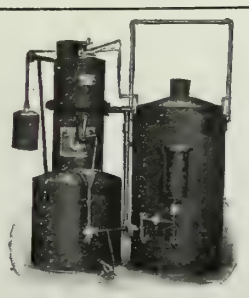
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WHOLESOME DRINKING WATER.

It is even more important to serve good wholesome drinking water for the farm home than to get a good large supply of irrigating water for the field, and yet too little attention is paid to it. Prof. E. F. Pernot, bacteriologist of the Oregon experiment station, has just prepared some very pertinent suggestions in this line:

The condition in which I find water received from various parts of the State warrants my calling the attention of the public to the unsanitary conditions which must exist surrounding their water supply. Some samples of water taken in sterile bottles under asceptic precautions contain as high as 63,580 germs per cubic centimeter (a teaspoon holds about five cubic centimeters of water and an ordinary drinking glass about 225 cubic centimeters). A glassful of such water would therefore contain 14,305,500 living germs. While it is true that many varieties of these germs are not directly disease producing, the continued introduction of such large quantities of them into the system lowers vitality and increases types when they gain access to the body. Water containing so many organisms carries also, in solution, the ptomaines from the putrefaction of the organic matter in which they grew. These large numbers of organisms generally find their way into open wells by surface drainage, and where they can pass, so may the disease producing types pass also.

The waters from driven wells are comparatively free from organism. An open well is an abomination and is not in keeping with our present understanding of the laws of sanitation.

The question arises, how can we better our condition? Where a well is the only means of obtaining water, let it be dug to the water bearing stratum, wall it up with brick laid in cement, for ten feet, arch it over, with the pump-pipe and arch well cemented in, fill the remainder of the hole, which may be fifteen to twenty feet, with clay well tramped down, and the result will be a bottomless brick jug, deep under ground, into which no surface water, worms nor animals can penetrate. The water from such a well is pure as can be obtained from the locality in which it is situated.

There are many families living in the country who should enjoy the best of health, but who are always ailing. The cause of ill health may, as a rule, be traced to their use of polluted water produced by the unsanitary condition of their surroundings. But few homes have proper drainage from sinks and baths; dish water is thrown out of the back door on the ground near the well, garbage is similarly disposed of to decompose and drain into the well. Wash water containing filth that would not be tolerated on the clothing is also emptied on the ground to drain into the well. Most of the open wells situated near the house or barn are but cesspools. It is the lowest point in the vicinity into which liquids drain.

Frequently a privy is located within a stone's throw of an open well. When the water table rises to the surface of the ground, as it always does during the winter in western Oregon, all surface water is contaminated, and, as the water level lowers, the open wells become reservoirs for the drainage.

The ordinary stone or brick wall of an open well only serves the purpose of preventing the caving in of the earth, and in no sense acts as a filter.

We have received samples of water from the open wells, situated near barn yards or dwellings, which were loaded with organisms that are instrumental in decomposing manure. The samples gave strong reactions of ammonia by chemical analyses and were even tainted with the color of liquid manure. One particular sample was thus polluted from a flower bed near the house, the flower bed having been heavily manured.

In localities where water is piped into the house and there is no sewer, the toilet should be connected with a properly constructed septic tank and the effluent should be piped a long distance from the well and empty on the surface of the ground, where sun and air may still further purify it. If an open closet must be used, a concrete vault, well cemented, should be constructed, instead of a mere hole in the ground, and lime frequently thrown into it to prevent the breeding of flies. Earth closets have been very successful and consist of galvanized iron trays or tubs that may be emptied away from the premises; dry earth or ashes should be used in connection with them to absorb moisture and suppress odor.

It is well known that flies breed in human an animal manure; for example, the deposits of human excreta are often seen to be a crawling mass of maggots; these are the larvae hatched from the eggs deposited by flies; from this they pass into the pupa stage and again emerge as flies with the return of warm weather. These flies enter our dwellings, walk upon our food and directly transmit the organ isms from excreta to our food. Contamination does not cease at that, for we have definitely proven that the organisms which the flies take into their bodies from the excreta are not destroyed by their digestion, and passing from their bodies with the excreta the germs utilize this excreta for food and multiply. Therefore a fly speck containing fifty germs will increase its numbers fiftyfold.

If perchance the organism happens to be the typhoid bacillus, a fly speck upon an apple, or other food, will eventually contain thousands of germs. This we have conclusively demonstrated by hatching flies in a sterile box, then feeding them with bread or sugar saturated with cultures of the typhoid baccili, then allowing them to excrete upon apples, cabbage leaves, or other material that gives off moisture. The fly speck, after some time, assumes the form of a colony and is found to be loaded with living typhoid bacilli, showing that they had passed through the fly uninjured and had multiplied abundantly in the fly's deposit.

It is well known that milk is an ideal food for typhoid baccili, and for that reason it should be well guarded from the invasion of flies. Keep flies out of the house, especially that part where food is kept.

Attention should also be called to the abominable practice of disposing of dead animals by throwing their carcasses into abandoned wells, or emptying closets into them, for the water-bearing strata will be polluted for miles. Typhoid fever is a filth disease and any person who thus pollutes a water supply commits a criminal offense.



This is the Leather Punch Blade

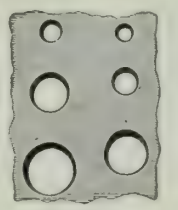
Handy Knives

A real pocket-knife—an all-round knife—must be ready for all sorts of work. No ther tool is put to so many different uses. Yet how seldom do you get one that fills the requirements.

KEEN KUTTER
Pocket Knives

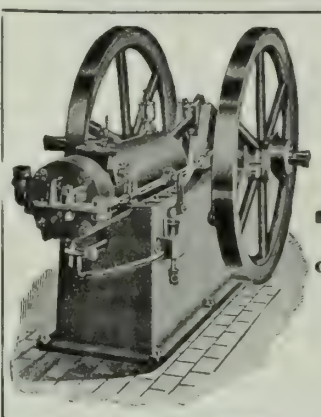
are made to do all-round work. And there are Keen Kutter Pocket Knives for all sorts of work. For example: the large knife here illustrated has a leather punch-blade, invaluable to farmers and horsemen. The edge is curled over so that when the knife is turned it cuts a clean hole. All Keen Kutter Pocket Knives are guaranteed. If not satisfactory your money will be returned. If not at your dealer's, write us.

This illustration shows the actual size of holes that may be cut with the leather punch blade.

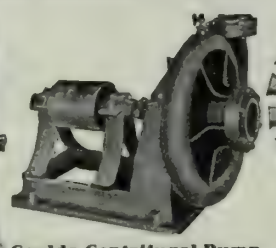


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SIMMONS HARDWARE COMPANY
(Incorporated)
St. Louis and New York, U. S. A.



Stover Gasoline Engine
2 to 5 Horse Power.
Built upon honor.
Power Guaranteed.



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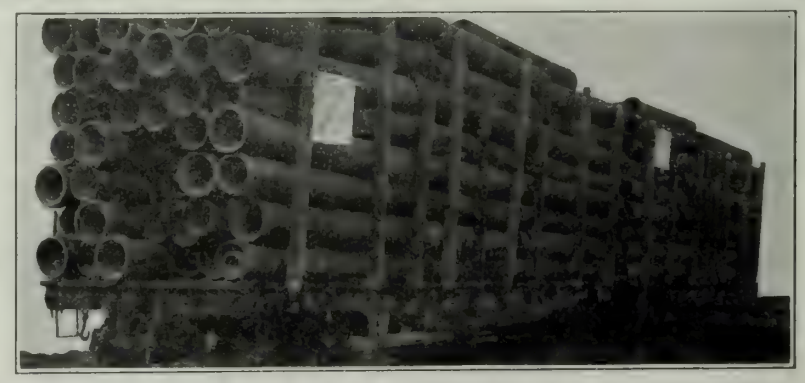
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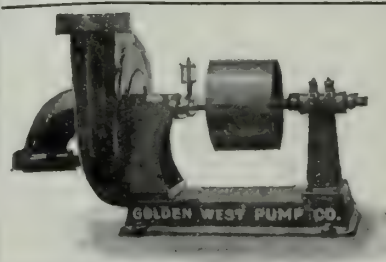
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Made from California Redwood or Selected Washington Douglas Fir

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Stave Pipe 2 inches to 10 ft. diameter up to 400 ft. head.
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SECOND HAND PIPE
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All our pipe and casing has newly cut threads with new couplings attached and dipped in asphaltum. Guaranteed good as new. Prompt delivery on carloads or less. Small orders receive same attention as large ones. All sizes of pipe, also fittings and valves.
WEISSBAUM PIPE WORKS
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NOTICE TO STOCKHOLDERS.

Notice is hereby given that the Annual Meeting of the Stockholders of the Grangers' Business Association, (a corporation) for the election of Officers to serve for the ensuing year and for the transaction of such business as may come before it, will be held at its principal place of business at the Merchants Exchange Building, No. 431 California Street, San Francisco, State of California, at 10 o'clock A. M., on Tuesday, June 8, 1909.

A. D. LOGAN, President,
R. H. CHILDS, Secretary.

Dated, May 28, 1909.

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Powdered Caustic Soda and Pure Potash.
Best Tree Wash.
T. W JACKSON & CO., Temporary Address, 42 Market St., San Francisco.

LINING DITCHES WITH EXPANSION JOINTS.

Mr. W. W. Collette writes to the Denver Field that he notes with interest an article on cementing an irrigating ditch in California. He is familiar with irrigation in Colorado, as he has spent many years in the State and has long contended that cement will work wonders in saving water. But the fact that a ditch may be lined two or four inches thick in situ in California does not signify that it would be avdisable to so line a ditch in Colorado. In most parts of California the



Concrete Ditch in Merced County—Does Not Need Expansion Joints.

temperature varies little the year round and there is no frost to contend with. But there are places in the California mountains where Mr. Collette hints it might be useful. He says:

"It would be impossible to build a cement lining in situ two or four inches thick or any other thickness, for that matter, in a soil that was alternately freezing and thawing without expansion and contraction joints. Such joints may be made by laying an iron plate one-quarter inch thick and as wide as the concrete is thick, placed from six to ten feet apart, according to the thickness of the concrete. The thicker the concrete the greater the distance between strips. After the concrete has partly set the iron may be removed, leaving a groove in the concrete one-fourth of an inch wide clear through and across the concrete.

"This groove may be filled with oakum or strands of rope saturated with tar or asphaltum. A little sand rubbed over the tar or asphaltum after being put in place will help to prevent it from running out when the heat strikes it. In crossing sand bars where the water seeps away or on dikes where gophers are constantly working havoc with the fill, cement ditches would certainly be a great saving of water. By an intelligent and plentiful use of cement the irrigated area of Colorado can be doubled with the water now used for irrigating purposes."

CALIFORNIA IRRIGATED FARM.

The Irrigation Investigations of the office of Experiment Stations of the U. S. Department will make at the Alaska-Yukon Exposition a most unique demonstration of an irrigated farm of mixed production. It is a model ten feet square and was built in the Agricultural building of the University of Berkeley, where the Irrigation Investigations has its headquarters for the coast. The model is built on a scale of one-fiftieth of the actual size, it represents a farm of about six acres. Every approved irrigation method used in the United States is represented, and the ditches, gates, dams, zigzag and straight basins in orchard irrigation, tube furrows and other parts are constructed as in the actual work down to the smallest details. Half of the area is planted with miniature trees, and the whole shows at a glance the various improvements and inventions in one of the most important branches of Government experimentation.

F. W. Roeding, wno has charge of irrigation investigation under the U. S. Department of Agriculture as an expert for the coast, planned the farm. The actual work of construction was done under his direction by E. J. Hoff, United States expert in the work of constructing irrigation machinery and devices.

Irrigation methods for different soils and land contours are indicated on the model farm. One and one-half acres is in orchard, represented by miniature trees and showing zigzag and straight basins, as well as open-cut and tube-furrow methods. Another section represents alfalfa in rectangular, contour and border checks, while on the balance methods of irrigation for summer crops are shown. Ditches are laid out to supply the various sections, and twenty types of miniature ditch structures made of brass can be seen. The latter include various measuring boxes to illustrate methods practiced in ascertaining quantities of water delivered. All is constructed to scale and gives an exact representation of what the actual field would look like.

The exhibit also includes ten models of hode-made implements (one-sixteenth natural size) which are used in the various sections of the irrigated West to level and prepare the land to receive water, as well as instruments used by this branch of the Government service in the course of their investigations.

A NEW DISTRICT UNDER THE WRIGHT LAW.

Though the Wright law was wrongly applied and brought distress and disappointment, it remains in its amended form as the way by which most salutary irrigation organization can be secured. A district was recently formed in San Joaquin county. The new enterprise will bring 62,000 acres under cultivation. Commenting on the vote for organization, which was overwhelming, the Stockton Independent says:

"The district is fairly well settled now, but is capable of supporting a population many times as great as the present, and the bringing of water upon it will have the effect of immediately increasing the number of homes and families in the vast tract, increasing the value of the land to such an extent as to make glad even those who opposed the incorporation of their holdings in the district. Just over the line in Stanislaus county the effect of irrigation can be seen not only in increased population, but in the increase in value of nearly tenfold of all the land affected by the irrigation systems of that county.

"Land in every way rich and near to the big markets can be bought for from $50 to $100 per acre, and the products of the land can be hauled to Stockton and cheap water transportation at a merely nominal expense. Those who invested in land in the newly formed district before the election would not part with it today. It is too early for them to realize the full benefit of the resulting increase in value, but by and by there will be land for sale in small tracts, and that part of the county will soon double its population and increase its beauty fourfold."

A suit has been filed in the District Appellate Court of Los Angeles asking that the supervisors of that county set a rate for Imperial valley water companies.

The Alameda Sugar Company has recently installed a ten-inch Jackson pump on their beet land near Woodland, to be used in furnishing water for irrigation.

Put Up 145 Acres Heavy Hay in Seven Days



The Horse Swings the Load as He Raises it, which makes the Fleming the Only Automatic Swinging Stacker Made.

Will Build a Stack 20 Feet Wide by 50 Feet Long, 25 to 30 Feet High.

Made in 3 Sizes.

Field view from photo on D. R. Love's farm, Falmouth, Ill., with Fleming Automatic Swinging Hay Stacker and 3-Wheel Rakes.



This Rake is built 12 ft. wide and has 14, 9 or 8 ft. Metal-pointed Teeth, Sliding Steel Seat, 16 or 20 in. Drive Wheels, Stiff Tongues or Hinged Tongues as desired.

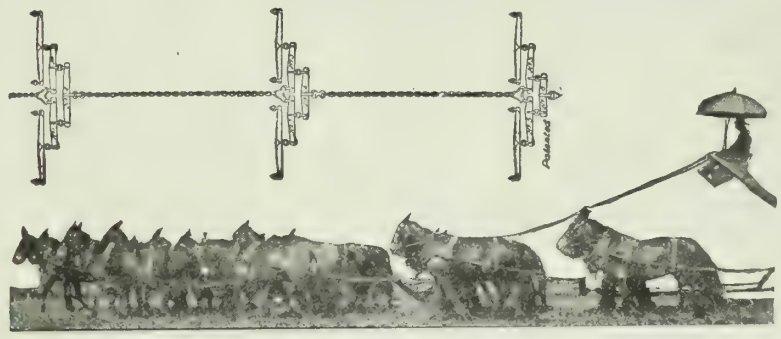
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Over two thousand of these **hitches** now in use on combined harvesters.

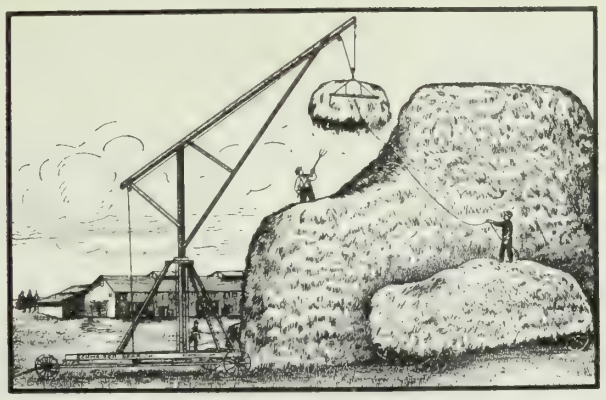


Positively prevents run-aways with combined harvesters. Runaways are more expensive than these **Hitches**—why take the chances. Any body can drive—expert driver not required.

For further information, Catalogue and Prices, address

THE SCHMEISER MFG. CO., Davis, California.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK



Comes nearer stacking hay without assistance than any other Derrick in the market.

Write for descriptive circular today and we will tell you how it can be done.

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THE IMPERIAL LAND GRADER

The only grader and scraper combined that moves earth and levels the ground perfectly and with ease.

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Best FRUIT LADDER Made

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Henderson Mfg. Co.

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Redwood Tanks
Fruit Boxes, Egg Crates

Write NOW for prices.

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Stockton, Cal.

DEEP WELL PUMPS
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Water gates for pipe lines. Send for catalog

POMONA MANUFACTURING CO.,

Pomona, Cal

THE MARKETS.

San Francisco, June 2, 1909.

(Unless otherwise noted, quotations represent prices paid to growers.)

WHEAT.

With supplies closely held and apparently scarce in all quarters, the wheat markets show very little new feature. Locally trading is of extremely small proportions, and there is no great activity at other Coast points. Many of the mills are closed, and it is difficult to get supplies of the grades desired. Quotations on some grades are little more than nominal.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	@2.20

BARLEY.

Stocks of barley show considerable reduction since last month, but arrivals have been quite liberal and the market is weakening. The arrival of some new barley has given a marked downward tendency to prices, and while brewing and shipping grades remain nominal, feed has declined about 10 cents. Buyers are taking little interest, and a further decline is expected, as the present prices are too high for shipping trade.

Brewing	Nominal	
Shipping	Nominal	
Chevalier	$1.70	@1.72½
Good to Choice Feed, per ctl.		1.60
Common Feed	1.55	@1.57½

OATS.

White and red oats have been a little easier, but the tone of the market remains fairly strong. Receipts have been light, and the stock on hand is very small, but at the present range of values the market is inactive.

White, per ctl.	$2.15	@2.20
Gray	2.10	@2.15
Red, choice		2.20
Common	2.00	@2.10
Black	Nominal	

CORN.

The San Francisco market is dull and featureless, with no stock of any consequence on hand and little demand. The arrivals of late have been smaller than usual, consisting almost entirely of Western grades.

California Small Yellow	$2.00	@2.10
Western State Yellow, bulk.		1.80
Mixed, in bulk		1.78
White, in bulk		1.82
Egyptian White		1.90

RYE.

No stock is being offered for sale in this city, and Eastern rye to arrive is held firmly at the last quotation. The requirements of this market are limited, and buyers are taking little interest.

Rye, to arrive	$2.15

BEANS.

The recent activity in the bean market has quieted down, and while there is still a moderate demand for some varieties, no general movement is taking place. Supplies in most varieties are now pretty well cleaned up, and the feeling in this market is very firm, though there has been comparatively little change in prices of late. Both small and large whites, which are scarce, have been sharply advanced, and pink beans are a little easier, but otherwise prices are unchanged.

Bayos, per ctl.	$5.35	@5.50
Blackeyes	3.50	@3.65
Cranberry Beans	Nominal	
Garvanzos	3.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	6.00	@6.25
Large Whites	5.00	@5.25
Limas	4.15	@4.25
Pea	5.80	@6.00
Pink	3.15	@3.25
Red	Nominal	
Red Kidneys	3.75	@4.00

SEEDS.

The market is very dull and entirely without feature, as there is no particular demand for any description. While values are held fairly steady on most varieties, alfalfa is a little lower.

Alfalfa, per lb.		18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.	3¾	@ 4¼c
Canary		4¼c
Flaxseed		4 c
Hemp		4½c
Millet		2¾c
Timothy	5¾	@ 6½c
Yellow Mustard	Nominal	

FLOUR.

Occasional small shipments are still being made to West Coast points, but there is little movement aside from the local trade, which is now about up to the usual volume. Local buyers are purchasing only for immediate needs, and considerable quantities are coming in from the North.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

Arrivals have again increased during the last week, and with accumulations at shipping points a further increase is expected. This movement is hardly warranted by local conditions, as buyers here are now well supplied and are taking very little interest in new offerings, as they count on a further reduction of prices. Most of the arrivals are new hay, largely oat and barley. A little old wheat hay is still arriving, and commands fairly good prices, though all grades are lower than before. New wheat hay is quoted, but the prices are not very well established, as the arrivals have been of poor quality. With a continuation of the present heavy arrivals prices are certain to drop more or less during the summer, and some local dealers assert that the crop is considerably larger than last year.

Old Wheat, choice, per ton	$20.00	@24.00
Other Grades Old Wheat	14.00	@20.00
New Wheat	14.00	@17.00
Wheat and Oat	16.00	@20.00
Tame Oat	16.00	@20.00
New Barley	11.50	@14.50
New Wild Oat	11.00	@14.00
Alfalfa, first cutting	8.00	@10.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

There is no further change in prices on any description, everything being firmly held and in about average demand. The local movement of bran is not heavy, but the production is small at present, and shipments are now coming down from the North. Some decline is expected in rolled barley.

Alfalfa Meal, or mealfalfa, per ton	$25.00	@26.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	33.00	@35.00
Mixed Feeds	30.00	@32.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	35.00	@36.00
Shorts	31.00	@32.00

VEGETABLES.

The market for old onions has fallen off again this week, owing to the plentiful supplies of new stock. Bermudas are lower, and Australian stock is being cleaned up at irregular prices. New reds have declined quite sharply, and prices are likely to rule lower from now on. Garlic is also lower. Miscellaneous vegetables have been quite plentiful, and some seasonable varieties are lower. Few offerings of asparagus are bringing top price at present, and rhubarb is also easier. Green peas and tomatoes are a little higher, but string beans are now arriving plentifully and show some decline. Increasing supplies of cucumbers have brought a reduction in this line also.

Onions, new red, per sack	75	@ 90c
Australian Onions	Nominal	
Bermuda Onions, per crate	1.00	@ 1.10
New Green Onions, per box	35	@ 50c
Garlic, per lb.	6	@ 8c
Green Peas, sack	1.75	@ 2.00
String Beans, per lb.	3	@ 5c
Cabbage, per ctl.	1.50	@ 2.00
Tomatoes, per crate	1.50	@ 1.75
Cauliflower, per doz.	65	@ 75c
Asparagus, extra choice, box.	1.75	@ 2.25
Asparagus, common to choice.	1.25	@ 1.50
Rhubarb, per box	1.00	@ 1.25
Turnips, per sack		1.50
Summer Squash, per box	60	@ 75c
Cucumbers, per box	1.25	@ 1.50
Egg Plant, per lb.	17½	@ 20c

POULTRY.

Receipts of both Eastern and California poultry have been very moderate this week, arrivals including only a couple of cars from the East. There has been sufficient stock on hand for the current requirements, but with a fair demand prices have remained practically unchanged, and all desirable offerings are moved without difficulty at the quotations given.

Broilers	$ 3.50	@ 4.50
Small Broilers	2.50	@ 3.00
Fryers	6.00	@ 7.00
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	9.00	@10.00
Young Roosters, full grown	10.00	@12.00
Pigeons	1.00	@ 1.50
Squabs	1.50	@ 2.00
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

Quotations on the Dairy Exchange are precisely the same as a week ago, though there was a decline of ½ cent a few days ago. The shipments for the North this week were lighter than for some time, and the anticipation of the close of the shipping season gives a feeling of weakness to the market, though so far little surplus has accumulated.

California (extras), per lb.	25½c
Firsts	25 c
Seconds	24½c

EGGS.

Receipts have continued fairly large most of the week, and some storing has been done by local interests on occasional declines, though the surplus has not been heavy. The upper grades are quoted ½ cent lower than last week by the San Francisco Dairy Exchange, with seconds a little firmer. Some dealers on the street are quoting selected eggs at 24 to 26 cents.

California (extras) per doz.	26½c
Firsts	24½c
Seconds	24 c
Thirds	23 c

CHEESE.

The local market has been rather more active this week, though there has been little demand for shipment. Flats are higher again, and Y. A.'s have also advanced, with very little stock on hand. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	13½c
Firsts	12½c
New Young Americas, fancy	16½c

POTATOES.

New potatoes are again coming in plentifully, causing a sharp break in prices. River stock is unchanged, and the market for all old potatoes remains quiet. Oregon goods, however, are pretty closely held, and there is a moderate movement at higher prices. The last Lompoc stock was cleaned up this week at top prices.

River Whites, per ctl.	$ 1.90	@ 2.10
Oregon Burbanks, per ctl.	2.35	@ 2.50
Sweet Potatoes, per ctl.	1.75	@ 2.00
New Potatoes, lb.	2½	@ 3c

FRESH FRUITS.

Nearly all varieties of berries are now arriving liberally, and prices have declined to about a normal range. The surplus of strawberries is now going to the canneries at about $3 per chest. Supplies of cherries are still larger, with some reduction, bulk lots, which are now most in evidence, selling at from 2 to 6 cents per lb. Apricots are beginning to arrive freely, though prices are still high, and only choice stock is in demand. A few peaches and plums are coming in. No definite price has been established for the latter. The first nutmeg melons to arrive brought $5 a crate, but additional shipments cannot be expected to bring such a price. Green apples are offered in larger quantities at lower prices.

Raspberries, chest	$ 7.00	@ 8.00
Gooseberries, chest	4.00	@ 5.00
Currants, drawer	40	@ 50c
Loganberries, chest	4.00	@ 6.00
Blackberries, chest	5.00	@ 6.00
Strawberries—		
Longworths, per chest	5.00	@ 7.00
Large varieties	4.00	@ 6.00
Cherries—		
Black, drawer	50	@ 65c
White	40	@ 50c
Apples, per box	1.00	@ 1.50
Figs, per box		1.50
Apricots, per box	1.00	@ 1.25
Apples, new green, box		50c
Peaches, per box	75c	@ 1.25

CITRUS FRUITS.

There is little interest in oranges this week, and supplies are ample for all demands, though prices are steadily maintained. Fancy and standard lemons are lower, and grape fruit will not bring over $2.50.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.00
Standard	75c	@ 1.00
Limes	4.50	@ 5.00
Oranges—		
Fancy Navels	1.25	@ 2.25
Grape-Fruit	2.00	@ 2.50

DRIED FRUITS.

The market on fruits shows little feature at present, trading being limited to a few varieties, though in some lines a moderate activity is reported. Fruits generally are being cleaned up much metter than was considered likely a few months ago. Apples and apricots are both largely nominal, as no stock of any consequence is held by growers, and the few holders are asking somewhat higher prices. There is a stronger feeling in prunes, with a moderate demand from the East, and peaches are also in a little better position. Little has been done in the way of new crop business in any line, and no quotations have been established. Spot raisins are still rather quiet, and few packers have been willing to pay over 1¾ cents for sweatbox stock. There is a much better feeling in the market, however, with considerable inquiry for shipment East during the summer, and growers are disposed to hold out for fair prices. The Eastern buyers are taking considerable interest in the new crop, and various rumors have been started as to prices, but no quotations have been established.

Evaporated Apples	6¾	@ 7¾c
Figs, black		4 c
Figs, white		4 c
Apricots	7½	@11 c
Peaches	3½	@ 4 c
Prunes, 4-size basis	2⅛	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$ 1.00

NUTS.

This market is in the same condition as for some time past, with almonds closely held and scarce, and walnuts fairly plentiful. The movement is moderate in both lines, and prices are unchanged.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

A small lot of comb honey has arrived on the market, and liberal arrivals are expected during the next two or three weeks. The first lots are being held for high prices but the market is still too unsettled to give any very definite quotations. Some sales of water white comb are reported as high as 15 cents, and lower grades at 10 to 12 cents, but these figures are not established.

All grades nominal.

HOPS.

Hops have been rather active for the last two weeks, and a large proportion of the old crop holdings has been cleaned up. Spot business is a little quieter at present, but there is still considerable interest in contracts. Contracts have been made in Sonoma county at 12 cents, and a large part of the Oregon crop has been contracted for at about that figure.

Hops, Old, per lb.	6	@10 c
New Crop	11½	@12 c

WOOL.

Prices show no further change, but the market continues very firm, and the movement has been large for several weeks. Most of the Humboldt clip has been sold at the appearing quotations, and the spring clip all through the West is well cleaned up. Most of the wool not yet clipped has been contracted for. A large pool in the Willamette valley has been withdrawn from the market, and is held for over 25 cents.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Hogs are the only description showing much firmness, most lines being quite plentiful and easy. Small veal is a little higher, and yearling lambs have declined. Otherwise there is no quotable change.

Beef: Steers, per lb.	7	@ 7½c
Cows	6	@ 7 c
Heifers	6	@ 7 c
Veal: Large	7½	@ 8½c
Small	9	@ 9½c
Mutton: Wethers	7	@ 8 c
Ewes	6	@ 7 c
Lambs	9	@10 c
Spring Lamb	9½	@10 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers, No. 1	4¼	@ 4½c
No. 2	4	@ 4¼c
Cows and Heifers: No. 1		3½c
No. 2		3¼c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½	@ 4 c
Sheep: Wethers		4½c
Ewes	3¾	@ 4 c
Lambs: Yearlings		4½c
Spring Lambs		5¼c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾	@ 7 c
Common Hogs, lb.	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

SPECIAL CITRUS MARKET REPORT.

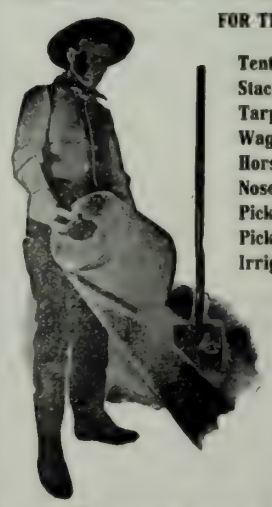
Los Angeles, Cal., May 31, 1909.—It is generally believed that the bottom of the decline of citrus fruit has been reached, and that from this time on the conditions will be better. There is already a little encouragement felt among the shippers, and a better feeling East is to be noticed. This is no doubt caused by the fact that the shipments have eased up considerably and are now not much over 100 cars of oranges per day. It is also felt by the Eastern man that he can be reasonably sure that the last of the navels in California are now in sight; up to this time he did not know, and neither apparently did the men at this end of the line. We now hear of district after district cleaning up, and though there are upward of 600 cars left here, this will all go out, except a few straggling cars, in the next week. There should be a little revival of seeds and sweets, but not much, as the better keeping Valencias will now commence to go forward in quantities.

Valencia prices seem to still be around the $2 mark, with some fruit selling at this end for 10c. cheaper. This is $1 less than Valencias ever opened before, and it is predicted that many more dealers will stick to oranges throughout the year than in the past. With Valencias so high, and the margin of profit so small, many jobbers dropped oranges altogether just as soon as berries and deciduous fruits began to show up. Actual sales of Valencias in auction have been light and not altogether encouraging, as they have sold for considerably less than $2 at this end—in fact, $2.50 delivered has been high, and some cars have brought less than $2 delivered.

Lemons are still ruling low, and there is no activity except where jobbers are buying cured fruit of keeping quality for storage. Dealers here say that this class of goods is scarce, and they are refusing to sell for future delivery and are getting up to $2.50 f.o.b. for immediate shipment. No sale was held on Monday, so Tuesday's sale will be watched with especial interest, and we can get no exact line on the market until the reports come in. Neither are shipments available at this writing, though those of Thursday were but 102 cars of oranges and 20 cars of lemons.

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DECIDUOUS MARKET REPORT.

By T. C. Tucker.

Sacramento, Cal., June 1.—The cherry market has continued very steady and exceptionally good values have been realized to date. The sales today in New York show the following: Tartarians, $1 to $3.10; Royal Annes, $1.25 to 2.35; Governor Wood, $1.60 to $2.75; Rockport, $1 to $2.25. A total of three cars was sold.

The Chicago market today is as follows. A total of three cars was sold, various varieties averaging: Governor Wood, 85 cents to $1.60; Biggereau, $1.35 to $1.95; Tartarians, 95 cents to $2.15; Royal Annes, $1.25 to $2.30; Rockport, 80 cents to $1.45.

These reports show very good values being realized in Chicago as well as New York. Cherries going by express to private sale markets are bringing a net of $1.25 f. o. b., and the varieties being shipped at present are mostly Royal Annes and Black Oregons.

The first lot of Pringle apricots shipped from the State sold in Chicago a few days ago for $3 per crate, and the first lot of seedling apricots sold in New York today at an average of $4.50.

The first mixed car of deciduous fruit is going out today, and it contains peaches, apricots, cherries and quite a sprinkling of plums. Very good values are expected for this car.

The record of shipments up to and including May 26 showed 40½ cars of cherries shipped this year, as compared with 45¼ last season, one-half car of apricots for the season of 1909, as compared with three-fourths of a car in 1908.

ALFALFA AND MORNING GLORY.

To the Editor: In the last number of your valuable paper inquiry is made about the possibility of alfalfa surviving wild morning glory. I gladly give my experience in that line of cultivation. Three years ago I sowed 30 acres to alfalfa on my Napa valley ranch, "Longchamp," situated three miles south from St. Helena, and secured a good stand without irrigation. From this I am able to cut three crops each year, and get a large amount of fine fall pasture. In previous years this land was cultivated in grain and corn, and with the latter crop it only produced about one-half of a crop. The field always produced a vigorous crop of wild morning glory, so rank under good cultivation of the corn that the corn seemed to have little chance to develop.

The season's first crop just having been harvested is the third since seeding, and I have a good stand of alfalfa and cannot find any morning glory in the field, except possibly in low places, where the winter rains have remained long enough to kill out the alfalfa. By sowing alfalfa early in the spring it gets a good start before the morning glory begins to grow, and if it gets a good stand it will keep ahead and choke out the morning glory.

It is best to seed alfalfa in the fall, where land is clean and not subject to a heavy winter growth of foul stuff. I had the experience of sowing one field in the fall and secured a fine stand, but a growth of burr clover, wild oats and other native grasses covered the ground so thoroughly before spring that I found that all the alfalfa had been smothered out, so that reseeding had to be done.

P. Everts.

Berkeley.

[This is straight goods.—Editor.]

A meeting of representatives of water companies Nos. 1, 4, 5, 7 and 8 in the Imperial valley was held recently at which it was decided to secure an expert to make experiments and study evaporation from water in the canals. At present the supplying company makes a reduction of 10 per cent on the actual amount of water delivered to the main canals as its estimate of the amount lost from this source, while many ranchers of the valley believe that the amount exceeds this.

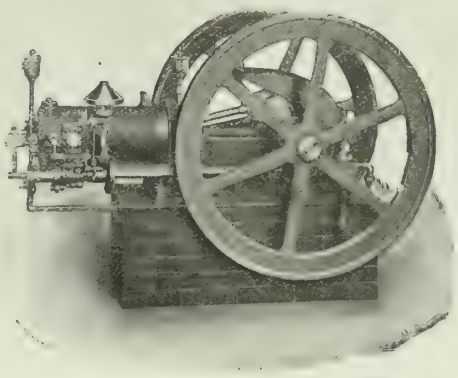
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IRRIGATION PROJECT BY CONGRESSMAN NEEDHAM.

A recent letter published from Congressman J. C. Needham states that he has asked the Geological Survey to examine and report as to the feasibility of extending the Miller & Lux canal so as to irrigate the territory on the west side of the San Joaquin from Firebaugh in Fresno county to Bethany in San Joaquin county, Mr. Needham's idea being to take water from the San Joaquin river by means of the canal and irrigate the whole west side. From his letter we quote:

"If the report should show that this can be done, it would be feasible to unite all the region on the west side of the San Joaquin river, from Firebaugh to Bethany, into a Wright irrigation district, condemn and purchase the water rights and the canal of the Miller & Lux system, and then at a comparatively small cost per acre, maintain a system of irrigation in this region, provided, of course, the land owners desire the same."

If upon investigation the scheme proves feasible, the immense body of good land, stretching across four counties, which has been devoted to dry farming and pasture, will become one of the finest sections in the State. Already on the east side of the valley thousands of farms have been changed in the past few years from grain to fruit, alfalfa and dairies, supporting a large population which is steadily gaining.

IRRIGATED MEADOWS IN CALIFORNIA FORESTS.

In working for the improvement of range conditions on National Forests, Uncle Sam has invited and has received the co-operation of stock associations in all parts of the West. California stockmen have not been at all backward in taking advantage of this opportunity to benefit the industry.

At the last meeting of the Calaveras-Alpine Stock Association at Sonora, the fact was brought out that many meadows and flats in the Stanislaus National Forest can be improved and the amount of forage increased by irrigation or other means. Steps will therefore be taken by the Forest Service in co-operation with the stockmen, to bring this about, whenever such action will not conflict with the rights of individuals obtained under State laws.

By conserving the present forage through the preventation of over-grazing, and by increasing the feed through seeding or other artificial means, the government hopes to be able to not only place stock raising upon a safe and permanent basis, but to increase the quality and quantity of beef-producing cattle.

BIG IRRIGATION ENTERPRISE.

News that will mean much to the residents of Colusa and Glenn counties was announced last week when the dispatches stated that the bonded indebtedness and interest against the Central Irrigation District in the northern part of the Sacramento valley, amounting to over $1,000,000, had been taken up by Pittsburg parties. With this change in holdings is announced that options have been taken on over 100,000 acres of land which will be covered by the irrigation district, and that it is proposed to place the tracts under the system on the market and colonize them.

This is the most important project that has ever been put through on the west side of the valley, as heretofore most of the development has been on the east side of the river. It means that great grain fields will give way to alfalfa, fruit and garden tracts, that instead of being sparsely settled, the territory will have a very heavy population and that the whole valley will be benefited.



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These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,
President John Crouch Land Company.

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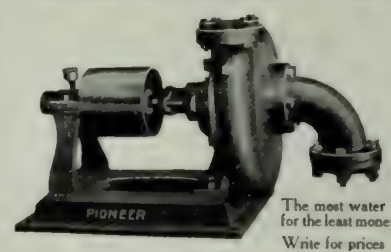
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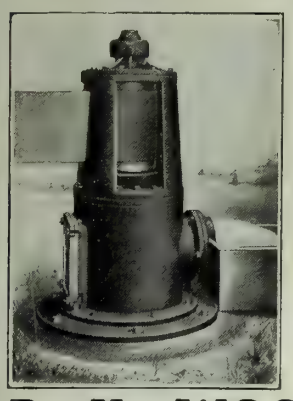
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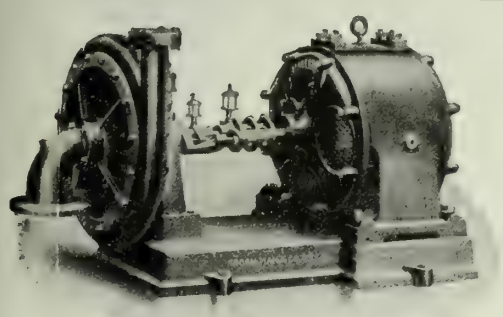
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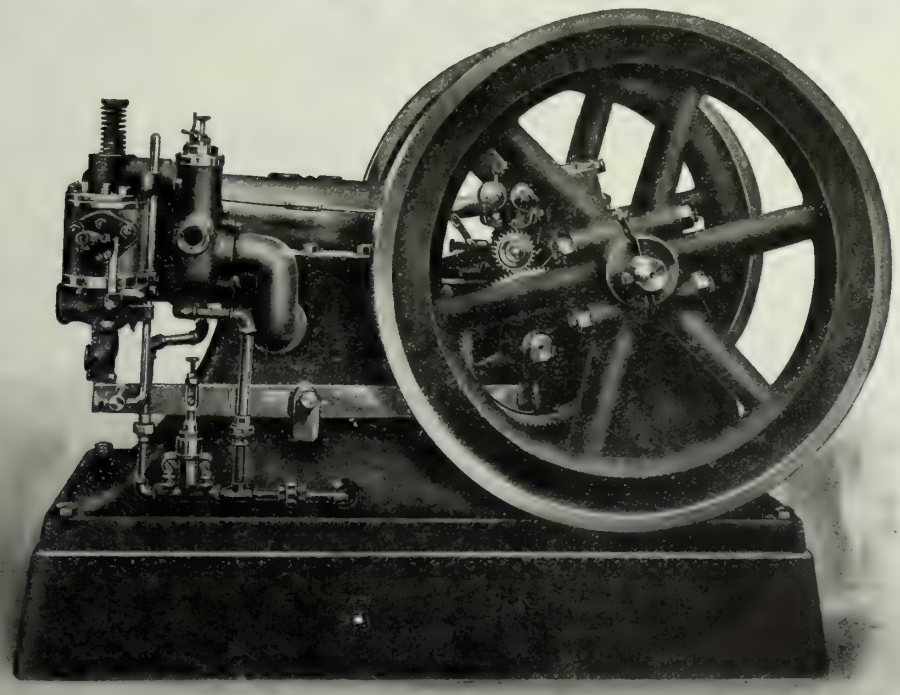
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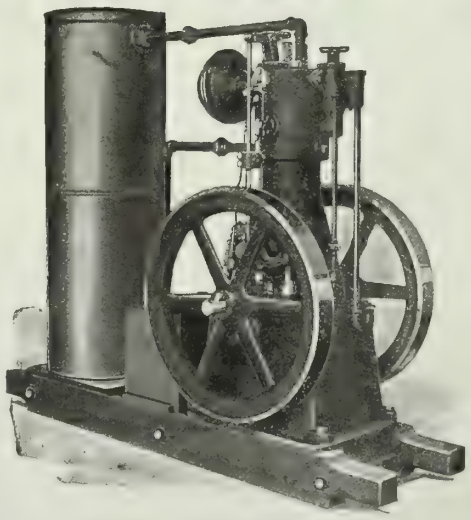
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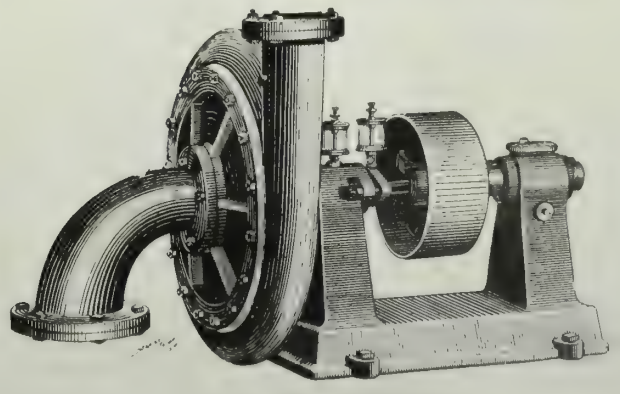
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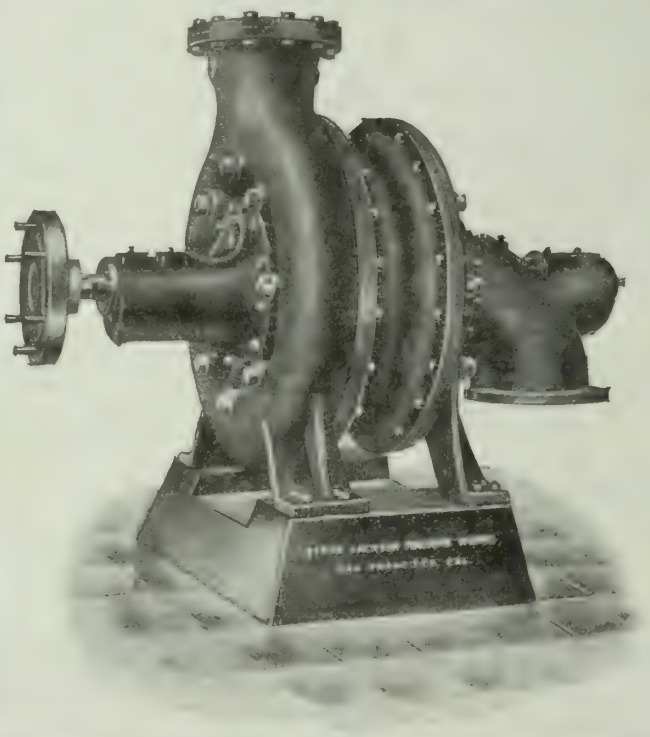
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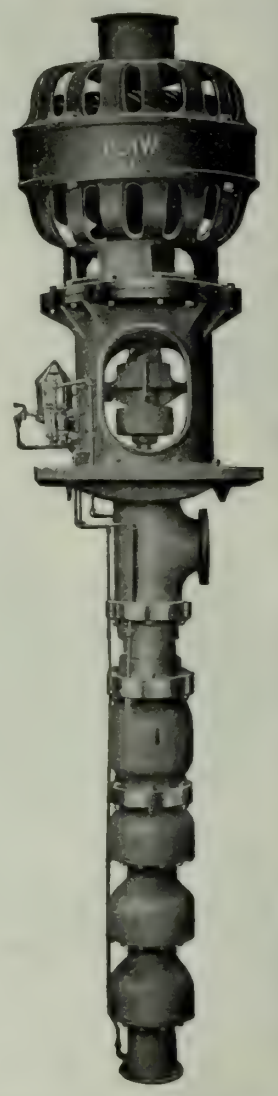
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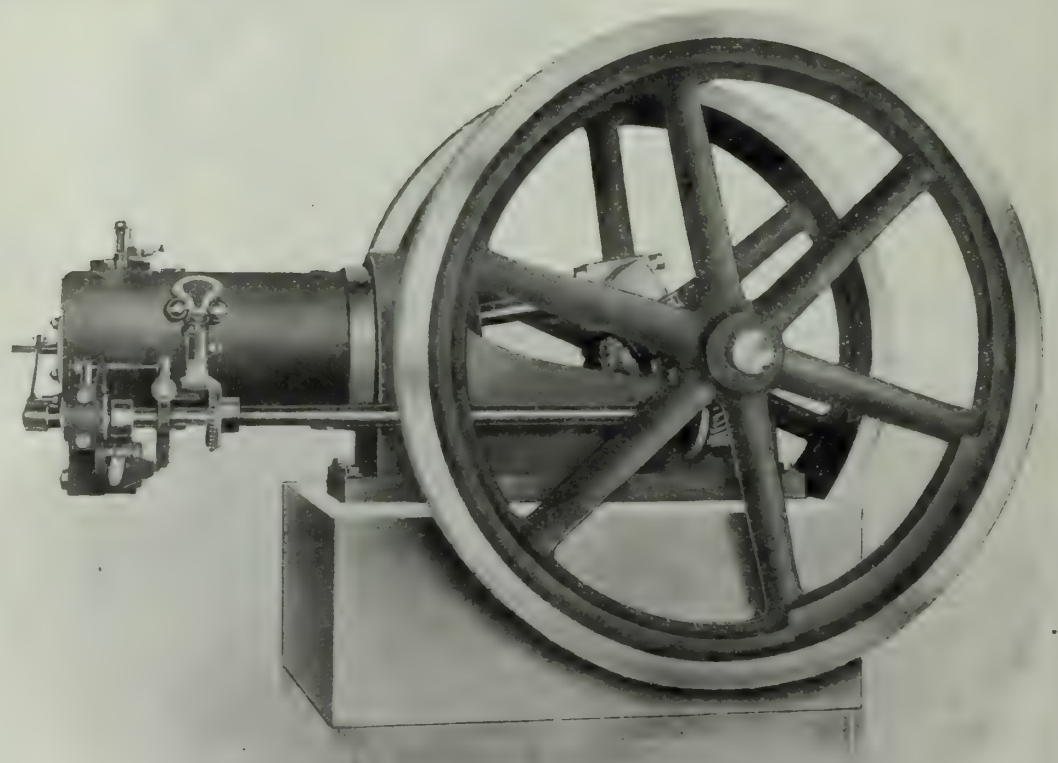
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The Powdery Mildew of the Apple.

By Mr. W. H. VOLCK, County Entomologist for Santa Cruz and Monterey Counties.

[At the head of California county entomologists for combined executive work and original investigations of the problems of plant protection which arise in his field stands the officer named above. His work with powdery mildew of apple is of superlative importance wherever this fruit is grown, for the disastrous work of the fungus is widespread. For this reason we undertake to extend the benefits of this work far beyond the reach of the excellent pamphlet which he has published in a very limited edition. This week we have a striking demonstration of the character of the disease; later we shall give details of efforts to protect the tree against it.—EDITOR.]



Apple Stricken With Mildew Before Leaf Opening.



Twig Stricken After a Healthy Start in the Spring.

The Pajaro valley, California, is the greatest apple producing district in the west. It is also one of the oldest on the Pacific Coast. The soils of the valley are of almost unparalleled fertility—so much so that the application of barnyard manure and commercial fertilizers have largely failed to produce any perceptible change in the growth of the trees. Notwithstanding these facts, some orchards fail to show the proper thrift, and do not produce the crops for which they were at one time famous.

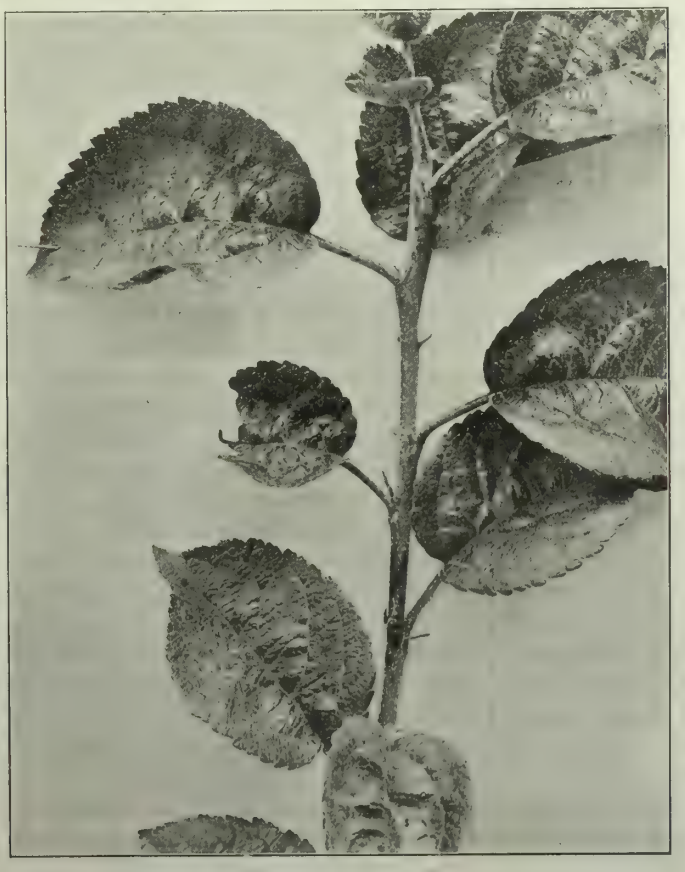
The causes which lead to the planting of such a large acreage of apples in this locality are briefly that the conditions of soil and climate normal to the districts were such as to produce the very highest quality of this fruit. The climate has not changed and the soils are still fertile. The present unsatisfactory condition in some of the orchards cannot then be attributed to any lack of adaptability to the growth of apples.

In searching for the cause of such conditions the following facts must be considered. The district is comparatively old to the apple, and trees have been planted in large numbers. Also, the stock has been brought from all parts of the world. Such conditions are very conducive to the introduction and spread of diseases, and we may assume that many of the troubles of the apple are already here and well established. It is not here assumed that any one disease is responsible for total undesirable condition of the trees, but some few are more productive of trouble than all the others combined.

The writer is of the opinion, after a careful study of local conditions for more than four years, that the one disease most potent in producing adverse conditions is the apple powdery mildew (Sphaerotheca mali). As far as can be learned, this fungus trouble has been present in the valley for over 15 years, and has gradually but steadily extended the area of infection. The effect on the trees has also been cumulative, and the disease has been remarkably persistent from year to year in spite of seasonal variations in humidity.



Yellow Newtown Foliage Affected by Mildew.



Yellow Newtown Foliage Protected by Spraying.

At present the powdery mildew has no well defined limits of distribution, but may be found in practically every apple orchard within 10 miles of the valley. The harmful effects are, however, confined to the parts of the district longest in apples and comparatively close to the coast. It should not be inferred from the foregoing statement that the mildew is confined to the lowlands and the coast climates, for the same disease is doing serious damage at high altitudes in the interior of the States.

The injury caused by this fungus disease is at first not very serious; only a few twigs on the tree may be attacked, and then only partly covered by the growth of the parasite. Under these conditions the tree remains strong and vigorous, with undiminished productive power.

(*Continued on Page 439.*)

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The Week.

The year promises to be noteworthy in the line of spectacular evidences of California development. The Alaska-Yukon opened on June 1 very successfully and with striking tokens of popular appreciation. The California Building and its varied contents and unique environment of semi-tropical growths which are content to spend a summer at the North, is described as one of the most interesting features of the exposition, and likely to increase the fame of the State in the far Northwest, whence we are now drawing many investors and home-makers. The new State Fair Pavilion is now being erected at Sacramento, and in its location at the park will inaugurate the promising condition of "the whole show for one price of admission," which has too long been wanting at California State Fairs. The people should see to it that every roof on the new fair grounds covers its full quota of exhibits and students of exhibits this year. We hear of many things which the directors are doing to add to the value and attractiveness of this year's fair. One thing which strikes us as of particular significance is the preparation for a large sale of improved stock of all kinds. Everyone wishing to see a great display of animals and to take home with him what he wants at auction price will be charmed, instructed and enriched—all for one price of admission. After that will come the Portola Festival, by which San Francisco will celebrate her new birth by honoring the memory of her great-grandfather, and will be assisted in doing it by the distinguished presence of the President of the United States. These are a few of the things which are just ahead in the outer life of Californians, and they all indicate public spirit and enterprise which will be counted creditable in the world's estimate of us.

The world's estimate is nowadays the measure of the future of a country or a commonwealth—possibly it has always been: we refer that point to the historians. The announcement that distant capitalists propose to throw nine million dollars into the center of the Sacramento valley for the irrigating of 250,000 acres of land and placing 1,500,000 settlers upon the land thus reclaimed, is but one item in the proof that the world is taking note of opportunities in California. It is, however, renewed testimony that the great Sacramento valley is coming into its own. When this enterprise is ready to take 750 cubic feet of water a second out of the Sacramento and distribute it through Glenn and Colusa counties until it runs on the land in rivalry to the waters from Clear lake in Yolo county, it will certainly mean that there is something doing on the west side of the valley. California needs millions of money to make miles of land uniformly productive, and millions of people to participate in the production, and both never seemed so near to realization as at the present moment.

Writing along this line, we remember the current account of the operations of the Duke of Bedford. He seems to be a strictly up-to-date cosmopolite. They say he has all the accomplishments of the most modern money-maker: that he owns Covent Garden in London, and most of the surrounding district, which supplies practically the whole of London with fruits and vegetables, and that his landed interests give him an exclusive monopoly over the market produce of London. Not only does he wield despotic sway over the market itself, but levies a toll on all vehicles bringing produce to the market which come to rest in any street within a quarter of a mile of the market. In the early morning nearly every street converging on the market is literally blocked with carts, wagons, barrows, and steam lorries bringing truck from the country. Every one of these vehicles has to pay a toll to the Duke for standing in the streets while waiting to be unloaded; and the consignees also have to pay an additional tax per pound on the produce itself. It is said that the Duke has this cinch on the metropolis because a remote ancestor paid $30 for seven acres of land and enabled the present Duke to make all his millions of neighbors look like 30 cents. He holds on to his advantage because an Englishman never knows how to let go, and he is making so much money that he has to look the world over to find out where to spend it.

It is another particle of evidence of our prominence in the world that California has attracted the attention of the Duke of Bedford. He recently sold a piece of land to the British Government for two and a half millions, and he proposes soon to visit California, with a view to investing that money and growing up with the State—that is, letting his estate grow up with the State, as his remote ancestor did perhaps. The British Government is bothering all the Dukes by placing a tax on land values and increasing the income tax on millionaires, and this, it is said, will cause the Duke to investigate the possibilities for large investments in American land—California preferred. Some people say they don't want the Duke, but we do not see how he can be kept out, and, if we remember correctly, Dukes have generally been more apt to do things when people said they did not like them. It seems wiser to put a good face on it and say: "Come on, Mr. Bedford, with your millions to help us build up California, and if an American State cannot find a way to handle your descendants' holdings better for the public good than the British Government handles your cinch on London, it will not be your fault, anyway—nor ours."

Possibly we are more disposed to let posterity shift its own burdens and stretch out a welcoming hand to the Duke of Bedford because we know of his reputation as a good farmer. We wish we knew his real name, but our copy of Burke is holding up the leg of the table and we cannot upset things by trying to consult it; still, we would prefer to have him as a man, rather than as a Duke. As a farmer he is, in a way, the kind that California needs, with a head to plan great improvements and the money to carry them out. The Thorney estate, which he lately sold to the British Government, was formerly a swamp, but has been transformed into one of the finest agricultural areas in England. It is a model estate, with exemplary dwellings for farmers. The Duke has also conducted many tillage experiments, the most interesting to Californians being a demonstration that, even in England, fruit trees will do better with clean culture than in the traditionary turf. There is plenty of room in California for men with the Duke's money and taste for development, and if they double their money thereby we do not see how anyone can stop them.

A queer phase of prohibition progress is heralded from an Ohio town named Zoar. It has a public cistern whose walls are of cement. It has a capacity of 100 barrels, and is located in the public square. It is being cleaned out and will be filled with apple juice. The cistern was uesd for this purpose years ago when the Zoar Communist society was in existence. With the advent of the local option law the citizens decided to restore the old custom. A pump will be installed and the beverage will be free to all who care to work the handle. We presume the demand will be slack until the cider hardens, and then common people will stand a poor show with the deacons. This settles the vexed question of the place of the hard-cider deacon in the prohibition movement.

We wish we knew just what plant is masquerading in New Zealand under the name "California thistle." We have Spanish thistles, Napa thistles, sow thistles, and in one county at least some Canada thistles, but nothing which goes by the State name. We read this: "One of the greatest weed pests in New Zealand is the Californian thistle. Recently the Government offered a reward of £500 for an effective and economic remedy. But it remains uncollected, and the thistle is daily acquiring new territory. One farmer rose up the other day and asked for his reward. He had a big patch of thistle which he had tried to fight by working the land thoroughly, but to no purpose. In the middle of his year's work a flood came down the river and, inundating the farm, deposited a large supply of seed of a native weed called wild gowan. The gowan thrived exceedingly well, and to the surprise of the farmer not a thistle grew up among it. This was several years ago, yet the thistle is still absent. The settler asked the Government for the reward, but the minister was cautious, as he argued that the cure might be as bad as the disease. But this is not so, however. The gowan can be easily got rid of."

It is really too bad that in this vegetable tragedy we do not know either of the leading actors. People are sometimes inclined to scoff at botanical names and to maintain their useless pedantry, but isn't it plain that if we had the botanical names of these plants we should be able to tell by proper reference to the botanies just which plants they are, and find their portraits also, so there could be no mistake in identification. For lack of this, see the trouble we are in. A Californian does not know what a California thistle is, and as for "gowan"—oh, go on: probably a New Zealander does not know what that is either. The botanical name is, of course, the real thing. One does not always have to use it, but in the case of an indictment like the above, common names are too indefinite.

How much does the bamboo amount to commercially in California, and why does it not amount to more? We would like to hear from all readers who have tried to make a commercial crop of the plant and have found it profitable or otherwise. We ask the question because nearly all desirable species have been introduced during the last half-century, and the commercial product is certainly not large enough to attract much notice. And we ask it also because we have to read such joyful paragraphs as this one telegraphed from Chicago: "Japanese bamboo is to be grown in America. William D. Hills, a Government expert, who has been in Japan for the past 18 months, believes that this can be accomplished successfully in Arizona. He has shipped 50 tons of the bamboo trees, which he raised in Japan, to the Government Experiment

Farm near Yuma, A. T. The trees will be set out immediately. Should the cultivation of this new and valuable product prove profitable it will mean a great deal to the arid regions of the great Southwest. Its use is constantly increasing in this country, and with the advent of its utilization in aeroplanes and in flying machines its value will be greatly enhanced."

The idea of calling bamboo new in this country, and that Mr. Hills has discovered the opportunity for introducing it, is rather amusing. That it is valuable or otherwise we would like to establish by some experience in this State, into which, for at least a third of a century, introductions have been freely made and local propagation carried on to some extent. We may be able to draw out some figures which will give the eucalyptus a little rest and set the boomers astride of bamboo hobbies, which would sit more comfortably at least. What is there in the bamboo, anyhow?

The new West has got the effete East on the defensive, to say the least of it. The Empire State has just issued a "pamphlet picturing the agricultural advantages of New York." Just think of the lack of dignity in it: an Eastern State displaying its charms like a Western commonwealth! And in support of such shame the Rural New Yorker says: "It is remarkable what an argument the State can put up when it once begins to talk. Inside her 47,620 square miles she offers every opportunity which a farmer in the temperate zone need ask for. Nearly 6,000,000 New Yorkers raise little or nothing of what they need for food and clothing. Every farm in the State is reasonably near a railroad and market. Where farm land in the West is selling at $100 per acre, New York soil capable of growing more corn can be bought for $50 or less. The produce from the New York farm will also sell for at least one-third more than an equal grade on the Western farm. We claim that today New York offers better chances for a farmer with a fair capital than any other State in the Union!"

That may be literally true, for all we know, but there is a Western freedom of thought and action, a Western largeness of spirit and openness of purse in enterprise and hospitality; a Western cordiality and equality in social recognition, in education, in politics, and the like, which the far East does not know, except as its people come and see all these things, and then they stay with them. Again, there is the climate; but never mind that and other things: we do not like to be cruel.

Queries and Replies.

Shell-Back Snails.

To the Editor: I am in need of finding a remedy for the garden snail that carries a shell—one of the Helix tribe. What will destroy them entirely? Is there any disease that they can be inoculated with? I fear that they will run me out of my garden, and I will greatly appreciate an answer.—Amateur, San Diego.

We do not know of any very good treatment for the Helix, unless sharp-beaked hens will tackle them as delicacies. These pests are quite common in England, and in English gardeners' experience a mixture of salt and soot scattered upon the ground which they traverse seems to be most effective. Lime, which is something of a protection against the slug branch of the snail family, does not seem to be objectionable to the shell-bearer, for one writer picturesquely says he "has seen slugs sitting quietly on lime, surrounded by their slime, and in no way effected." The same writer advises one to keep his garden well filled with "ducks, fowls, rooks, blackbirds, thrushes, moles, shrews and toads." Here we have, then, a menagerie from which you can establish in your garden such choice snail eaters as are most convenient for you to assemble.

Farming by Schedule.

To the Editor: Kindly advise me as to the best method to adopt in order to have a constant revenue coming in from a fruit ranch—I mean, the time and seasons when to plant so that as each product has been marketed, another will follow it, and prove a constant, steady source of income. I am green at the business and would like to find the best way for regular income.—C. M. M., Placer County.

The problem advanced is too elaborate to work out in detail. It depends upon several things: what the land you have is adapted to, what is the water supply, and how much work can be given to the undertaking. There is no better way of getting points for any locality than to thoroughly explore it, finding out what other people have tried and found desirable, or otherwise, and if you can undertake such a study in a district in which fruit has been grown so long as in your region, you will have better knowledge of what it would be desirable for you to undertake than anyone can give you without a similar amount of local study. It would be theoretically easy, although it would take a good deal of time to do it, to make out a schedule for the different crops so as to have them coming into market condition in succession, but how many of these would grow under your conditions would still have to be determined. In this matter nothing would take the place of such a local study as proposed.

Beans in a Vineyard.

To the Editor: I have put out a young Muscat vineyard this season, planting the vines ten feet apart. Would it injure them in any way if beans were planted in two rows between after the cultivation of the vines was done? It is the ordinary white ash land that we have here, and has not been fertilized. It do not wish to do anything that will in any way hurt the vines. I do not know how beans grow, and fear they may smother out the vines.—New Planter, Fresno.

We have no idea that vines will be at all injured by the growth of a few rows of beans, providing you grow the bush, or non-climbing, varieties, like the common small white and pink beans. Climbing beans would undoubtedly run all over the place, interfering with cultivation and to some extent with the growth of the vines. You have only two things to determine: First of all, whether the beans by their own growth and by interfering with cultivation would cause you to lose moisture which the vines need for their growth; second, whether the beans would pay anything above their cost. If not, it would be better to give the whole amount to the vines, with clean cultivation. As for removing fertility from the soil, that would be negligible in the case of beans, for the decay of their roots would contribute valuable nitrogen to the soil and, in fact, be in a small degree restorative of fertility.

Eucalyptus and Alkali.

To the Editor: I have lately heard that there is a variety of the gum tree that will flourish well on alkali soil. I would like to try it, as I have considerable of that kind of soil. My land will produce the native grasses, wild oats, foxtail, etc., and some fairly good barley.—Reader, Contra Costa

One of the species which is most resistant of alkali is the rostrata, which is also hard against frost. Whether any eucalyptus will grow on alkali land depends directly upon how much alkali there is present. We presume, however, from what you say of plants now growing on the land that it will carry eucalyptus trees successfully.

Killing Poison Oak.

To the Editor: Please tell me what you can about the matter of poison oak and its eradication. I am going to locate in Mill Valley, and find the spot has a very liberal supply of it. Is there any mineral substance that will kill it? Any information you can give me will be greatly appreciated. —Reader, San Francisco.

There is some reason to think that one can kill poison oak by pouring gasoline around the base of the shoot, say about a gill. This treatment is known to kill many young woody plants. We have not had an opportunity to test it, but simply suggest it to you for experiment. Otherwise we know of no way to get rid of poison oak except by the old process of grubbing out thoroughly and then grubbing again every shoot that survives.

Dehorning Calves.

To the Editor: I have two calves, six weeks and two months old. Their horns have started, and would like to know how to prevent them growing.—Subscriber, Anaheim.

On calves not over one month old the growth of horns can be prevented by rubbing the button with stick caustic potash until it becomes well reddened. Later, and when the horns have started to grow, this is not an effective treatment. The saw or clippers must be used after the horns grow out, more or less, according to the experience of different operators. Some prefer to dehorn yearlings rather than treat calves.

THE POWDERY MILDEW OF THE APPLE.

(*Continued From Page 437.*)

Such is the condition for perhaps the first three years of the infection, but a careful observer will notice a gradual increase in the number of twigs infected from year to year. The number of leaves partly dwarfed by the growth of the fungus on the under side also increases. This gradual increase in the amount of the infection appears at first to be due entirely to the greater amount of wintering over fungus, but there comes a time when the tree is weakened by the disease, and the parasite then flourishes more abundantly, as a result of the reduced resisting power of its host.

Trees which have become thoroughly infected with the mildew are characterized by the very small amount of wood growth produced during a season, and the continuation of such a condition results in dwarfing. Some of the younger orchards in the badly infected areas have been so much dwarfed as to practically stand still, a condition which will result in total loss if not remedied. Those trees which had reached full bearing size before the advent of the mildew have not been so much affected, but nevertheless retarded and injured to an appreciable extent.

The reduction in wood growth is also accompanied by even greater injury to the foliage. Mildew-attacked trees show a dwarfed and crinkled condition which is quite characteristic, and must even more than the reduction of the wood growth contribute to the decline in vigor of the tree. Such reduction in foliage area doubtless greatly affects the assimilating power of the tree, and we might expect the quantity and quality of the fruit to suffer materially. Just how great the effect on the fruit has been is not fully determined. It is a matter of record that size, quality and yield have deteriorated in the orchards now badly infected with the mildew, but such deterioration has also been noted where the mildew could hardly be regarded as serious enough to cause the effect.

In the setting of the fruit the weakening of the buds caused by the mildew of the past season may reasonably be assumed to have a material influence. The fungus also frequently starts out during the blooming period, often infesting the stems of the young fruit. Such infection may cause failure to set. After setting has been assured the presence of mildew on the trees must still effect the fruit by reducing the assimilating or feeding power of the tree. Reduction in assimilating power may in itself be sufficient to explain the entire effect of the mildew, but it is quite probable that the trees are also poisoned by substances excreted by the fungus. Mildew orchards are not necessarily failures from a crop producing standpoint, but the conditions seems to be one of gradually diminishing quality, which in time means unproductiveness.

Horticulture.

CHERRY NOTES.

Written for the PACIFIC RURAL PRESS
By A. J. L.

Growers' reports from different sections indicate a general crop something below that of last season. In portions of Placer county it is light, the Haywards section is fairly good, and Santa Clara county is at least equal to last season. It is remarked that the fruit of later varieties is smaller than usual, a lack of development probably caused by cold weather.

Cherries thrive in various soils—in the disintegrated granite of the foothills, in the clay loam of Haywards section, and in the lighter loam of the Santa Clara valley. Sandy loam is generally found most favorable. Mr. George Worwick's orchard near San Jose has trees over 40 years old that continue bearing as well as ever. Where old trees have failed he thinks they were attacked by gophers. He considers the cherry trees should be vigorous at fifty years. Black varieties reach their best at 8 years, Royal Anns at 12 years.

Thrips is the only serious enemy of the cherry which remains so far uncontrolled. Eastern cities are the best market for the black varieties; the Royal Anns are about divided between Eastern markets and the canneries.

Mr. Worwick, who has given many years attention to cherry culture, remarks that it takes all that time to satisfactorily determine which varieties are most successful in certain soils. Mr. Ed Carey, who owns an orchard near Haywards, is similarly impressed with the glorious uncertainty of the cherry until it passes its hobbledehoy age, though the same may be said of other fruits. Mr. Worwick's orchard referred to is marked distinctly on the Government map as "alluvial soil," and it being an exceptional orchard as to age and average bearing, it is a fair deduction that such soil, in the climate of the Santa Clara valley, is as favorable as any.

Vacaville cherries are so early as to have a season and a market all to themselves. In Santa Clara county later varieties cannot be excelled, and this is about an average season. It is claimed for Santa Clara county that it has better shipping cherries than where there are fogs to a degree that they have a softening effect on the fruit.

Up until the last season there has been a special market in Eastern States for Royal Anns for the flavoring of certain beverages or compounds known to the initiated as maraschino cocktails. If the statement is not a libel on Royal Anns, it is said that no less than 1000 tons were shipped two or three seasons ago, most of them to convivial Cincinnati, and all to flavor the alluring compound that cheers and more or less inebriates. One packing firm made a special of shipping maraschino flavorers in barrels. This particular demand is dying out, not because Easterners have abandoned cocktails, or superseded them with highballs, but from the commercial fact that French maraschino cherries are now laid down in the East for 6 cents a pound. California Royal Anns used to bring as high as 12 cents for this trade, so that California refuses any longer to be a party to the cherry cocktail.

A large acreage of Royal Anns has been planted in Santa Clara county of recent years—so extensive that some growers fear that if all are productive the cherry industry might be overdone.

Though cherries are not dried as an industry, some seasons a portion of the crop is so treated because of the fruit being cracked by unseasonable rains and rendered unmarketable otherwise.

Citrus Fruits.

THE KEEPING QUALITIES OF LEMONS.

By Mr. R. H. TRUE and Mr. A. F. SIEVERS, of the Bureau of Plant Industry of the U. S. Dept. of Agriculture.

[Complementary to the excellent work done by Mr. G. Harold Powell and his associates of the Bureau of Plant Industry, in relation to the handling of California fruits, now comes a preliminary report by the experts named above on "Some Factors Affecting the Keeping Qualities of American Lemons." Dr. B. T. Galloway, chief of the Bureau, in an introductory note, says: "These results are based on limited data, are advanced tentatively, and are subject to modification should further investigation require it. A strong demand for a report upon the results thus far obtained, coupled with the fact that they are likely to be of some service, seems to justify their publication." Dr. Galloway is right, and the publication is very welcome and timely. As it now seems assured that an increase in the tariff will favor the development of the American lemon, and as the American lemon really means the California lemon, nothing could be more directly interesting than the discussion which we shall give our readers, from an early copy of Circular 26 of the Bureau of Plant Industry.—EDITOR.]

There is a prevailing impression among fruit handlers that American lemons, while possessing many points of superior attractiveness, are open to the objection that they are not long keepers. Assuming the correctness of this report, the source of this weakness demands a careful study of the whole lemon situation. The object of this investigation has been to get a clearer understanding of the processes through which lemons are put after picking, with special reference to the bearing of these processes on the behavior of the fruit in the packing houses, during transit, and after it has reached the market. This broadly outlined study has for its practical object the determination of conditions affecting the keeping qualities of the fruit after it has reached the market. The hope is also present that through the results obtained improvement in some of the processes investigated may be suggested.

It has been made clear by the work thus far accomplished that the keeping quality of American lemons is influenced by many factors, some acting on the orchard, some in the packing house, some in the cars during transit, and some at points far distant from California, that is, in the markets.

Losses of Lemons from Parasitic Diseases.—Important among the factors causing the loss of lemons are parasitic diseases derived from the orchard. These operate not only there but, unless infected fruit is detected and discarded, also in the packing house, and even after the fruit has come on the market. The dreaded brown rot (Pythiacystis citrophthora Smith) may stand as a type of destructive parasite. Since these organisms are usually virulent, the diseased fruits are in large part detected before shipment, and form a conspicuous cause of loss in California.

Losses of Lemons from Blue Mould.—A second type of trouble comes from aggressive organisms such as blue mould, which, while not able to successfully invade a sound lemon, are fatal to fruits which have been injured by careless handling at some point in their history, or which are physiologically weak. Thus, while blue mould figures as an immediate cause of considerable loss, it becomes a source of danger chiefly after the fruit has been weakened by previous bad treatment. Mould invasion, being a secondary phenomenon, may appear at any time in the history of the fruit, but since the maximum amount of handling, and therefore the greatest danger from bad treatment, is found during the picking process in the orchard and in the subsequent sorting and handling in the packing house, a large proportion of the loss from mould is probably also found in California. Since shipping conditions may introduce violence and injury, a certain percentage of loss due to this cause and to such injuries and infections as took place during the last handling in packing, will be met in the market soon after the arrival of the fruit. Thus the blue-mould situation becomes largely a question of proper care in handling. As the losses due to blue mould are to a large degree dependent on the percentage of lemons having a punctured or otherwise ruptured epidermis, the toughness of the outside cuticle becomes an important factor in fruit preservation. The results of mechanical tests of the ease of puncture as affected by the packing house processes are summarized later in this circular. Since injury in the handling and shipment of lemons is a matter of study in the Office of Field Investigations in Pomology of this Bureau, this general subject is not considered here.

Physiological Weakness of Lemons.—Another possible seat of trouble may lie in weakness caused by the processes through which the green fruit is put in order to color it for the market, or in the conditions under which it is stored, either at the place of production or at the point of consumption. This line of investigation calls for a study of lemon houses and their operations, with special reference to such processes as seem likely to weaken the fruit.

Methods of Preparing Lemons for Market.—A preliminary study of the situation has developed the fact that lemons come on the market with widely differing histories.

1. Some are sufficiently colored when they are picked from the tree, and are shipped to the market as quickly as possible. The so-called "tree-ripe" lemons are usually segregated and go on the market as inferior fruit, it being generally agreed that tree-ripe lemons do not have as good keeping qualities as the fruit which is picked green and colored artificially.

2. "Sweated fruit" is picked green when the proper diameter is reached, and colored rapidly by storage in moist, tight, sweat rooms or sweating tents in which a high temperature is maintained, usually by means of oil stoves burning in the room with the lemons or in a cellar-like room below the fruit and separated from the storage room by slatted floors. The humidity and heat, and perhaps carbon dioxide and other gaseous products of combustion, acting together bring about a rapid coloration of the fruit. Sweating is usually resorted to only when the price of lemons is high and a rapid marketing of the crop is desired. It is generally agreed among lemon growers that sweated lemons are less likely to keep than those colored more gradually at lower temperatures. Since the conditions maintained in sweat rooms are highly unnatural and the result is obtained in a most unnatural way, some attention has been given to the physiological factors involved in sweating.

3. By far the larger part of the lemon crop is picked when the desired diameter of the fruit is reached, and this is colored up by "curing" at low temperatures in the packing houses. In some places where the water loss from the fruit is likely to be relatively easy to control, an open floor covered by a roof is sufficient for a permanent storage structure. In order to enable the manager to modify conditions to suit the needs of the individual lots, the lemons, in boxes or trays, are piled up in carload lots, and each pile is covered by a heavy canvas tent, of which the sides and ends may be raised or lowered at will. In those regions where water loss is less readily controlled, the storing house is boarded up with the usual walls and ends. To secure uniformity of conditions with even greater ease, some growers have made use of cellars under the houses. Lemons colored by this slow "curing" process may remain in the tents or cellars as long as six months or more, if market conditions require it, but usually fruit is marketed much sooner.

In grading and packing the fruit for market some lemon houses handle the sweated and tent-cured sorts separately, but this is not the invariable rule.

Physical Characteristics of the Different Types of Lemons.—Lemons are known to be a most variable fruit in their physical characteristics. Not only is this true of trees of any given variety, but in some cases it is also true of the different fruits taken from the individual tree. The manner of handling water and fertilizers is commonly believed to be of great importance in getting smooth, well shaped lemons. The lemon varies in general from a barrel shape to an almost spherical form marked by more or less pronounced protuberant ends. Thick and conspicuous ends detract from the value of the fruit. The best size of lemon weighs on the average 120 to 135 grams. Of course size is not the only factor which determines the weight, much depending on the rind, quantity of juice, and general solidity of the fruit. The most desirable sizes of lemons average 300 and 360 to the box.

There are usually three grades of lemons, known as "fancy," "choice," and "standard." The grades depend on the general texture of the fruit, the form, and the color. The sizes vary from 180 to 540 to the box, but few lemons are packed larger than the 240 or smaller than the 490 per box size. The better grades are mostly made up of the fruit of fine texture and of good form picked when green and colored either by slow curing in tents or by sweating. The tree-ripe fruit is less com-

monly used for the finer select grades, since many question its keeping quality. In some packing houses it goes largely into an inferior grade, and at some seasons of the year, when the fruit is quite small, from 400 to 500 are packed in a box. A very small percentage of fruit constitutes the grade known as "sinkers," or "heavy lemons." This type derives its name from the fact that the fruits sink in water when being washed. They are usually spherical in shape and quite small, with extremely thin rinds and a relatively large amount of juice.

The green fruit after it is properly cured, either by sweating or by the slower tent process, possesses a rich lemon-yellow color which is seldom found in the tree-ripe fruit.

There is a wide variation in the texture of lemons, which is currently believed to be influenced by orchard conditions and the season of the year. As a rule large, overgrown fruit has a rougher texture than smaller fruit. During the curing process the rind is smoothed down considerably and the texture is improved. Tree-ripe lemons usually have a smoother texture than the green fruit.

The rind consists of the external epidermis and a well developed underlying layer of soft, spongy, white tissue. This layer of tissue contains a considerable quantity of water, much of which evaporates during the curing of the fruit, causing a considerable shrinkage in the thickness of the rind. It is for this reason that the spongy layer of the green, freshly picked fruits is as a rule thicker than that of the tent-cured lemons. Individual lemons display great variations in the thickness of their rind, a condition which it is difficult to recognize from the general external appearance of the fruit. It appears that good, sound, normal sized fruit, with smooth or medium texture, as a rule has a thinner rind than the rough and oversized sorts. The rind of green fruit varies from one-eighth to five-sixteenths of an inch in thickness, and averages about one-fourth of an inch. As stated previously, the tent-cured and sweated fruit averages somewhat less, while the "tree-ripes" usually run from one-eighth to three-sixteenths, and "sinkers" vary from about one-sixteenth to one-eighth of an inch, due to the extreme reduction of the spongy layer.

The seed content of the California lemons is very small indeed. A large majority of the fruit is entirely free from seeds. Now and then one finds a lemon that contains as many as a dozen seeds, sometimes all developed, but more often only partially so. They occur in all grades and varieties of fruit, but it appears that they are found more frequently in lemons of low grade. It is said by some growers that orchard conditions as regards the soil and method of cultivation, as well as the general condition of the trees, have an important bearing on the presence of seeds. It has been noticed that fruit from some localities displays a greater tendency toward seed production than that from others.

The juice constitutes from 30 to 55% of the total weight of the lemon, varying to a considerable extent with the thickness of the rind and the general solidity of the fruit. In the "tree ripes," "sinkers" and cured fruit the percentage is higher than in the green, newly picked lemons, for the reason that the latter have more water in their rinds. The juice obtained by expression contains a considerable quantity of mucilaginous material, which gives it a cloudy appearance. Great difficulty is found in removing this material; in fact, all methods of clarifying tested fail to make the juice perfectly clear.

Besides the citric acid, to which the sourness is chiefly due, tartaric and malic acids are present, but in such small quantities that they are probably negligible as to their effects, both on the behavior of the fruit itself and on the acid determinations. The specific gravity of lemon juice shows a narrow range of variation. By far the majority of determinations give results approximating 1.035. Numerous samples have given results as low as 1.026, and still more as high as 1.04. It was expected that the specific gravity of the juice would be governed by the acidity, but this was borne out only in a partial way. It was found that either a decidedly high or a decidedly low percentage of acid is indicated by a correspondingly high or low specific gravity. This was especially true when the acid content was higher than usual. Small differences in acidity are not indicated by the specific gravity with any degree of certainty, the variations in the quantity of mucilaginous material perhaps hiding any change which might otherwise be indicated. Experience has shown that a difference of less than 1% of acid can not be foretold by a specific gravity determination of the juice.

The Irrigator.

PUMPING FOR IRRIGATION.

Written for the Pacific Rural Press
By Norman B. Miller.

At one time or another almost everyone who lives in the country has to solve the problem of water supply, and whether it be for domestic or irrigation purposes, these problems, while for the the most part simple enough for one who makes a business of such things, are at the same time quite perplexing to the uninitiated.

In this article no attempt will be made to give hard and fast rules for the selection of a plant, as it must be understood that it will depend upon conditions, and may require special recommendations.

In general, however, it can be said in regard to pumps for irrigation, the centrifugal usually makes the best installation. These pumps are essentially a low head, big capacity pump, and by low head we mean up to 100 feet. Centrifugal pumps, because of their simplicity, comparative cheapness, ease of installation, and their large capacity, make them probably the one that is given the most general consideration, and they should be used wherever the conditions will permit.

It often happens, however, that the water has to be forced against a head of several hundred feet, and while this more often is for domestic purposes than irrigating, it may be considered in connection with the latter. For this duty the triplex or power pump is generally used.

The triplex pump will not deliver as much water as the centrifugal pump, but will elevate the water through heads many times higher than the centrifugal, and for the same water delivered, and under the same head, it will probably require from 10 to 15% less power than the centrifugal. The efficiency of this pump, therefore, is higher, and where power, say electricity, is costly, the saving on this item alone with the triplex pump may show a good return on the investment at the end of a year. As before stated, however, conditions almost always determine the installation.

As regards the selection of pumps, it might be said in general that you should use a centrifugal pump where you have a low head, where power is cheap, and where you want a large quantity of water, and the triplex pump where the head is beyond the point where the centrifugal pump would economically operate, where power is an item to be considered, and also where the quantity of water desired is not so large.

Of course it must be understood that there are a great many varieties of pumps and different ways of elevating water, and to simply mention these different varieties, not taking up their details at all, would indeed be a task rather too arduous. These two types, however, are those most economically used, and will, in nine cases out of ten, suite the class of work under consideration.

In the delivery of water the centrifugal pump is very much more flexible than the other forms of pump. The pressure imparted to the water depends upon the centrifugal force which the rotating runner imparts to it, and for a specified head head the pump should operate at a speed that will deliver the rated quantity of water, that is, the point of highest economy where the most water will be delivered for the least power expended.

By varying this speed, however, the pump can be made to deliver a considerable quantity over its rating. This is accomplished at a sacrifice of economy.

It should be borne in mind in the installation of a centrifugal pump that the head under which it is to operate is a very important factor, since the speed at which it revolves must be definitely determined. The head under which the pump operates includes not only the vertical distance through which the water is raised, including suction and discharge, but also the friction of the water as it passes through the suction and discharge pipes, together with a certain entrance head. All this must be considered, and the sum should represent the total head under which the pump is to operate.

In the operation of a power pump, while its total head is not as important as it is with a centrifugal, other than determining the proper power to operate the pump and the selection of the type of pump, yet it is always best when possible to determine this quantity.

We have just mentioned the fact that by varying the speed of the centrifugal pump the quantity of water will be varied as well. Variations in the speed of a triplex pump will vary the quantity of water discharged at much smaller ranges than a centrifugal.

The volume of water that a plunger pump will deliver depends, of course, on the diameter of its plunger, the length of its stroke, and the number of strokes made in a given time. This displacement area can be easily calculated. This will represent theoretically the quantity of water displaced. In practice, however, the actual quantity of water delivered will be somewhat smaller than this displacement, due to slippage and improper seating of the valves. It is for this reason also that by increasing the speed of the triplex pump the quantities of water it will deliver cannot be increased in proportion to the speed.

Whether a centrifugal or power pump be used, it will of course be necessary to provide some means for its operation. Electricity is becoming very popular, because of its cleanliness and ease of handling. For centrifugal pumps the ideal installation is to have the electric motor direct-connected to an extended base. This makes a very compact unit, occupying a small floor space, and indeed being an equipment of the simplest kind. Where electricity is used it is also practical to direct connect motors to power or plunger pumps through the intervention of gears. In a great many cases, however, electricity is not available, and it very often happens that where it is available its excessive cost makes other forms of power desirable.

It can be said, in general, that electricity, to compete in point of cost with a gasoline engine, would have to be sold for about 1 cent per kilowatt hour.

Gasoline engines for pumping work are in a great many cases displacing electricity. The gasoline engine as it is built today is very reliable, and if properly installed, and if the proper engine be purchased, there is no reason why it should not give the same degree of satisfaction, and operate with the same ease that can be expected of an electric motor. Where floor space is limited, the electric motor will probably make the best installation. In deciding on these outfits, however, a great many things must be taken into consideration, and generally the one which will pay the biggest return on the investment should be purchased.

In determining the horse-power required to operate a pump the quantity of water to be pumped should be accurately determined, as well as the total head through which the water is to be discharged. The theoretical horse-power required to deliver a given quantity of water through a given head can be determined by multiplying the number of gallons per minute by the total head and dividing by 4000. This is an empirical rule, which for general estimating purposes will suffice.

This, however, represents the theoretical horse-power only, or, in other words, the horse-power in terms of pounds of water, and does not take into account the mechanical losses due to belt slippage or the mechanical imperfections of the pump.

For centrifugal pumps the result obtained by multiplying the head by the number of gallons and divided by 4000 should be multiplied by 2. This will represent the actual horse-power required. For triplex pumps instead of multiplying the quantity by 2, multiply it by 1.7.

A great many people who purchase expensive pumping plants do not give them the proper care, and after one season's pumping is completed merely close the plant down, and expect to start it up at the beginning of the next season, and so on from year to year. Such a practice, however, is injurious to the life and efficiency of the plant. Each year it should be given a general overhauling and determined that the suction pipes are tight and that no leaks exist, that all the bearings are properly aligned and cleaned while in operation, that a liberal supply of a good lubricative is used,

and in general the parts kept clean and in good working condition.

While this article does not pretend to give information sufficient for one to select his pumping plant, for such a discussion would be entirely too long, we believe we have given a few ideas which might be of value, and in general wish to state that anyone desiring to put a plant in and requiring any information will fare far better by making his desires known to some reliable concern making it their business to handle such equipment. These concerns are prepared to make recommendations, furnish estimates, and guarantee the plants they install.

AGRICULTURAL REVIEW.

Irrigation and Conservation.

A meeting of southern California irrigators was held at Riverside last week to form a company that will take charge of the work of water spreading as a means of conservation of irrigation water, as proposed under the new State law. Certain lands in the Santa Ana river bed have been withdrawn from entry by the government that they may be used for the purpose. The government gives the land, but the work must oe done by parties interested. It is proposed to save a great part of the water that runs to the sea in flood time by spreading it over these lands, which will later be used for irrigation.

It is announced that the Kuhn Investment Company, which recently secured control of the great irrigation system and over 100,000 acres of land in Colusa and Glenn counties, will make its headquarters at Willows. The great canal and laterals are to be completed as soon as possible, that the land on the west side of the valley may be placed under water.

Owing to melting snows in the Sierras, Kings river began overflowing its banks in Kings county last week, overflowing lands several miles in width, causing a heavy loss to orchards and vineyards. By strenuous work the breaks in the banks of the river were closed and as the river has fallen a little the water is being controlled.

New Grain in the Market.

From Stanislaus county the report comes of fine maturing barley and oat crops, owing to the cool weather. Harvesting will be in full swing beginning next week.

In Sutter county the wheat crop is reported to be good, especially so in District 70. In the district on the Colusa side of the valley grain and hay crops are also promising good returns.

The first barley of the season arrived at Stockton Monday and sold for the record price of $1.45. This lot consisted of two cars which was raised near Tracy. Usually the first barley gets to market about two weeks earlier, but this season the cool weather held the crop back, which, however, proved to be a good thing for the grain.

From Tulare county we learn that harvesting has begun in the Poplar country, and so great is the yield that several new harvesters have been imported for the season. The indications are that this will be the most prosperous season in the history of the grain industry of this section. The wheat will go from 10 to 12 sacks to the acre, is of a fine quality and will bring in the neighborhood of $3 per sack. H. S. Bachman, one of the principal growers of the Poplar section, estimates that his crop will net him $10,000.

Hay Crop Better Than Expected.

While there will be a demand at good prices for all the hay raised in California this year, yet the crop will not be as short as anticipated a month ago. In many sections wheat and barley hay will make a good crop, in other parts the crop is almost a failure. The alfalfa tonnage will be heavier than last season, owing largely to increased acreage. A few items gathered from various sections tell of good yields which will be interesting.

A ranch north of Grangeville, Kings county, produced nearly four tons of mixed wheat and alfalfa hay to the acre.

Around Escondido, San Diego county, the hay crop is good. A half dozen hay baling outfits are in operation, each machine baling 20 tons per day.

It is stated that 124 mowing machines were sold by Visalia dealers this spring to be used in the hay fields surrounding. An immense lot of hay will be harvested in Tulare county. In Kings county, around Corcoran, many acres of wheat were converted into hay, as the high prices offered were as profitable as raising grain.

In Monterey county the crop is large, it being estimated that 15,000 tons will be shipped from Lucas and Kings City. In that section hay is selling in large quantities from $10 to $12 f. o. b.

In Glenn county the yield is good and many cars have already been shipped. Prices average $10 delivered on car.

Black Brood Killing Bees.

County Bee Inspector Job Christman reports finding many cases of New York black brood in the apairies of Fresno county, especially in the Selma district. The disease, he says, is far more destructive in the work of killing off the colonies than foul brood. There is a doubt whether it is infectious, as scientists have not yet determined whether it is caused by local climatic conditions affecting the ripening of the honey, which must be fed to the brood of the bees. But whatever its character the bee-keepers have a serious problem to deal with in the infected districts, for there have been several hundred colonies of bees killed by it in its disastrous work. Christman advises keepers to employ the Alexander method of re-queening with Italian queens, besides shaking the bees off on to foundations. Further, by way of experiment to determine whether it is climatic, they might try feeding honey or the sugar of syrup. Owing to the fact that the so-called black brood is assisting the foul brood in its work, Chrisman says he will require all bee-keepers to pay close attention to bees and not allow any colonies to die out with the so-called black brood.

Imperial Valley Farmers Organize.

At a meeting of farmars of the Imperial valley, held at El Centro recently, a marketing organization was effected. It is proposed to have sub-organizations with headquarters in each of the valley towns, and to erect warehouses for the holding of ranch products at these points, and possibly at Los Aneles. The details will probably include the placing of a selling agent at Los Angeles.

It was finally decided to place the details of organization in the hands of a committee composed of I. Mayfield, D. D. Lawrence, Ira Aten, W. F. Gillett and E. E. Forrester, who are to have the incorporation papers prepared. Eshelman & Swing were selected as the attorneys to prepare these papers, and as soon as they are completed another meeting will be called to perfect the organization.

Higher Prices for Raisins.

The Fresno Republican states that the raisin market is picking up. A sale made there last week of a lot of the 1908 crop was at 2½ cents, which is higher by a half cent than a month previous. It is now thought that the new crop will start at 3 cents. One of the reasons for the higher prices is that the coming crop in

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that section will not be as large as previous ones, owing to the poor setting of berries, the blossoms failing to prove good. A similar condition existed in 1906 when a light crop resulted. While nothing sensational in the way of prices is expected, yet a distinctly better feeling among the raisin men is noted.

A Good Berry Story.

With a combination of soil, water, climate and plants a Tulare county berry grower has made a success on a few acres, that may be duplicated in many other portions of the State; indeed, we have had stories told us of far larger returns, but this is good enough.

U. S. Wright, who owns a farm of 7½ acres near Visalia, all planted to strawberries, but not over six acres in bearing, has this season taken 30,000 boxes and will pick 10,000 more, for which he has received an average of five cents per box from the people of the town adjoining. This makes an income of $2000 from the little tract which Mr. Wright gets, as we said, from soil, an irrigation engine and climate.

Big Berry Receipts.

Three carloads of strawberries are now being shipped daily from the Pajaro valley, which are bringing back to that region about $15,000 per week. The fruit is being sent to San Francisco and Oakland. Each car holds 150 chests, which makes a total of 450 chests daily. The yield and quality is reported to be better than last year and the harvest will continue till late in the fall.

A grower of the Mammoth blackberry at Success, Tulare county, reports having a fine crop this year from the vines which last season produced $1 each when one year old. At this rate a five-acre berry patch would be a gold mine.

State Poultry Farm Pays.

The regular monthly meeting of the Santa Clara Valley Poultry Association was held at the poultry farm of the State Insane Asylum at Agnews last week. About 75 members were present and a successful meeting was held. It was announced during the session that the poultry farm, managed by Mr. Richards, netted a profit of $1700 and the "piggery," under the same management, $1300, last year.

The next meeting of the association will be held at the ranch of Mr. Glendenning Campbell in July.

Cotton Crop Prospects.

The 1909 cotton crop estimate, made June 4 by the crop reporting board of the U. S. Department of Agriculture, places the total acreage at 95.6 per cent less than that of 1908, being at this time 31,918,000 acres. The condition of the crop is placed at 81.1 per cent of a normal yield, being slightly better than last year.

Texas is the big cotton producing State, having 9,716,000 acres devoted to the crop, which is over double the area credited to Georgia, the next largest producing State. Oklahoma, though a new producer, now has annually over two million acres planted annually to cotton.

Charles A. Chambers Honored.

Readers of the PACIFIC RURAL PRESS who have noticed several articles in our columns during the past year from C. A. Chambers of Fresno will be pleased to learn that he has been selected a member of the executive committee of the Pacific Coast Nurserymen's Association, which convenes at Seattle July 15. As this Association covers six Western States, and as there are only six members of the committee, this makes the selection of Mr. Chambers more notable. We congratulate the association in securing a good man for the place from California.

Big Citrus Nursery for Imperial.

The largest seedling orange nursery yet attempted in the Imperial valley is reported to have been started by Felix G. Havens and W. W. Laport near Silsbee. They have erected a lath house 128x126 feet and 7 feet high. In this house they have planted five and a half bushels of Florida orange seed, from which they expect to raise a half million of trees that will be ready for budding a year from next fall. If the firm has no set-back they will be able to furnish the Imperial valley with all the citrus stock that will be needed there.

With the Horticulturists.

An asparagus cannery is to be built at Corcoran before the next crop is ready for cutting.

The San Bernardino Cash Growers' Association is building a new packing house at San Bernardino, which is the first one to be built there.

The Auburn Fruit Growers' Association was incorporated last week for the purpose of handling the fruit of its members who have orchards near there.

The carnation nursery at Loomis is to have a branch at Auburn next season. This company sold from its Loomis gardens over a half million carnations last year.

It is stated that the Wallace ranch of 1900 acres in the Lemon Cove district, Tulare county, is to be set out to oranges and lemons as soon as trees can be obtained.

The Griffin & Skelly cannery at Fresno is about ready to commence the season's run on apricots. It is understood that the size of the pack will be regulated by prices.

The walnut aphis is reported as infesting walnut trees in the Goleta and Carpenteria districts. This trouble is pronounced by some growers as worse than the blight and is combatted by spraying.

The Phoenix Packing Company has commenced the erection of a packing house at Fowler to take the place of the one destroyed by fire last fall. The new building will be 60x150 feet.

H. P. Stabler of Yuba City, who was named by Governor Gillett as chairman of the new board of horticultural examiners last week, has resigned the position. This action of Mr. Stabler is to be regretted, as he was eminently qualified for the position.

Charles Buswell has just finished budding 65,000 sour stock to navels at his nursery near Porterville. He has also planted out 15 bushels of sour stock seed, which should in time give him trees enough to fill all demands of planters in that section.

The Southern Pacific announces a cut in freight rates on fruit shipments of 10 cents per hundred pounds, car loads, between California and Butte and Helena, Montana. The rate was $1.25 per 100 pounds and will be $1.15, making a difference of from $25 to $30 per car, effective June 30. There is also a reduction on vegetables to points in Idaho.

The officers of the temporary Lima Bean Growers' organization have called the first annual meeting to be held at Oxnard, on the second Tuesday in July, when a permanent organization will be effected. In the meantime all growers are urged to join, that marketing arrangements for the coming crop may oe as effective as possible.

Agricultural Notes.

The California Eucalyptus Company of Alameda has purchased the Dillon ranch at Tomales bay and will plant it to eucalyptus.

D. W. Burgett of District 70, in Sutter county, has a money-making patch of potatoes this year. He reports a yield of 120 sacks per acre.

New York parties are reported to have taken over 13,000 acres of land near Hickman, Stanislaus county, and will develop it to sell in small tracts. One of the first improvements promised by the new owners is a big pea cannery.

Sonoma county hop growers are feeling much encouraged at the gradual increase in the price of hops. Last week a contract was made for this year's crop at 12 cents per pound, which is a cent in advance over any previous price reported.

Here is one instance of money in eucalypts. L. Michaux two years ago purchased 120 acres in timber for $13,000; since then he has cut and sold 1200 cords of wood from the grove, which netted him $4000. Recently he sold the place for $43,000 to Eastern parties. The grove is located near Santa Ana.

Stock and Dairy Notes.

Two carloads of fat cattle from Exeter and eight cars from Sanger were shipped last week to a meat-packing house at Tacoma.

E. J. Foster's new creamery at Cottonwood, Shasta county, commenced operation last week. The plant cost about $15,000 and has a capacity to handle the milk from 400 or 500 cows.

R. M. Dunlap, the well known cattle shipper, brought a carload of Hereford and Short-horn bulls and cows to Visalia from the East last week. The stock was purchased by the Robla Lomas Cattle Company and placed on their ranch south of Visalia.

The Western Creameries Company has purchased Dr. E. V. Jacobs' ranch near Meridan, Sutter county, which will be used for dairy purposes. This company has also purchased the dairy herd of 120 cows from Mark Girdner and the cows belonging to the herd of J. H. Hannah near Meridan.

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All kinds of small fruit and berry plants.

J. B. WAGNER, Pasadena, Cal.
The Rhubarb and Berry Specialist. Dept. I.

LIFE IN HAWAII.

To the Editor: The preceding letters in the PACIFIC RURAL PRESS of March 6 and May 22, deal mainly with some disadvantages of farming here. In this I will state a few more conditions of life desirable and undesirable.

As I stated before, the most striking feature of the country is the uniformity of the climate. Persons in other parts of the world see it stated that the temperature here never exceeds such and such degrees, but that rarely means much to the reader. On the sheltered side of the mountains, where there is but little wind, it often becomes sultry, and, while the temperature will not be high enough to be oppressive under ordinary conditions, any great bodily exertion will result in quite a profuse perspiration. There is a trade wind blowing most of the time which reaches almost all parts of the country and keeps the days from becoming sultry. At no time is the weather as oppressive as on a hot day in California or most other places on the globe. The one thing that makes possible the growth of tropical fruits unknown, say, in California is the absence of low temperature. While the mercury never reaches a high enough mark to make life miserable, it never drops very low either, except on high elevations, although it is now and then cool enough to make the residents feel chilly. This makes life very easy. No heavy clothes, strongly built houses, or big fires are required. Hardly a fireplace is in existance except on the mountains. Most cooking is or can be done on gas or oil stoves in American homes, and a light terra-cotta chimney is all that is put in a house. Among the natives and poorer laborers the fire is made in an old oil can and the cooking done on top. It is all that is required. This mild climate has a rather demoralizing effect upon the houses and clothes of the natives and laborers. Most of the people in the country, for instance, go barefoot when not working, and their clothing is neither elaborate or well kept. Any shack, too, that will keep out the rain will do to live in, and the walls may be so full of cracks that any number can sleep in a room. Thus the typical small cottage may be sufficient for residence purposes, but it is usually not a thing of beauty.

This mild climate also makes very favorable conditions for plant growth. Strawberries may be obtained at any time in the year. Almost all the common vegetables may be planted and harvested about as well one time as another, and bear well, too. Even peas and corn will bear a few hundred feet up, although they do not thrive at lower elevations. Most of the tropical fruits bear only in season here. Some are available all the year round. When bananas are started they will keep on growing from suckers for years, and are as likely to bear fruit one time as another. Cocoanuts are not as plentiful here as they are on other warmer groups, though even here they grow in almost any place and may be obtained at any time. Another continuous bearing fruit is the papaia (Carica papaya), a fruit resembling a muskmelon. These will grow anywhere that water can be obtained; will bear in ten or twelve months from the seed, and produce plentifully for years afterward. Owing to their perishable character they cannot be shipped, so are absent from distant markets. Besides these, which bear continuously, there are other tropical fruits which bear only in certain seasons and will not be touched upon here. Then we are within easy reaching distance of the California orchards and can obtain the California fruits at no great expense. The great interest that has been taken in cane has prevented a proper investigation of other agricultural matters here till lately, so it is not certain just what fruits and plants could be profitably produced. This mild climate furnishes nothing to prevent the development of such insect and parasitical pests as are here established, so when a blight has come upon a crop there has not been sufficient means taken to bring it under control. Thus, this climate is fully as good as that of Florida for citrus production, but the matter has never been taken up on a large enough scale or with sufficient thoroughness to combat the injurious insects; so instead of shipping away oranges we import a great many. Aside from agricultural pests, the thing that bothers farmers, city dwellers and all, is the mosquito. He can be avoided or circumvented all right, but the usual method of doing so is to burn mosquito powder while awake in the evening and then go and sleep under mosquito netting. In almost everything there is some pest to make trouble, but there is none so serious but what they can be controlled if pains are taken.

Besides oranges many other things now imported could be profitably produced. Eggs and poultry always bring a big price and the demand exceeds the supply. Butter retails at about 50 cents a pound, although grass is often abundant and labor cheap. Owing to the lack of lime in the soil and grass, dairying is not a success, but it could be made so with care and the application of scientific principles. Other examples of openings could be given, but these are simply typical and the homeseeker can find others by investigating for himself. The main opening now for the man with much or little capital is in raising pineapples. This subject, however, is described enough elsewhere. If a person wishes a country like the above, Hawaii is the place for him, provided he is willing to take the disadvantages and advantages together. Hawaii, however, is no place for the man without money. Labor on the plantations costs about $18 a month and skilled labor can be obtained for from $2 to $3 a day, so if a man wishes to prosper financially he will have to use his head and make money from money or land and not from his labor alone.

If any reader of the PACIFIC RURAL PRESS wishes details on any subject, I will be glad to oblige him in any way in my power, or he can do better by applying directly to Honolulu. A very nice booklet on "Agriculture in Hawaii" may be obtained free upon application to the Hawaii Promotion Committee of Honolulu. According to my observation it is very truthful and accurate.

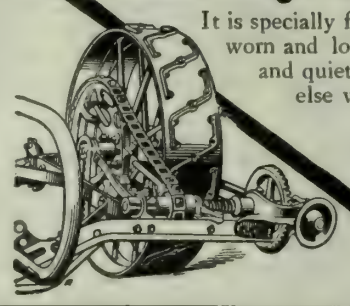
DUDLEY J. WHITNEY.

Waihee, Maui, H. I.

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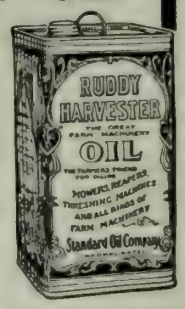
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It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

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contains petroleum oils and makes immediate and permanent emulsion with water. No oil separates on standing.

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For **DUST SPRAY** Use

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Ask for Catalogue No. 16.

Live Stock and Dairy.

HONORS FOR A PACIFIC COAST JERSEY.

By R. M. Gow, of New York.

There are some good reasons why we should expect to see the Pacific slope produce eventually the greatest dairy record, and that that record will be made by a Jersey cow. The large butter-fat record necessitates a big milk production as well as a high percentage of fat. The Jersey is the cow that combines these two essentials in the most eminent degree; combined, too, with the greatest ecenomy in feed cost. The northern Pacific Coast country, with its mild and equable climate, its rich soil, and its adaptability for raising the finest alfalfa, is likely to exhibit the big-milking Jersey, and with her to carry off the championship for economic milk and butter-fat production.

These reflections have been suggested by the year's record of Adelaide of Beechlands under authenticated test. Although developed and tested on the Pacific Coast, being one of the famous herd owned by the Estate of W. S. Ladd, Portland, Ore., this cow was bred in the East, being, as her name implies, a scion of the Beechlands herd, bred by that honorable gentleman and stalwart Jersey admirer, the late Charles A. Sweet, at East Aurora, N. Y., the quality of whose work in breeding Jerseys has heretofore been well demonstrated in the Ladd herd.

Adelaide of Beechlands 168699 was dropped March 16, 1902, her sire being Stoke Pogis of Prospect 29121, a bull now having 12 daughters in the Register of Merit, and her dam is Adelaide's Daughter 129440, who, in private test, has a record of 14 lb. 11½ oz. butter in seven days. Adelaide of Beechlands was transferred to the Ladd Estate January 10, 1903. She has a record of 435 lb. 4.7 oz. fat, 8363 lb. 12 4-5 oz. milk, in a year's authenticated test ended June 30, 1905, and was entered in Class A, Register of Merit, on this record and a score of 88½% of the perfect scale of points, given her by Prof. James Withycombe. Her year's test was begun November 25, 1907, at the age of 5 years 8 months, and closed November 24, 1908, conducted, as was her other year's test, under the supervision of the Oregon Agricultural Experiment Station. During the 366 days of the test her production was as follows:

Date.	No. days.	Milk, lbs.	Fat, %.	Lbs. fat in milk.
Nov. 25-30, '07.	6	226.8	4.398	9.974664
December	31	1,420.6	4.564	64.836184
January, 1908.	31	1,436.6	4.649	66.787534
February	29	1,310.7	4.953	64.918971
March	31	1,374.6	5.386	74.035956
April	30	1,340.7	5.249	70.373343
May	31	1,418.3	5.446	77.240618
June	30	1,343.6	5.380	72.285680
July	31	1,310.7	5.132	67.265124
August	31	1,306.4	6.051	79.050264
September	30	1,228.4	6.217	76.369628
October	31	1,124.7	6.622	74.477634
Nov. 1 to 24..	24	730.0	7.124	52.005200
	366	15,572.1		849.620800

Her average percentage of fat for the year was 5.456, and the fat is equivalent to 999 lbs. 8.9 oz. butter 85% fat. Just think of it: 15,572 lbs. milk in the year, averaging 5.456% fat! It takes a Jersey cow and a good one to exhibit such a combination. If we should compute butter as was done in the dairy demonstration test at the St. Louis Exposition, the over-run for this grade of milk being 1.182, we would credit Adelaide of Beechlands with 1004 lbs. of butter 83% fat. Her tabulated record shows what a steady worker she is—over a thousand pounds of milk every month. Her yield averages per month 1297.7 lbs. milk, 70.8 lbs. fat, and 83% butter, and averages per day, 42.55 lbs. milk, 2.32 lbs. fat, and 2.74 lbs. 83% butter, for the entire year.

Adelaide of Beechlanads was served March 12, 1908, so was carrying a calf during the greater part of the year. During her test she was fed 942 lbs. bran, 638 crushed oats, 268½ lbs. oil meal, 1425 lbs. cut alfalfa hay, 1646 lbs. clover hay, 1208 lbs. carrots, and 7445 lbs. kale, and was five months in pasture. Under date of December 9, 1908, Mr. W. M. Ladd writes: "She was not forced at all, and is in perfect physical condition."

TO STAMP OUT SCAB.

During the grazing season of 1909 the Forest Service will again co-operate with the Bureau of Animal Industry and the State officials in efforts to stamp out the disease known as scab which exists among the sheep in a number of the Western States and Territories. This work has been carried on by the Bureau of Animal Industry for several years past. The Forest Service has endeavored to assist the Bureau, as well as the State authorities, in enforcing the law by refusing to admit any sheep on a national forest, within the proscribed States, that were not accompanied by a certificate of inspection, signed by an inspector of the Bureau of Animal Industry, to the effect that they were free from the disease or had been dipped in accordance with the regulations of the Bureau.

In nearly all the Western sheep raising States the State Boards, charged with protecting the health of the live stock, have been very active in suppressing this disease, and between the Bureau of Animal Industry, the State authorities and the Forest Service it has practically been wiped out of many of the States and greatly reduced in the others.

During the season of 1909 the work will be continued in the States of Colorado, Utah, Nevada, California and the Territories of New Mexico and Arizona, and it is hoped that at the close of this present year the results will be so satisfactory that considerable parts of this area may also be pronounced free from the disease and relieved from quarantine restrictions. Wherever it has been found necessary to burn the corrals, counting-chutes and other improvements on a range which was possibly infested with this disease, the material for new ones has been furnished to the stockmen free of charge by the Forest Service.

SO-CALLED ANTI-ABORTION SERUM.

The United States Department of Agriculture has issued, under date of June 1, Circular No. 29, as follows:

The act of Congress making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1909, provides as follows:

"That the Secretary of Agriculture is authorized to purchase in the open market samples of all tuberculin, serums, antitoxins, or analogous products, of foreign or domestic manufacture, which are sold in the United States for the detection, prevention, treatment, or cure of diseases of domestic animals, to test the same, and to publish the results of said tests in such manner as he may deem best * * *."

For some time past there have appeared in certain agricultural and live-stock journals advertisements of "the Roberts serum treatment" for abortion in cows, by the Dr. David Roberts Veterinary Company, Waukesha, Wis. In the advertising matter sent out by that company there is an order sheet giving a list of "remedies," one of which is "Anti-Abortion Serum, for preventing and curing abortion in cows."

In accordance with the provision of law

CREAM SEPARATOR DISCS

Unscrupulous competitors, struggling desperately to retain any separator business, are making such reckless statements as to separator "DISCS" that a few words more on our part may not be amiss.

DE LAVAL "DISCS" are as necessary to the bowl of the cream separator as teeth to the human mouth.

A man can chew without teeth and you can separate without "DISCS",, but in both cases at a great disadvantage.

So far as imitating "DISC" separators are concerned, they compare with the IMPROVED DE LAVAL about as artificial teeth do with a perfect set of natural ones.

The DE LAVAL COMPANY owned the first "HOLLOW" bowl and the first "DISC" bowl and have originated all the improvements upon both. Hence they are free to use the best and any combination of the best features, while would-be competitors are forced to get along with ten to thirty year old types of construction upon which DE LAVAL patents have expired.

DE LAVAL "DISCS" fully double the capacity of any separator bowl of the same size at the same speed.

DE LAVAL "DISCS" fully double the separating efficiency of any separator bowl of the same size at the same speed, and enable a perfect separation that is not possible otherwise.

The saving in size of bowl and in necessary speed makes possible much easier running, and more than doubles the life of the separator when built equally well.

But other separators are not built as well as the DE LAVAL, so that the average life of a DE LAVAL separator is five times that of the average would-be competitor separator.

DE LAVAL "DISCS" make possible the skimming of cool milk, which cannot be done with most other separators at all, and if at all only with greatly increased butter-fat losses in the skimmilk.

DE LAVAL "DISCS" make possible the running of heavy cream, 40% to 50% butter-fat, with its tremendous advantage in creamery patronage, which is either impossible with other separators or can only be done with greatly increased butter-fat losses in the skimmilk.

DE LAVAL "DISCS" enable the construction of a bowl in the LATEST IMPROVED DE LAVAL SEPARATORS that is quickly and easily cleaned and absolutely sanitary, a combination of most important advantages not to be found in any other separator made.

DE LAVAL SEPARATORS cost more than would-be competing separators of relative actual capacity, save their cost every year, and last from two to ten times as long.

98% of the experienced users of FACTORY cream separators now use DE LAVAL machines. The great majority of FARM separator users are already doing so, and within five years we sincerely believe the use of DE LAVAL separators will be UNIVERSAL.

A DE LAVAL catalogue explaining all of the above points is to be had for the asking, as well as an IMPROVED DE LAVAL machine for practical demonstration of them to every intending separator buyer.

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FOR TREATMENT & CURE OF THE MANY AFFLICTIONS OF HORSES AND OTHER DOMESTIC ANIMALS

MORE THAN 40 YEARS OF TEST HAS PROVEN IT BEST.

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HORSES AND CATTLE.

JOHN LYNCH, breeder of Registered Short horns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321. Petaluma, Cal.

BULLS AND COWS FOR SALE—Shorthorned Durhams. Address E. S. Driver, Antelope, Cal

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CALIFORNIA NURSERY CO., Niles, Cal Breeders of Thoroughbred Berkshires.

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P. H. MURPHY, Perkins, Sac. Co., Cal. Breeder of Shorthorn Cattle and Poland-China Hogs.

BERKSHIRE AND POLAND-CHINA HOGS C. A. STOWE, Stockton, Cal.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

SHEEP AND GOATS.

R. H. CRANE, Santa Rosa, Cal. Breeder and Importer of South Down Sheep.

above quoted, the Department recently examined a sample of the preparation referred to. Analysis by the Bureau of Animal Industry shows that the preparation is not a serum and contains no serum. The sample contained approximately 98% of water, the remainder consisting of phenols (carbolic acid), oil of cloves, and a very small proportion of what appeared to be some form of vegetable matter.

CALIFORNIA'S BUTTER SCORING CONTEST—CALL FOR THIRD ENTRY.

To the Editor: The third entry in the current "contest" is due at the University Farm, Davis, Cal., on June 10. Shipping directions, tags and method blanks can be obtained by addressing the undersigned. Those regularly competing will have received their instructions previous to reading this announcement, but it is hoped that other buttermakers will take advantage of the educational opportunities offered, through sending samples of their butter to the contest to be scored. If there is not time to secure definite instructions from us, pack butter in a clean box 9x9x6 inches, lined with parchment paper, cool well and pack this box in a still larger one, having it well surrounded with paper or other insulating material. Send same express prepaid. The scores, criticisms and remittances for the butter will be sent to each contestant. No one should hesitate to send because he thinks his butter is of poor quality or will score low. Every progressive buttermaker should want to know how his butter scores regardless of consequences. Be sure to have all entries in by June 10, as they will probably be scored on the day following.

A further word concerning the premiums and the premium fund to which reference was made some weeks ago, is needed to place the matter in its final form. By securing an expression from the regularly competing buttermakers, it was found that eleven out of sixteen who had a preference in the matter, signified their desire that a cup be offered rather than a medal or money. This establishes the matter of premiums as originally proposed, and therefore a first and second prize cup will be presented respectively to the holders of the first and the second highest average scores, during the year. Certificates of merit will be awarded to the holders of an average annual score of 92. Only those competing at the six contests during the year are eligible for the above premiums. Since some who promised to contribute to the contest fund have failed to remit, the following re-statement of donations is appended as indicating the amount on hand.

Fred L. Hilmer Co.	$10.00
Diamond Crystal Salt Co.	10.00
Wyandotte Cleaner and Cleanser, J. B. Ford Co.	10.00
Sale of butter first entry, (donated to fund)	93.96
Total	$123.96

HERBERT A. HOPPER.
University Farm, Davis, Cal.

COW POX.

By Dr. DAVID ROBERTS, Wisconsin State Veterinarian.

This disease is transmissable from one cow to another. The first symptom is a very slight fever, which is very often overlooked until the disease has somewhat further developed, the first noticeable sign being tender teats.

Upon examining the teats it will be found that there is a fever in same, when at the end of the second or third day small, pale red patches appear which increase in size until they may be an inch in diameter.

From the seventh to the tenth day these eruptions form into blisters. The blister is divided into several pockets and each pocket must be opened separately in order to relieve them of the contents which have accumulated therein. An animal thus afflicted gives a decreased flow of milk and is caused to suffer intensely owing to the fact that the scabs are cracked and broken open by the hands of the milker.

To overcome this difficulty the animal should be given a tonic to tone up the blood and system in general. The teats and udder should be thoroughly cleansed with an antiseptic, after which a healing ointment should be applied.

FEEDING VALUE OF ACORNS.

As many Californians have oak grown pastures and as acorns are freely produced thereon a discussion of their suitability for animal feeding is interesting. First, there is the chemist's point of view, which was recently set forth in a pamphlet by Mr. John Hughes, an English analyst, as follows:

The ancient Britons are supposed to have subsisted at certain times of the year partly upon acorns, which, being a farinaceous food, probably furnished a good substitute for flour, previous to the regular production of wheat in this country. In California the natives formerly depended largely upon acorns as a food. They were gathered by the squaws and preserved by various methods until required to be ground up into a flour; they were then either boiled with water into a thick paste or baked into bread. From the earliest period of remote times acorns have been recognized as a specially suitable food for swine, who rove about the fields in search of the esculent nut which they greedily devour with evident delight, and to the subsequent advantage of their owners. Indeed, in Somerset, when acorns and beech nuts have fallen on the ground, the pigs break loose into the roads and fields, so that it is almost impossible to keep them within bounds. Sheep also do well on acorns, eating them as they happen to fall from the oak trees in the fields where they are pasturing, and no injurious consequences have been known to follow their consumption. Pheasants, too, are very fond of acorns, and no doubt largely depend upon them as an easily found food during the early winter months, before they become rotten from exposure to the weather. Pheasants occasionally swallow the acorn whole instead of first breaking the nut into smaller portions. As a food for horses and cattle, especially young animals, acorns have acquired a bad reputation from the numerous deaths caused by their too greedy consumption. In periods of drought and after a heavy gale when the unripe acorns, in their green state and still remaining in their cups, have been blown down in great profusion, serious consequences have followed, and where death has not resulted in a few hours, the animals have frequently never quite recovered from the effects of the consumption of too large a quantity of this food. But because animals have died from the too greedy consumption of a certain food, it does not seem reasonable to conclude that the food itself is unsuitable or unwholesome.

Mr. Hughes then proceeds to show that analysis proves that of every 100 pounds of acorns 86.20 consist of a very nutritious, easily digested food, and there is only 13.80 pounds of indigestible husk. The kernels, even in the natural state,



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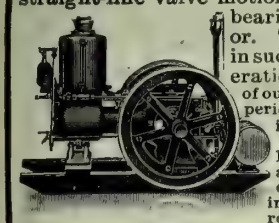
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with 40 per cent of water, evidently represent a most useful food, and are very easily digested, for the amount of indigestible fibre is only 2.37 per cent.

The following analyses of barley and oat meal are added for the purpose of comparison, with acorn meal, containing 5 per cent of absorbed moisture:

	Acorn Meal.	Barley Meal.	Oat Meal.
Water	5.00	13.07	12.52
Oil	3.98	2.09	6.09
Albuminoids	9.54	12.09	12.66
Starch and digestible fibre	75.39	64.97	54.30
Indigestible fibre	3.77	5.14	11.01
Mineral matter (ash)	2.32	2.64	3.42
	100.00	100.00	100.00

It will be noticed that acorn meal contains more oil than barley meal, but less than oat meal. In albuminoids it is inferior both to barley and oat meal, but as regards digestibility acorn meal contains only 3.77 indigestible fibre as compared with 5.14 in barley meal and 11.01 in oat meal. Finally, taking the starch and digestible fibre together, acorn meal with 75.39 per cent., stands far above the other two meals containing respectively 64.97 in barley meal and 54.30 in oat meal.

POINTS OF DANGER IN ACORNS.—A writer in the London Farm and Home presents rather a cautionary account of acorns for stock feeding. The subject of acorn poisoning, or acorn disease, as it is called in some districts, which must be regarded as distinct from indigestion due to eating a large quantity of acorns, is an old story, but in spite of the reiterated warnings of the agricultural press and the free issue of Board of Agriculture leaflets, it seems still necessary to caution stock owners against allowing young cattle or horses free access to acorns on the ground and against making an injudicious use of them for other kinds of stock.

Acorns cannot be regarded as a suitable food for horses, or safe in any quantity for cattle, and they should always be given sparingly to pigs in confinement, or to sheep on short grass. The only domestic animal that seems able to consume many acorns with impunity is the pig, and even he may be injured by them unless he gathers them for himself and gets exercise and grass and other succulent plants to counteract their constipating and irritant effects. They are, however, a most useful pig food when judiciously employed; that is, when they are given in moderate quantities after being well harvested or kiln dried, and in conjunction with laxative or succulent material, such as roots or garden stuff.

Some years ago Professor Primrose McConnell, an eminently practical as well as scientific agriculturist, writing on the subject of the value of acorns as food for stock, described them as "very undesirable for everything excepting pigs." He records having had horses killed by eating them, owing to their causing inflammation of the bowels, states that they tend to dry up the milk of dairy cows, and says: "A few would not do much harm, but when they lie about every oak tree in the fields in shovelfuls, and the animals eat them greedily because the pasture is short, they are likely to do harm.

Where acorns are gathered for stock feeding, the best way is to have them gathered up and thinly spread on the barn or granary floor, so that they do not heat and spoil as they will if thrown into heaps while green, and feed them in the winter to pigs and sheep, or sparingly to sows. Practical experience shows that sheep can take half a pint per diem, and we know of a milk-seller who always collects and buys as many acorns as he can, and gives three half pints per diem to his cows, with, he claims, results equal to a similar quantity of oats. Acorns should not, however, be fed to horses.

POTATO BLIGHT.

There are two forms of this disease, known as early blight and late blight, which are very distinct in their action upon the plant. The early blight may begin as soon as the plants are six inches high, although it usually does not do much injury until the warm weather approaches. Its action is generally slow. Late blight usually does not appear until the plant is considerably grown and when it does occur its action is very rapid. Usually it begins at the lower portion of the plant and works upward on the foliage, causing it to turn black and wilt at a very rapid rate. A whole patch of potatoes will often be destroyed by this disease in three or four days. The remedy for both these diseases is a preventive application of Bordeaux mixture. There are some growers who apply Bordeaux mixture systematically every year for the purpose of preventing any possible attack of late blight, but it is not definitely known whether it pays. For late blight alone, it would not be necessary to make an early application, but the spraying may begin early so as to keep early as well as late blight in check. The general recommendation is to begin spraying when the plants are about eight inches high and repeat the applications every 10 to 15 days. About every two weeks is probably the most economical.

The Bordeaux mixture is made up at the rate of 5 pounds of blustone and 5 pounds of stone lime to 50 gallons of water. This mixture may be used at the rate of about 25 gallons per acre when the plants are small, and gradually increased to about 50 to 60 gallons per acre as the plants become larger.

To make 50 gallons of Bordeaux mixture, 5 pounds of bluestone should be dissolved in 2 or 3 gallons of water, by hanging it in the water near the surface in a sack. Then 5 pounds of lime may be slaked with whatever water is needed. When the bluestone his dissolved it should be poured into the barrel and about 30 gallongs of water added; then about 10 gallons of water should be added to the lime mixture and this poured into the solution of bluestone. Enough water may then be added to complete the 50 gallons.

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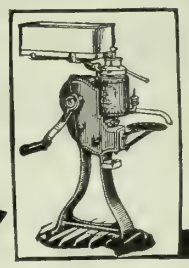
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Roll Canvas for Poultry Houses.
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Let him show you how a **United States Separator** is made, its perfect mechanical construction, strong, solid, one-piece frame, no bolts to shake loose with wear. Scientific construction of the Separator bowl. You can readily see for yourself how the purchase of a **United States Separator** means economy for you. If you do not know a United States dealer let us send you his name.
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The Poultry Yard.

POULTRY NOTES.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

From poultry notes published in the '60s we have gleaned the following interesting items:

CURING BROODY HENS.—This old method is certainly new to the present day poultry keeper: Place water in a small tub or other vessel to the depth of one inch; stand the broody in it and cover the top, allowing air space. In four hours the hen is scheduled to come out cool and in her normal mood.

BREEDS OF POULTRY POPULAR FORTY YEARS AGO.—It will be noted that few of the popular breeds of today are in evidence—not even the redoubtable Miss Peggy of Crystal Orpington fame.

"Every poultry fancier has his choice of breeds; and as he breeds only to sell occasional pairs or trios at fancy prices, it is necessary that he keep the breeds pure and unmixed. But the farmer, who breeds for eggs and flesh, requires in the bird he breeds, hardihood, early maturity, good layers, good form and size, as well as flesh not too coarse.

"The Bolton Grays give the most eggs, are the most hardy, but lack size.

"The Black Spanish are handsome, productive in eggs, but tender and small compared with many others.

"The Game fowls are of the best quality of flesh, but small and only fair layers. They are, however, vigorous and active, and for those who are just settling in a new and wild section they are just the breed to have, because they are courageous and will protect themselves against the birds and animals of prey.

"The Polands and the Hamburghs are ornamental, suited well to the yards of an amateur fancier. They are prolific of eggs, but the bodies are small and the flesh is deficient in rich juiciness, no matter how well fed and fattened they are.

"The Houdans are more hardy, of good fair size, prolific as layers, but poor sitters and bad mothers. This breed and the Creve Coeurs are disposed to roam as much as the Game fowl.

"The Creve Coeurs are fine birds of good size, but not quite hardy enough for the lofts and open sheds usually given to the use of poultry by the farmers.

"The White Dorkings are handsome, but few can be found of any size or hardiness. As generally found they have been bred so much in and in that they are small, say not over four pounds to the hen and six to the cock, and tender as regards rearing the chicks.

"The Colored Dorkings, when well bred by due crossing, are large, well formed, delicate flesh, good layers, hardy, and come the earliest to maturity of any breed known. If they are bred in and in the size may be retained, but the chicks are difficult to raise.

"The Dominiques are next to the Colored Dorkings in value, nearly as large, and unless the latter are well bred, are more hardy. They are good layers, good mothers, and the chicks are easily raised.

"The Cochins are large, very hardy, good layers and sitters, but they so lack in plumpness on the breast, and the flesh is so coarse and stringy in old fowls, that it detracts very much from their value.

"The Brahmas are like the Cochins, large, very large, but of better form, not so long in the leg, very hardy, good layers, especially in winter, good sitters and mothers, and the chicks easily raised; but like the Cochins, the flesh of the old birds especially is coarse and stringy, fit for no purpose but the tables of low-priced boarding houses.

"The Farmer's Breed is the breed for profit. It consists of Brahma hens and Colored Dorking cocks, the chicks from which are hardy, grow fast, and in four months with extra feed will dress four to five pounds each of fine-grained, plump-breasted flesh, fit for the table of an epicure and always commanding a good price in the market. The hens from the cross are even better and more continuous layers than either pure Brahma or Dorking. But if wanted to breed again, the farmer must keep a coop separate of Brahmas—say a cock and two hens—and also of Dorkings, and thus yearly with the cross of pure-bred birds—cocks of the Dorkings and hens of the Brahmas—keep up the 'Farmer's Breed of Profit'."

Questions and Answers.

CHOLERA IN MILD OR CHRONIC FORM.—H. C. of Calexico, Cal., writes: "Kindly name our trouble and a remedy and preventive. The poultry has been dying; I do not know the disease. First the comb turns dark at the tips; this increases till the whole comb has turned and apparently shrunken in size; the fowl is dumpish for three or four days, sometimes longer, sitting round and apparently not eating, and dies. In one case a rooster was dumpish for at least a week; after a dose of coal oil it seemed better, but died two weeks later. I opened two of the fowls. In the gizzard of the first were lots of gravel, several grains of barley and a good many barley hulls, and considerable barley and Kaffir corn in the crop, though she had not eaten for 24 or 36 hours. To me everything looked all right. The second hen had less gravel in the gizzard, and only 4 grains of barley, but the crop contained about the same. The intestines seemed full as normal and contained a sort of greenish, pasty substance. My poultry have the run of the alfalfa field, and many of them the run of the vegetable garden. The fields contain crickets and worms much of the time. They also are supplied with fresh water. The number of eggs has dropped to almost none the last three weeks."

Your fowls seem to be suffering with cholera in a mild form. Probably they have found carrion—dead fowls or animals—in the bushes or fields, or there has been some source of infection. We would advise active measures in stamping out the disease and heading off a more acute form as the hot weather comes on.

Separate all ailing fowls from the flocks.

Burn all dead fowls, and never allow any dead animals to remain unburied.

Put the ailing birds in a pen away from the poultry quarters and range. Give each affected bird a tablespoon of olive oil, and if there is diarrhea add 5 drops of laudanum; repeat the dose in six hours.

Clean up the poultry quarters; mix a cup of crude carbolic acid with a bucket of air-slacked lime and sprinkle over the floors of the chicken houses and the grounds about them. Whitewash with hot wash containing plenty of dissolved salt.

Feed everything in boxes to keep the fowls' feet out and the food off the ground. The style of box described in the RURAL PRESS of May 29 is excellent for the purpose.

Keep charcoal as well as grit and shells in boxes. The charcoal should be about the size of wheat grains. The fowls relish the soft freshly burnt coal the most. Charcoal is excellent for digestive troubles in fowls.

For awhile it would be well to cut out all grain except wheat. The hulls of both oats and barley are hard to digest, and this is probably why these excellent grains are not relished by fowls. To get your flock in condition, feed wheat morning and at noon a dry mash made appetizing and tonic by boiling fresh meat scraps with rolled barley and any vegetables at hand with plenty of red pepper pods; chop all fine and make dry with shorts. Every other day for a week allow one teacup of sulphur for each 50 fowls; sift it into the mash with the bran or shorts. A little Douglas mixture in the water would be beneficial; but it must not be put in metal or tin vessels. M. R. J.

BIG MONEY IN GEESE.

FINANCIAL GENIUS WHO WOULD UTILIZE EVERYTHING BUT THE QUACK.

One of our future financial geniuses—a young man who is toiling in a bank at present—has favored us with a rare opportunity to get rich quick, and, being wholly unselfish, we are going to give our friends a chance to get in on the ground floor. The prospectus which has been placed in our possession explains itself:

PROSPECTUS FOR A GOOSE FARM.

Number of stockholders.....	Three
Shares of stock, 3 at par value.	$300.00
300 geese at $1 each.....	300.00
3 eggs per week per goose, 900 eggs per week.	
900x52 equals 46,800 eggs per year.	
46,800x3 equals 140,000 eggs three years. No eggs sold, but all incubated and hatched; allowing for bad eggs 40,000, leaves 100,000 geese.	
3 lbs. feathers per goose, 300,000 lbs.	
$1 per lb. for feathers.....	300,000.00
10,000 pairs goose livers at 60c per pair	60,000.00
10 buttons from each goose bill, 200,000, 1c each	20,000.00
$1.50 per goose dressed	150,000.00
Capital invested	300.00
Operating expenses (estimated)	190,000.00
	$190,300.00
Receipts—	
Feathers $300,000.00	
Goose livers	60,000.00
Buttons	20,000.00
Dressed geese	150,000.00
Total receipts	530,000.00
Expenditures	190,300.00
Net profits	339,700.00
Each stockholder	113,233.33

Annual dividends, 37,774 per cent.

We are informed that the stock, which will advance to $126 at 11:15 a. m. next Monday, is being rapidly snapped up, only a few shares remaining in the treasury.

In addition to the profits referred to in the prospectus, it is expected that there will be valuable by-products resulting from the utilization of the quacks of the geese and the webs between their toes. We do not hesitate to predict that the holder of three shares of this splendid stock—which, as we have said, is being rapidly snapped up by intelligent investors—will net its owner fully 40,000 per cent a year, instead of 37,744, as conservatively estimated by the trustworthy prospectus producer.—Chicago Record-Herald.



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Dampness and draughts are deadly to chickens. A dry atmosphere and an even temperature are absolutely essential to health and productiveness in poultry. Poultry houses roofed and sided with

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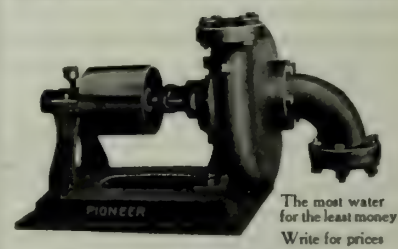
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ORPINGTONS—Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

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PETALUMA HATCHERY
The leading varieties of chicks every week.
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The Home Circle.

Trees in the City.

'Tis beautiful to see a forest stand,
Brave with its moss-grown monarchs and the pride
Of foliage dense to which the south wind bland
Comes with a kiss, as lover to his bride;
To watch the light grow fainter as it streams
Through arching aisles, where branches interlace,
Where sombre pines rise o'er the shadowy gleams
Of silver birch, trembling with modest grace.

But they who dwell beside the stream and hill
Prize little treasures there so kindly given;
The song of birds, the babbling of the rill
The pure unclouded light and air of heaven;
They walk as those who seeing cannot see,
Blind to this beauty even from their birth.
We value little blessings ever free;
We covet most the rarest things of earth.

But rising from the dust of busy streets,
These forest children gladden many hearts;
As some old friend, their welcome presence greets
The toil-worn soul, and fresher life imparts.
Their shade is doubly grateful when it lies
Above the glare which stiffling walls throw back;
Through quivering leaves, we see the soft blue skies,
Then happier tread the dull, unvaried track. —*Alice B. Neal.*

A Wonderful Flowering Cove.

The island of Barbadoes, as is well known, is one of the smallest and yet the richest of the West Indies. The public knows it only as a great sugar mart. No sketch of this island that we have ever read contained any notice of the Annual Flowering Cove. The cove is situated on the southernmost end of the island, and is very difficult of approach on account of its being on the seashore, and the surf, which is very heavy, continually dashing up to its mouth. At the time we visited the cove the sea was unusually quiet. Our party consisted of ten—four white persons and six negroes. Only one of the party had ever visited the place, and he, true to his nature, told such wonderful stories about it that our curiosity was excited to the highest pitch. The cove is noted for containing flowers which are sensitive to the slightest sound made by human beings. Upon our arrival at its mouth and some twelve feet from it, we stopped rowing and took a survey of the cove and flowers. From that distance it presented a view of a room some thirty feet square and fifteen feet in height. The flowers, of which there were upward of a hundred, resembled the violet in shape but not in color, being pure white.

After viewing them for a short time, we pulled into the cove in hopes of obtaining some to carry home with us, but were doomed to disappointment. The moment we entered they all disappeared! We struck at them with the oars, but could not get one of them, as they instantly disappeared at the first sound or movement. We remained upward of two hours trying to obtain a specimen and were then compelled to leave, as the surf began to break into the cove, making it extremely dangerous to linger.

Strange stories are told of this remarkable cove by residents of the island, of persons who have gone to visit the cove and never returned. The negroes, especially, regard it with superstitious awe, and many of them cannot be prevailed upon to go anywhere in its vicinity. During our stay of two months on the island we never had another opportunity of visiting the cove.—*Traveler.*

Clippings from the Fashions.

Pongees, foulards and linens are the popular summer dress materials. The revival of the foulard may be considered a boon to womenkind, for never was there a material more practical for general warm weather service, combining beauty, coolness and durability. The traveler packs it into her trunk with the serene realization that it will not muss. It is almost as cool as a cotton and it as supple as a crepe, and to its numerous virtues may be added the fact that this season it is distinctly smart.

Pongee is as popular as foulard, and, like the latter, is used for all sorts of costumes, from the simplest princess trotteur to the elaborate visiting frock with its wealth of embroidery.

A plain skirt of pongee mounted upon a blouse of net matching the silk in color and braided in soft-color soutache braid and a coat of pongee embroidered in soutache, make an attractive costume.

Linens were never more in demand; they may be seen in all the colors of the season's card. Certain wood tones—medium shades, half gray, half brown, with a dash of green—are considered especially chic in linen and the ash grays are kin to these. The white and string color linens, too, have a great vogue. Very heavy laces on the Cluny and Russian order trim some of the linen frocks.

Blouses of sheer striped batiste in white and the color of the linen are so much liked as an accompaniment of the tailored coat and skirt costume of linen that it is almost impossible to find such batiste in the modish colors.

The tailored blouse is the smart shirt waist of the season. The up-to-date soft tailored blouse opens in front, though it may have an attached collar which passes around to fasten in the back; but the separate stock is preferable. A touch of color combined with the white is the fancy in these blouses, especially in striped batiste. The supply of this material in white and blue, rose, green, yellow or brown is practically exhausted.

Summer frocks are exquisite and elaborate. The dotted muslins are made up over white taffeta with embroidery and black jet and white crystals until they are but distant and aristocratic relations of the simple muslins of yore. The extraordinary manner in which rich embroidery is used on the most ordinary of summer materials makes the so-called simple summer dress an impossibility to the person of slender means.

Summer styles are still skimpy and high-waisted, and the fat lady will suffer, as nothing is quite so impossible as a woman of weight incased in a scant tube of flimsy material.

The plain street dress designed for general city wear is full length—that is, it barely escapes the ground; the traveling dress is an inch or two shorter. Some tailors insist upon a short ankle length as the correct one for all walking dresses.

Dress hats are large and turned up on one side with long ostrich feathers or birds of paradise as trimming. Feathers are never worn in the morning by the most fashionable. Hats for morning are now quite distinct in style, with round crowns, the brims turning up sharply on one side or in front, whichever is more becoming, and drooping considerably on the other. A charming model of soft green-gray straw has a simple band of deep-green velvet around it and at one side two large shaded roses in a bed of gray-green foliage. Flowers of velvet in great profusion and every variety mixed together to form a contrast and arranged against a background of dull gold, deep greens, purples and shades of pink are seen everywhere. Yet strange to say, with all this wealth of color and variety of trimming, navy blue is extremely popular, a sort of relief perhaps for those who are weary of the rich trappings of gold and silver and gaudy-colored satins and velvets.

The "cat bow" is the latest thing. It is simply a limp ribbon bow with enormous loops and very long ends and worn with a turnover collar.

Missouri Statistics.

In this State a trust is busted every three weeks. A train jumps the track every fifty-four minutes. The oldest native of the State dies every five days. A boy leaves the farm every twelve seconds. Somebody buys a gold-brick every forty-five seconds. Somebody moves back from Kansas every sixteen minutes.—Butler Democrat.

Not He!

Wiggs—Was that Dutchman who hit the Irishman punished by the court?

Woggs—No! When it came to trial the Irishman wouldn't admit that he was licked.—Washington Herald.

Near-sighted Woman—The boy who is trying to tie that tin can to that poor dog's tail ought to be thrashed within an inch of his life; the horrid little brute!

Maid—It's your boy, mum.

"My boy?"

"Yes, mum."

"Tell him, if he'll stop, I'll give him some cake."—Christian Advocate.

Small Girl—Why doesn't baby talk, father?

Father—He can't talk yet, dear. Young babies never do.

Small Girl—Oh, yes, they do. Job did. Nurse read to me out of the Bible how Job cursed the day he was born!—Tit-Bits.

He—The Major is going to be married again.

She—Why, when his wife died he said that the light of his life had gone out.

He—There's no reason why he shouldn't strike another match, is there?—Illustrated Bits.

Collector—You promise to pay this bill every time I call. When are you going to do so? I'm getting tired of coming up here week after week. Please remember that time is money.

Owitt—I know it, and I intend paying you—in time.—Chicago News.

"No, sir," said Plodding Pete; "I would not stop another minute to talk to dem folks. Dey passed me out a short an' ugly word."

"What was it?"

"Work."—Washington Star.

"Is there any state worse than being in mortal sin?" asked the teacher.

"Sure," burst out the knowing junior. "It's being found out."



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THE MARKETS.

San Francisco, June 9, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Continued strength is reported in all outside markets. Offerings here are extremely small, and while fairly large shipments are still arriving from Portland, it is understood that the movement from Puget Sound to this market is about at an end. Trading is very dull locally, as the millmen find little of the grades desired, and very few of them are willing to pay the prices asked.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	@2.20

BARLEY.

The arrivals have been quite liberal all week, as with the new crop beginning to appear holders of old stock are anxious to sell. Brewing and shipping grades continue nominal, but prices on feed have been going down steadily, the week's decline being of about the same extent as last week. Still lower prices are expected later in the month. A lot of choice new crop barley was sold at Stockton this week at $1.45.

Brewing	Nominal	
Shipping	Nominal	
Chevalier	$1.70	@1.72½
Good to Choice Feed, per ctl.	1.47½	@1.50
Common Feed		1.45

OATS.

The condition of the local spot market shows no change whatever, all prices being firmly held at the prevailing figures. Offerings are very small, and the high price cuts off a large part of the usual demand. Local dealers anticipate a heavy crop in the North, and sales of white oats for fall delivery have been reported at $1.62½.

White, per ctl.	$2.15	@2.20
Gray	2.10	@2.15
Red, choice		2.20
Common	2.00	@2.10
Black	Nominal	

CORN.

Western grades are unchanged, and buyers are taking little interest in them locally, though arrivals this week have been larger than for some time. California small yellow is considerably lower, and some large yellow is now offered on this market.

California Small Yellow	$1.85
California Large Yellow	1.87½
Western State Yellow, bulk.	1.80
Mixed, in bulk	1.78
White, in bulk	1.82
Egyptian White	1.90

RYE.

There is pracically none on the market at present, and as none has been moved for some time it is impossible to give any definite quotations.

Rye	Nominal

BEANS.

The bean market continues very strong, and further advances have taken place in the price of both small and large whites, owing to the scarcity of these varieties. Other descriptions remain very firm, with little change in prices. There is some demand for shipment, and a better demand for pinks is expected, as the prices are comparatively low. Blackeyes are rather quiet, but steady, and limas are still a very firm feature. The amount of stock on hand is estimated at 350,000 sacks, the greater portion of which is limas, blackeyes and pink beans.

Bayos, per ctl.	$5.35	@5.50
Blackeyes	3.45	@3.65
Cranberry Beans	Nominal	
Garvanzos	3.00	@4.00
Horse Beans	1.90	@2.20
Small Whites	6.25	@6.50
Large Whites	5.25	@5.50
Limas	4.15	@4.25
Pea	6.25	@6.50
Pink	3.15	@3.25
Red	Nominal	
Red Kidneys	3.75	@4.00

SEEDS.

There is no movement of any consequence in this market, and no demand is expected for the next few months, while the new stock will not begin to arrive for some time. Prices are more or less nominal, and some descriptions are quoted a little lower.

Alfalfa, per lb.	18 c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	3¾ @ 4¼c
Canary	4 c
Flaxseed	4 c
Hemp	4¼c
Millet	2¾c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

There has been talk of a further advance in some quarters, but while the present figures are very firmly held, higher prices are not generally looked for. While milling operations are being conducted on a small scale, supplies are ample for the current demand. Purchases are generally small, and there is very little demand except for local requirements.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

Buyers in the country districts are less active than a week or two ago, and the arrivals have been rather light for the last few days. The consumers here, however, are unwilling to buy at the present quotations, and local dealers express the opinion that a further reduction in prices will be necessary before this market will resume a normal activity. At present the general tendency is to hold off until conditions become more apparent. Growers are holding out strongly, but the consumers are taking only what is absolutely necessary. Old hay is about cleaned up, and shows little change in price. New wild oat and barley hay are coming in freely, but the arrivals of new wheat and tame oat are still small, with prices not well established. Reports from many sections indicate larger crops than were expected, but it is not believed that there will be any great surplus.

Old Wheat, choice, per ton	$20.00	@22.00
Other Grades Old Wheat	14.00	@19.00
New Wheat	14.00	@17.00
Wheat and Oat	16.00	@20.00
Tame Oat	16.00	@20.00
New Barley	11.50	@14.50
New Wild Oat	11.00	@14.00
Alfalfa, first cutting	8.00	@10.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

The market continues rather quiet on millstuffs, and while some stock is being shipped in from the North, the arrivals so far have been light. Rolled barley is considerably lower, and is offered freely. Mealfalfa is also lower, with plentiful supplies. Other feedstuffs are unchanged.

Alfalfa Meal, or mealfalfa, per ton	$23.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	33.00@35.00
Mixed Feeds	30.00@32.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	33.00@34.00
Shorts	31.00@32.00

VEGETABLES.

Supplies of nearly all lines of vegetables are increasing, and prices show a downward tendency. Some Australian onions are still held at former prices, but the supply is light. New red onions are much lower, with excessive arrivals, and Bermudas, with a light demand, are also lower. New garlic is now coming in, and is offered at low prices. Green peas and string beans are rather firm. Rhubarb is also a little higher, but asparagus is offered at low prices, with a heavy overstock. Tomatoes show a wide range, with high prices for choice Mexican stock. Cucumbers and eggplant are lower, and corn and green peppers are beginning to arrive freely.

Onions, new red, per sack	50@	65c
Bermuda Onions, per crate	65@	75c
New Green Onions, per box	35@	50c
Garlic, per lb.	4@	5c
Green Peas, per sack	1.50@	2.25
String Beans, per lb.	4@	5c
Cabbage, per ctl.		1.25
Tomatoes, per crate	1.25@	2.00
Green Peppers, per lb.	12½@	20c
Green Corn, per doz.	25@	50c
Asparagus, extra choice, box	1.50@	2.00
Asparagus, common to choice	1.00@	1.25
Rhubarb, per box	1.25@	1.50
Turnips, per sack		1.50
Summer Squash, per box	1.00@	1.25
Cucumbers, per box	75c@	1.25
Egg Plant, per lb.	10@	12½c

POULTRY.

The arrivals have been rather larger during the last week, and the market is liberally supplied with both Eastern and local stock, especially young chickens. Hens are still moving readily at last quotations, but young roosters and fryers are considerably lower. Prices in other lines have been well maintained, and the large stock is expected to clean up well.

Broilers	$ 3.50@	4.50
Small Broilers	2.50@	3.00
Fryers	5.50@	6.50
Hens, extra	8.00@	10.00
Hens, per doz.	6.00@	7.00
Small Hens	5.00@	5.50
Old Roosters	4.00@	5.00
Young Roosters	8.00@	9.00
Young Roosters, full grown	9.00@	10.00
Pigeons	1.00@	1.50
Squabs	1.50@	2.00
Ducks	5.00@	8.00
Geese, per pair	2.00@	2.50

BUTTER.

All grades of butter show an advance of ½ cent over last week's figures, and there seems to be considerable demand for storage. There is some shipping business, but this now amounts to little, while the regular business on the street is quiet. The market is nevertheless quite firm, and the large arrivals are easily disposed of. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	26 c
Firsts	25½c
Seconds	25 c

EGGS.

Fresh extras are lower, and while the market is said to be firm on the Exchange, the feeling on the street is one of easiness. Firsts, however, show ½ cent advance, and prices on the lower grades are well maintained. The local demand is very moderate, and the supply is quite liberal.

California (extras) per doz.	25½c
Firsts	25 c
Seconds	24 c
Thirds	23 c

CHEESE.

Cheese has been rather quiet most of the week, but there has been some interest in flats, which are not very plentiful. The price is ½ cent higher than last week, and extras stood for a time at 14½ cents. Young Americas are unchanged but firm. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	14 c
Firsts	13½c
New Young Americas, fancy	16½c

POTATOES.

Old potatoes continue rather quiet, though the supply is light and prices are easily maintained at the former quotation. Oregon stock is a little easier, though there is not much offered, and with the market well cleaned up prices are a little stronger. Sweet potatoes are also higher.

River Whites, per ctl.	$ 1.90@	2.10
Oregon Burbanks, per ctl.	2.30@	2.40
Sweet Potatoes, per ctl.	2.00@	2.50
New Potatoes, per lb.	2½@	3¼c

FRESH FRUITS.

Nutmeg melons continue to arrive this week, and with an active demand the best lots continue to bring the price formerly quoted. Plums are more plentiful but still bring high prices. A few pears are also arriving. Berries of all kinds are plentiful, but move off rapidly, and some varieties are higher, though loganberries and large strawberries show some decline. Cherries are plentiful but higher, with a good demand for the black varieties. Apricots and peaches are lower, but the arrivals are still light. Good ripe stock is in good demand, but green fruit is hard to move. There is little demand for either new or old apples, but all varieties are firmly held.

Melons, Nutmeg, per standard crate	$ 4.50@	5.00
Raspberries, per chest	7.00@	9.00
Gooseberries, per lb.	4@	7c
Currants, per chest	6.00@	7.50
Loganberries, per chest	2.50@	4.00
Blackberries, per chest	6.00@	7.00
Strawberries—		
Longworths, per chest	6.00@	9.00
Large verieties	3.50@	4.50
Cherries—		
Black, per drawer	50@	75c
Royal Anns	60@	65c
Apples, per box	1.00@	1.50
Figs, per box		1.50
Apricots, per box	75c@	1.25
Apples, new green, per box	50@	75c
Peaches, per box	75c@	1.00
Plums, per box	75c@	1.25
Pears, per lug box	2.00@	2.25

CITRUS FRUITS.

The demand for citrus fruits is of moderate proportions here, though receipts are fairly liberal and are generally disposed of at full prices. Navel oranges are higher and a lot of Valencias was disposed of at an advance. Grape-fruit is also higher, and standard lemons are bringing rather better prices than last week.

Choice Lemons	$1.75@	2.25
Fancy Lemons	2.75@	3.00
Standard	1.00@	1.25
Limes	4.50@	5.00
Oranges—		
Fancy Navels	1.50@	2.50
Valencias		2.75
Grape Fruit	2.25@	2.75

DRIED FRUITS.

Apples and apricots are still the firm features of the market, and there is considerable inquiry for both varieties, with scarcely any stock held in the country. Local packers are quoting higher prices for apples. No change is reported in other fruits, and the movement is of small proportions, though the tone of the market appears fairly good. There is considerable inquiry for prunes, though peaches are now quiet. More attention is now being given to the new crop, though so far prices have not been very definitely established. Some packers are quoting 8¼ to 10¼ cents on new apricots, and it is understood that 8 to 9 cents has been offered to growers. They are likely to continue scarce. The peach crop is also rather light, though prunes will probably be more plentiful than last year. Spot raisins are not moving very freely, but occasional lots are sold at about 2 cents in the sweatbox. Sales have been reported recently at from 1¾ to 2¼ cents. Some packers name 2½ cents as the price on new raisins.

Evaporated Apples	7¾ @	8¼c
Figs, black		4 c
Figs, white		4 c
Apricots	7½ @	11 c
Peaches	3½ @	4 c
Prunes, 4-size basis	2⅛ @	2½c
Pears	3 @	5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$1.00

NUTS.

Old almonds are very closely cleaned up, and prices are firmly held, though there has been no advance for some time. There is a good demand, and the first offerings out of the new crop are expected to bring high prices. Walnuts are unchanged, and supplies are sufficient for all trade requirements. Reports from some of the southern districts indicate a material shortage in the new crop.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Prices are not yet very well established, and the quotations will probably be subject to frequent changes during the next few weeks. The arrivals so far have been very light, with very little extracted honey on the market. Some dealers here are holding fancy comb at 16 cents, but none has been sold at that price, and 14 cents is probably as high as the growers are getting for the first lots, while little extracted is bringing over 6½ cents. As a large crop is reported in some sections, lower prices are expected as soon as shipments become numerous.

White Comb, per lb.	12	@15 c
Amber Comb, per lb.	10	@12 c
White, extracted	6	@ 8 c
Old, candied		4 c

HOPS.

There is not much movement of old hops at present, as most of the crop has been cleaned up. The market is in better condition than for some time past, and buyers are actively buying up the new crop on contracts. Some future sales have been made at 12½ cents, and offers of 13 cents are reported.

Hops, Old, per lb.	6	@10 c
New Crop	11½	@13 c

WOOL.

The market remains in very good condition for sellers, with firm prices and large sales all over the State. Shipments to the Eastern markets have also been quite liberal for the last few weeks. The spring clip has been pretty well bought up in most of the producing districts, and with a continuation of present conditions little of this year's wool will be left on hand.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Hogs continue firm at previous prices, but are quiet. Beef is becoming more plentiful, with lower prices for both live and dressed stock, and dressed veal is also somewhat lower. There is a slight decline in dressed lamb.

Beef: Steers, per lb.	6½ @	7½c
Cows	6 @	6½c
Heifers	6 @	6½c
Veal: Large	6½ @	8½c
Small	8½ @	9 c
Mutton: Wethers	7 @	8 c
Ewes	6 @	7 c
Lambs	9 @	9½c
Hogs, dressed	9½ @	11½c

LIVESTOCK.

Steers: No. 1	4 @	4¼c
No. 2		3¾c
Cows and Heifers: No. 1	3¼ @	3½c
No. 2		3 c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½ @	4 c
Sheep: Wethers		4½c
Ewes	3¾ @	4 c
Lambs	5 @	5¼c
Hogs: Grain fed, 100 to 150 lbs.	7 @	7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾ @	7 c
Common Hogs, lb.	4 @	4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., June 8.—The best market of the year for the very top-notch brands, and a very poor market for weak fruit, and with a low average for the ordinary brands is the way the market situation sums up. Brands like Cerrito, Elephant, Alta Cresta and a few others are fully as high as they were during the high market for May last, while the ordinary extra choice and orchard run brands are very nearly $1 a box lower than at this time last year, and the poor stock, that has been tramping the country for a market, is not wanted very much at any price, the margin between actual cost and the price received being very small.

While the navel season is practically over, there are still a few cars left here, as evidenced by the shipments of the past few days. As hardly an Valencias are being moved as yet it is safe to say that fully one-half of the output today is of navels, and the balance seedlings, sweets and St. Michaels. Another week will no doubt see all but a very few scattering cars of navels gone, but it will be the first of July before they are all cleaned up at the other end, and there will be navels this year for the Fourth of July, the date that has heretofore been claimed by the Valencia.

There has been very little call for Valencias so far this year, in spite of the fact that they are being quoted at $1 a box lower than for some years. The jobbers are not ready to take hold for some reason. They know, of course, that the price is lower, but they also know that the crop is much larger and they are apparently not satisfied that the $2 a box price at this end is the proper one. Many of them are waiting to see whether it is or not. A few sales in the auctions would settle that point, for it is there that fruit sells on its merits and according to the demand for it, a trade barometer as it were. A few cars have been offered at the auctions, but brought prices so low as to lead to the conclusion there must have been something the matter with them. At present the quotations on Valencias run from $1.75 to $2 a box cash California and further breaks are expected.

The citrus fruit shipments for the past seven days have been in the neighborhood of 800 cars of oranges, as against 500 for the same time last year, and the total to date is 24,230 cars of oranges and 3570 cars of lemons, as against 21,162 oranges and 2912 cars of lemons to same time last season.

Hereafter the refrigerator car lines will allow a loading of 417 boxes to the car without any extra iceing charges. This is in the nature of a concession, but the effect will be that the railroads will be able to make more per ton mile for the haul and the jobber will be forced to invest more money in a car of fruit. In addition to the price per box on the extra 33 boxes there will be the freight rate of

83 cents a box and at a $2.67 delivered price this would mean about $116 more invested in every car of oranges. The same applies to lemons and shippers here are inclined to think that the extra loading will be at the expense of the carrying qualities of the fruit. The new rate goes into effect on July 6.

Deciduous Market Report.

By T. C. TUCKER.

Sacramento, Cal., June 8.—The market has declined somewhat since our report of June 1, which is due to the increased supply. The market in Chicago today for Royal Annes is 85 cents to $1.50; Tartarians, $1.20 to $2.75; and in New York is 85 cents to $1.15 on Royal Annes, $2 for seedling apricots and $1.15 for Newcastle apricots.

The first mixed car is expected to sell tomorrow or Thursday. This car contains several hundred boxes of Alexander peaches, and should sell at a very good price. The latter part of this week will see the crop of apricots at its maximum so far as shipping is concerned. The quality is very good. Clyman plums are coming very freely at the present time, and Climax and Tragedy will be going forward in small lots shortly. A very liberal supply of Alexander peaches is going forward at the present time, and they are of fine quality. A few boxes of Comet pears have been shipped from the Winters and Sacramento river districts. Bartletts are expected the latter part of this month, and as the supply is small this year good values are anticipated. Shipments of all varieties are increasing daily. Our record shows up to June 7 a total of 154 cars for 1909 as compared with 217 cars in 1908 and 82 in 1907.

The first mixed cars for private sale are being shipped this week, and Placer county is expected to swing in line the latter part of this week with quite a supply of peaches and plums. Shipments of cherries are falling rapidly, and we look to see the clean-up of this variety in several districts this week.

THE HORSE'S COUGH.

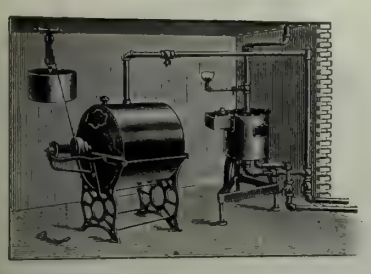
The cold evenings in early summer are often the occasion of starting horses of all ages to coughing. Prevention of a cold by the use of a tonic regularly of Craft's Distemper & Cough Cure is found to be tne safer policy. Where prevention is neglected this is a guaranteed safe cure which is easily given in the food or by pouring on the tongue. It may be obtained at druggists, or, if need be, one may order it direct from the makers, Wells Medicine Co., 28 Third St., Lafayette, Ind.

LIGHTING THE COUNTRY HOME.

Of late years modern progress and invention has given more serious attention to the home in the small town and in the country, and there is also a growing disposition on the part of the man who dwells "far from the madding crowd" to insist on just as much comfort as his city brother. It is now no uncommon occurrence to find a country home equipped with bath rooms, hot and cold water, and lighting gas piped to every room in the house.

In this latter particular country homes have felt the greatest need. Sociability and comfort after nightfall calls for clear, brilliant light and plenty of it, and the idea that the country was a dull place originated probably by the sight of a family sitting around a dingy, smoky kerosene lamp, trying to peer through the gloom, and pass the evening reading or playing games by its imperfect light.

There are several forms of relief now offered the suburban or rural home, and among the best of these is a combination gas machine, which gives the home what



is actually a gas plant in its own right on the premises. This ingenious invention can be set up in one corner of the basement or cellar and requires little or no attention at all.

It supplies a gas that is perfect to the different rooms of the house, just like city coal gas, and like city gas it can be used equally well for both heating and lighting. Ordinary burners open or fitted with the usual gauze mantle, are used for lighting, and the light produced is clear, white and brilliant. The gas is ready to turn on and light at any time. No generation is required.

The fuel is gasoline, stored in a carbinatter fuel tank outside of the house, and buried in the ground. In most cases it need be filled with fuel once about every six months and needs no other attention. The principal parts of the machine in the basement are a pump, which works with a weight and is wound up in a few minutes every few days, and an automatic mixing regulator, which needs no attention whatever.



This latter feature is found only in the most modern machines, and is deserving of a little special mention. Without it, lights from gasoline gas are liable to change and vary, depending on the age and quality of the fuel; but with this ingenious device the gasoline vapor is mixed and automatically held in correct proportion, which is 15 per cent vapor to 85 per cent air. The result is a clear, white light that does not smoke or fill up the room with noxious odors.

Experience has shown that gas can be produced by this method at a cost not to exceed one dollar per thousand feet, which will make the cost of light at an 80-candle power burner figure about one-fourth of a cent per hour. This is very low and few city dwellers can buy their light as cheap as this.

These machines are made in various sizes and can be used to light the home or to light the entire village and communities on a co-operative basis. They are to be classed as among the most beneficial inventions produced today for the rural home.

NEW ADVERTISING FOR OLD LINE.

Our readers must have noticed something new and original in "publicity" in the advertising of Rex Flintkote Roofing which have appeared in the columns of this journal. J. A. & W. Bird & Co., who have manufactured Rex Flintkote Roofing for many years, go on the principle that the merchant or dealer knows a good roofing, and that if he is honest he can advise a customer and so help him to a better choice for his roofing that the customer can make for himself. Now, J. A. & W. Bird & Co., have a high reputation running back for 80-odd years. They deal only with honest dealers who will advise their customers to the customers' best interests. Moreover, they guarantee the dealer's recommendation of Rex Flintkote Roofing.

We note that dealers of reputation in this State and surrounding regions strongly recommend this roofing, and we must say we have never heard any but good words of J. A. & W. Bird & Co., and their goods. We advise looking into "Rex Flintkote" before you close matters on roofing. Sned to them for booklets at 91 India St., Boston, Mass.

According to the bulletin just issued by the Department of Agriculture, there was raised in this country in 1908 about 14,000,000 bushels of onions, valued at $10,000,000. In addition to the home production, this country imports about 1,500,000 bushels from Spain, Egypt, Bermuda and the South Sea Islands.

A new market is being developed for Pacific coast apples. E. Wagner of Wenatchee, Wash., has recently returned from a trip to New Zealand, Manila, China and Japan, where he went to dispose of 70,000 boxes of apples. These he sold at good prices and has orders booked for 150,000 boxes of the new crop.

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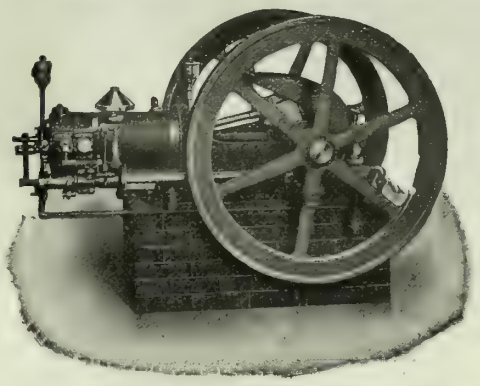
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Large Land Sale

The John Crouch Lands

Situated in Colusa, Glenn, Butte and Lassen Counties.

These lands were acquired by the late John Crouch of Butte County. They now belong to the John Crouch Land Company, a corporation having its principal place of business at Chico.

That corporation now offers for sale these extensive holdings.

The agricultural lands in Butte and Glenn Counties are in the richest part of northern California and are all highly improved and will be sold in subdivisions to suit purchasers.

The late John Crouch was extensively engaged in stock raising, devoting his attention to high class sheep and cattle.

This sale offers the greatest advantages to persons desiring to purchase stock properties, which are now exceedingly scarce.

The corporation owns in the foothills east of Chico some 25,000 acres of land, all under fence and with ample barns and improvements. It is the finest winter range in the Sacramento Valley. It would be sold as a whole or cut up, as it can well be naturally, into three ranges.

It offers a tract of some 3,600 acres in Glenn and Colusa Counties, extending for a number of miles along Butte Creek, including the rich bottom lands of that stream, upon which feed of all kinds grows luxuriantly. This place would make a magnificent stock ranch.

It also offers large tracts of land in Glenn County a little northeast of Butte City, fenced and improved, which could be most admirably utilized for stock purposes and other rich lands in the same vicinity for agricultural purposes. They would be sold separately or as a whole.

The properties offered include the celebrated Bowers Ranch on the Sacramento River in Butte County, composed of the richest river bottom agricultural land and upon which alfalfa grows most luxuriantly. This ranch is improved with a fine residence, many barns, good fences and is the best high class stock and agricultural ranch for sale along the Sacramento River. The soil is adapted not only to alfalfa, but to beets and all the grains.

The Home Ranch of the late Mr. Crouch, near Chico, is so well known as not to require any description. It will be mostly sold in small subdivisions. It can be irrigated by a ditch from Butte creek, carrying 500 inches of water.

The corporation offers also one of the finest mountain ranches in the Sierra Nevadas—the Crouch lands in Mountain Meadows, comprising some 15,000 acres, and upon which an enormous tonnage of hay can be cut. This property is also highly improved with barns conveniently located for the storage of hay for winter purposes. It is sufficiently timbered to make it attractive from that point of view and possesses great value for the storage of water thereon for power purposes. The Feather River runs through it and the typography of the ground admits of great reservoir sites.

Purchasers desiring information about any of these properties, or to examine the same, will apply to the undersigned personally, or by letter, at the Bank of Butte County in Chico, California.

JOHN R. ROBINSON,

President John Crouch Land Company.

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Stockton, Cal.

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"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

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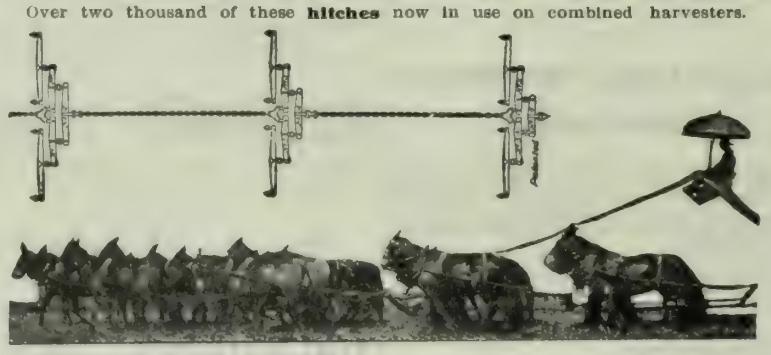
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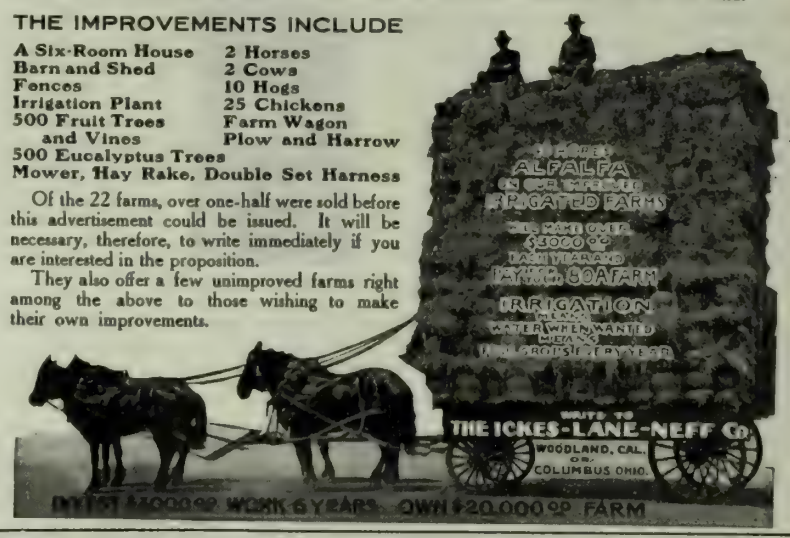
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Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



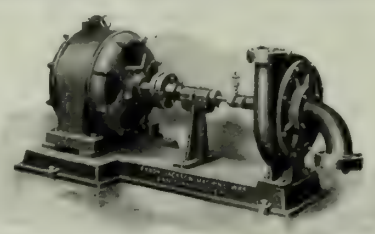
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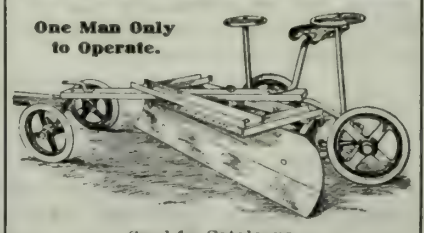
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AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 25. SAN FRANCISCO, SATURDAY, JUNE 19, 1909. Thirty-ninth Year.

CALIFORNIA STATE

ENSILAGE.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

The preservation of green feed for stock by excluding the air and regulating fermentation has been followed in other lands for longer than a century, and has been in use in the United States for more than a generation. It is being slowly but surely adopted in California. Until the last decade or two, out here in the West, we have been in the habit of leaving everything to bounteous nature. It is where rugged climates prevail and difficulties of feeding and sheltering stock are met with that economical systems are first learned and adopted.

Life is easy in California. The wild grasses of the mountain ranges and vast plains spread their feast for cattle summer and winter. It is scarcely more than a decade since farming of a more domestic and intensive kind is being pursued, and we are waking up to the necessity for economy and science. In the Eastern States and in Canada green corn is the fodder most ensiled. In California the silos are following in the wake of alfalfa. There are several in Stanislaus, Los Angeles, Fresno, Solano, Sonoma, Yolo, Butte and other counties, and so on, here and there. The most striking utility of silo is seen with the first crop of alfalfa in the season, which is always desirable to cut at an early stage when the flower is barely formed, in order to afford an early harvesting of the second crop, which is by far the heaviest and cleanest. Another reason is that there is always in the first crop more or less foxtail, weeds and other grasses, which, when cut young and tender, make good ensilage. In this way the troublesome foxtail, which when ripe sticks fast in cattle's mouths, penetrating the tongue, when cut green makes good, wholesome fodder.

A third reason is that if rain should come while the first crop is being cut it does not spoil it for ensilage, some moisture being desirable. In dry, hot weather the hay should be sprinkled, using a hose with a spray while the silo is being filled.

It is especially important to tramp in the stuff thoroughly and constantly around the edge, as the contents rise in the silo, packing it closely, as it is here that spaces are likely to occur, and mildew is caused by exposure to the air.

In the process of fermentation a portion of the carbo-hydrates and some of the albuminoids are broken down and acids are formed. Loss of material weight ranges from 4 to 40 per cent. Three tons of alfalfa equal in feeding value one ton of hay. A cubic foot of silage weighs from 35 to 40 pounds, so that the great economy of space is apparent.

The odor of silage is not of Araby the Blest, but it does not offend bovine olfactories, or they pardon it is we do Limburger cheese or sauerkraut.

The only silos in Solano county are two owned by H. R. Timm and one owned by Fred A. Hutton, all of reinforced concrete and circular in shape. Mr. Timm's are 30 feet high by 15 feet diameter, having a thickness of two feet at base, where is greatest pressure, and one foot at top. Each has a capacity of 150 tons. One silo is being fed from constantly, while the other, not in use, is well protected with straw and weeds on top of its contents. It keeps almost indefinitely if air is absolutely excluded, and has been found perfect after ten years.



Filling Silo With Alfalfa at Timm's Dairy Near Dixon.

It is an excellent plan to have two silos, one for alfalfa and one for corn, which make together an ideal balanced ration. When the advantages of silos are computed, such as being able to cure early and late crops, and foxtail and other grasses and weeds that are not wholesome fodder when dry, the indefinite keeping quality, its nutriment and relish, it will be found that such advantages are equal to a full additional crop, paying for the cost of building the silo in a single season.

It is good to sprinkle salt on the layers, or it might be applied with the water. Hay dry cured loses four-fifths of its weight; the portion retained in silo being the protein of the grass, or the milk-producing part. Mr. Timm feeds 20 pounds of ensilage a day, along with mill feed. He is experimenting with oat hay, which, if not so strong a milk producer, is greatly relished, and therefore highly valuable.

Mr. Hutton's silo is 30x12 feet, with a capacity of 68 tons, and has been in operation three seasons. It may be regarded as a monument to the owner's abiding respect for earthquakes, as its foundation penetrates eight feet, and below the ground the concrete is two feet thick. This silo cost $500 to build. Mr. Hutton feeds his cows in proportion to their milk yield. A cow that produces three gallons per day of 4 per cent milk is fed 25 pounds of ensilage alfalfa and four pounds of grain and all the hay she will readily eat. Cows above and below this yield are fed pro rata. When feeding he tears the ensilage to pieces and messes it with grain and a little salt.

Mr. Hutton stakes his faith on the Guernsey breed, which produces a yellow milk of high test. He runs the hay through a feed chopper and blows it into the mow with electric power. He has a Jersey that reaches 5.2 per cent of butter-fat.

Mr. Hutton imported three Guernsey heifers and a young bull from Wisconsin at a cost of $600. Two of these two-year-olds are now giving 22 and 24 pounds of milk each.



Cutting and Hauling Corn and Filling a Silo in Butte County

A Kansas dispatch states that the wheat crop will be 70,000,000 bushels. Buyers offer $1 a bushel.

Pacific Rural Press

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The Week.

Harvest is now well on in the interior valleys, and reports indicate fair returns from land which was not thrown out by excess of rains early in the winter, which restricted field work. The lack of spring rains worked adversely, as it always does, but there was a fairer growth without them than was anticipated, which is also a usual occurrence when heat is moderate and high dry winds restrained. In some districts there will be exceptionally large output of grain and hay. Both ends of the San Joaquin valley will show large aggregate crops, while the middle district is reduced except in the irrigated areas. The Sacramento valley also shows something of a spotted character, which will have the effect of hastening the irrigation development upon which the future of the valley as a whole depends. The realization of this fact and the success of private development projects are leading to more systematic general effort to make the opportunities in the valley better known. Meantime the harvest is advancing, and in view of prices for hay and grain there will be, on the whole, encouraging results for the year and a good outlook, because the current demand for good land will add unearned value, which adds to the contentment of owners. According to the Government reports, California will do much better than last year on wheat: the acreage is about the same as last year, but the percentage of promise in the crop stands 81 this year, as compared with 70 last year—but both are low, for 85 is a ten-year average. There is not great consolation in this, nor in the fact that the general average of the United States is about 10 per cent higher, except that California now has to look at the wheat market as a buyer.

Travel in the interior valleys is unusually heavy. We never had so much trouble to find sitting room on the valley trains, although so many coaches are being added. This is the fact, not only on the through trains, which may in some way attain to the great attraction at Seattle, but to the valley locals, which are thronged with people seeking homes or investments.

The State Fair this year, in addition to the advantage of a pavilion which we mentioned last week, is to have a particularly lively feature which ought to be widely attractive. Colonel Bellows of Marysville, Mo., is not only to act as judge, for which service he is eminently qualified, but is to employ also his famous talent of eloquence as an auctioneer, and will publicly sell all animals whose owners desire to dispose of them, providing the animals are good enough to receive the society's favor. The announcement is that proper arrangements have been made to guarantee the quality of the animals offered for sale. To prevent any stock being sold unworthy of the privilege of being placed on the Fair catalogue, all must be first submitted to the critical judgment of Mr. W. Carruthers, one of the best all-round stockmen on the Pacific Coast. There is good reason to believe that this plan of a public sale of stock which is in a sense certified by the society will be very popular, and will not only draw good exhibits and people who desire to buy them, but help the display on the educational side by attracting those who wish to get into their eyes standards of what is good of its kind.

Our notice has fallen upon what seems to be a very cooling midsummer announcement to the effect that United States Weather Observer W. J. Taylor has gone to Modoc county to establish snow bins on the headwaters of the Pit river, in the Goose Lake country. Snow bins have already been established on the headwaters of the American, Yuba, Bear and Feather rivers. The first thought that the Government intended to extend its paternalism by storing up snow in the mountains for summer use does not seem to be justified, for the purpose of these snow bins is to collect data on the snowfall, so that an accurate estimate of the amount of water that can be expected during the summer can be made. It is expected that the information that will be obtained by the snow bins will greatly facilitate the Weather Bureau in forecasting flood dangers in the Sacramento valley in the spring and summer. This is very good, of course, and will answer until the projects to store up the water so that it shall never come down in ruinous quantities shall be realized.

If the reports are true as to the great proportion of land owners who desire irrigation in the new Wright district in San Joaquin county, we apprehend that the opposition which those who desire to proceed by rainfall will only bring them disappointment and lawyers' fees to pay. The statement is that about 50,000 acres were signed up for water out of 60,000 in the district, and that when the supervisors decided to organize the district under the law the objectors appealed to the Superior Court, but their cases were thrown out of court. Their attorney now hopes to secure a writ from the Appellate Court to compel the local judges to hear the evidence in the action. This is not our water bucket, it is true, but we cannot refrain from remarking that certain opposition has been encountered in the early stages of our most successful irrigation district organization, and if it had been able to make its objections hold, some of the most highly developed and prosperous parts of the State would still be sere and wind-swept grain or stock ranches, instead of verdant expanses of grain and fruit. It seems to us that the critical talent and ability of the region should not be wasted upon opposition to the organization, which will probably accomplish nothing, but engender strife, but should be actively employed in keeping the organization to wise and economical procedure. If opposing parties will work together to see to it that the engineering is good that the contracts are honestly let, and that the work is faithfully done, they will have abundant field of action and they will accomplish something of lasting benefit. There can be no doubt but that all money wisely expended for irrigation will come back immediately in the increased value of the land, and all the increased production upon the land will be recurring profits as long as the State shall endure.

But there is a new idea in the way of protection from floods coming in. A great corporation with twenty-five millions of dollars, called the Natomas Consolidated, is about to start the reclamation of 55,000 acres of land on the American river, above Sacramento. When the land is ready for subdivision the company will insure purchasers against floods. The land will be so strongly fortified by high and wide levees that its inundation will be practically impossible; but in addition the company will agree to indemnify the purchasers for any loss by flood. It will probably be two years before this land will be ready for settlers, as the plans are not yet complete. As they dredge the river for gold they can build levees tall as the pyramids if they see fit. The general question, of course, will be, if this land is walled in, what will the water do to other lands? We would rather be sure that the water would be reservoired somewhere and be let down as wanted for navigation and irrigation. That would insure the whole interior lowlands and not any particularly high leveed tract. However, this may be the beginning of the end.

There is considerable life in the fruit shipping business this year. Mr. McKevitt is managing the Distributors energetically, more local organizations are being effected, and the whole business has a promising aspect. It is good, also, to have a little reduction in rates to the interior northwest, where more of our products should go. The Southern Pacific Company has reduced the rates on deciduous fruits 10 cents per hundred pounds, carload lots, between California points and Butte and Helena, Mont. This means a saving of from $25 to $30 per car. The rate is $1.25 and will be $1.15 on June 30. There is also a reduction in the rate on vegetables to points in Idaho.

The purity of milk seems to be a thing not of removing all the bacteria, but of reducing the number of them as much as possible. There seems to be something of an analogy between this fact and the current handling of the temperance question by those who claim that you cannot get all the alcohol out of a man, but you ought to let as little get in as possible and thereby banish drunkenness. On this basis the drinking of California light wines is advocated as a temperance refuge through banishing whisky and other strong drinks. It is interesting to note that Canada is promoting beer drinking by the same argument. The figures of the government excise division show that while under temperance agitation the consumption of spirits per capita has decreased in forty years, the consumption of malt liquors per head has more than doubled. In 1869 the consumption of spirits, home made and imported, was 1.124 gallons per head of population; last year .889 of a gallon per head. In the same time the quantity of beer consumed has risen from 2.2 gallons per head to 5.8 gallons. This means that so much less alcohol has been imbibed. Now, if the alcohol can be reduced to two per cent, as in various "near-beers," and then reduced to half as much in something else, etc., in a century or so the vanishing point of alcohol may be reached; which is, of course, reductio ad absurdum.

The glorification of cactus continues. We have not yet seen the claim that it is a good substitute for ham and eggs, but we are expecting it daily. The British South African Export Gazette claims that it is suitable for the production of soap, spirits, cattle food, unbreakable domestic utensils, linoleum substitute, sugar, leather, etc. The manufacture of paper from cactus, the Gazette states, has already been undertaken in Port Elizabeth. It says that if the prickly pear were used exclusively as a substitute for wood pulp the field is almost unlimited, for there is no likelihood of there ever being a shortage of supplies. That is true, and it might be added that the cactus ought to do something to compensate the world for the immense amount of good paper which is being used up in its glorification.

We were profoundly pleased with Governor Gil-

lett's appointment of Mr. H. P. Stabler of Yuba City as chairman of the State Board of Horticultural Examiners which is to discharge the duties described in full in the new horticultural law and sincerely disappointed by the announcement that he could not accept. Mr. Stabler is dean of the old line of county horticultural commissioners and has had a long and successful career in commercial fruit growing and in protecting fruit trees from injuries. We doubt if the report is true that it was Mr. Stabler who put the plaster on the cherry tree which was hacked by the father of his country, but he has been busy for the health of California fruit trees for a long time and he is still a young man for all that. Mr. Stabler has a most clear and practical idea of what horticultural commissioners should know and what they should be able to do, and his service in defining qualifications by examinations would be directly toward the most satisfactory and effective public work.

It seems that the dry-farming promoters of the central plateau region have overdone the business and are themselves to guard common people against ill effects. We read in the Denver Field and Farm that Mr. John T. Burns, secretary of the Dry Farming Congress, has gone East to prevent further immigration to the West of people who have not sufficient funds to make good after they get there. He holds that the man who succeeds in establishing a home in any dry farming district and makes the proposition pay must have a capital of at least $1000. It seems that some land men are bringing people into the West with little or no capital, and for such settlers on dry farms there may be nothing but failure and pauperization. It occurs to us that $1000 is too little in places where a man has practically no chance to work for others while his own undertaking is developing.

Queries and Replies.

Sawdust and Shavings in Orange Orchard.

To the Editor: Will you kindly inform the writer regarding the use and effect of sawdust and shavings in an orange grove soil which bakes too quickly for convenience? I am rather "green" at attending to an orange grove. The trees are 11 years old and have been neglected. I desire to make them good and profitable. If sawdust and shavings such as can be readily had at planing mills will keep the soil mellow, without any detrimental effects, it looks like a quick way of arriving at a desired end.—Beginner, Los Angeles.

The effect of sawdust or shavings on a soil which is already too coarse and leachy could only be injurious. These things are exceedingly slow in decomposition and will endure for an unlimited time, unless continuous moisture such as would be found in a heavy, retentive soil is brought to bear upon it. On such heavy, retentive soil, likely to bake and rebellious in cultivation, the mechanical effect of loosening up by the introduction of a certain amount of coarse, woody substance might be desirable, and has been, in fact, successfully used to some extent in garden practice. In the case of trees, however, there is always a danger of communicating decay to roots from the decay of the shavings or sawdust, and they are for this reason to a certain extent dangerous.

The improvement of such a soil as you describe would come not from introducing insoluble, woody substance, but from working in as much as you can of succulent vegetable matter, which by its ready decay increases the humus and the moisture-holding power of the soil. This is the reason why there is such a wide recourse in southern California at the present time to the growing of cover crops, which is thoroughly rational when the crop is grown and plowed under so early in the spring that the remains of it do not interfere with summer cultivation.

Conditions Adverse to Growth.

To the Editor: I send you by this mail some specimens of apple trees which seem to have some disease. The one with three branches is from a three-year-old tree. The others are two years old. In some of them one half of the tree is quite healthy and has fine young shoots, the other half like those I send. Please tell me what the matter is and what the cure should be. We have about 2000 young trees and are starting an orchard on the desert. All are doing well, with the exception of those apple trees. All were sprayed with bluestone, sulphur and lime this spring.

I have some fine young Monterey cypress which up till now have never shown any signs of disease. Why are those branches turning yellow? New shoots are coming out at the top, but around the lower part of the trees they are quite yellow—Novice, San Bernardino County.

The apple twigs which you send do not show specific disease. The failure of the young growth to continue normal is apparently due to some atmospheric or soil condition which is unfavorable to it, although such behavior of the apple and other fruit trees is sometimes due to the occurrence of low temperatures after the sap has become active. The only advice we can give you is to remove abnormal shoots and direct the sap pressure into those which seem to be in condition to make good use of it. Do what you can by irrigation, or extra cultivation, to retain mosture enough in the soil so that the trees could maintain growth as late in the summer or autumn as possible, because trees which have the advantage of late growth are apt to enter dormancy in better condition and start more regularly at the proper time.

The dying of the cypress branches is also probably due to some irregularity of conditions effecting growth, which we can only guess at, although we have seen these things also appear upon trees which were short of moisture during the growing season. In your desert situation you will naturally have to reckon with all sorts of extremes—cold, heat, dryness, wind effects, etc.—and you will doubtless find that some plants will not tolerate them, in spite of all you can do to ameliorate their situation and surroundings.

Apple Leaf Aphis Again.

To the Editor: I send you by mail a sample of apple leaves showing lice that eat the leaves. They commence at the top of the new shoots and work down near the branch. Can you tell me what they are and what ingredients to use to destroy them.—A Reader, Santa Cruz county.

This is the pest which we proclaimed against on page 399 of the issue of May 29, remarking its unusual abundance this year. It is the apple tree aphis, which should be destroyed as soon as possible by spraying with kerosene emulsion or with miscible oils with tobacco decoction; in fact, with almost any insecticide prescribed for garden use and of which the general stores often carry proprietary preparations. The trick is not in the insecticide, but in the thoroughness of the application, and to secure that you need a good force pump with a nozzle which shoots upward so as to reach the under sides of the leaves where the insects chiefly congregate. Aphis unmolested by its natural enemies—ladybirds, syrphus fly larvae, etc. (which seem to be late in arriving this year owing to the cool weather)—must be fought with insecticides, or else they will destroy the new growth, deform the fruit, make the whole tree a pitiful object because of the growth of black smut on the honey-dew which is exuded from their bodies, and make the grower generally miserable. They multiply with such extreme rapidity that they must be fought as soon as the beginnings appear; otherwise it is almost impossible to keep up with them. They will disappear, however, later by the work of their natural enemies, but meantime the tree is brought into serious distress. The application of lime, sulphur and salt and other winter washes, although useful for scale insects, do not check the increase of this aphis, because the eggs which are on the bark are not killed as easily as scale insects are.

Analyses of Water and Soils.

To the Editor: I have a well of fine water, and when running my pumping plant my neighbors for miles in all directions come for water. I would like an analysis of same, and for what purposes would it be best adapted. I also have a 50-acre ranch, which is now in alfalfa. I would like an analysis of the soil, and to what it is best adapted. —Farmer, Los Angeles.

The agricultural department of the University only undertakes analysis of water to determine whether it is suitable for drinking or irrigation. The fact that your neighbors come for miles to get the water would seem to demonstrate that quality without recourse to analysis. If it is a mineral water and you desire an analysis from that point of view, you will have to secure it from private chemists. Mineral water analysis is too elaborate for the University to undertake without interfering with the demand for the work of determining the drinking value and irrigation value, and for such determination it is not necessary to resort to a quantitative determination of all contents, as a mineral water analysis undertakes to do. As for soil analysis, the University usually undertakes it when there is something the matter which prevents the growth of plants. If you have a satisfactory field of alfalfa, or if your soil grows other plants to advantage, the plants themselves have made analysis unnecessary.

Fermenting Refuse and Alkali.

To the Editor: I have heard it said that the refuse from the wineries—seeds, skins, etc.—put on alkali spots would kill the alkali; that the acid would offset the alkali. Is there anything in this theory?—Subscriber, Dinuba.

Theoretically a free acid resulting from fermentation would make a lot of chemical trouble for alkaline compounds, the exact determination of which would make a very interesting scientific study. Practically working into an alkali spot of a lot of such stuff might take the edge off the alkali or it might indirectly reduce the alkali or prevent it from becoming concentrated because it would overcome the tendency of the soil to run together so solidly and serve as a rapid evaporating surface. The way for you to test the matter is to put an alkali spot through such treatment and see what comes of it. If it makes the spot productive you simply have to calculate whether it costs more to do it than the produce is worth. We are not aware that it has been tried.

Working Over Almonds.

To the Editor: I have 10 acres of two-year-old seedling almonds that I want to change by grafting or budding. Which is the more practical way, and when should be work be done?—Subscriber, Lodi.

It depends upon the trees and the skill of the operator. If the trees had been cut back to stubs last winter, there would be plenty of new shoots to bud into next month. If the growth is right and the sap active, buds might be put into the old bark this month or next, working just above the main forking and putting a bud into each branch you desire to save to make a good tree. This requires rather more skill in budding and in reducing the growth beyond the bud at about the right amount to save the bud from drying out or drowning out. It may be easier to top back and top-graft next January and February.

Horticulture.

FRUIT EVAPORATION AND EVAPORATORS.

Written for the PACIFIC RURAL PRESS
By Mr. L. W. PARSONS, of Campbell, Santa Clara County.

It seems to be generally supposed that the only profitable way to cure fruit is by sunshine; that artificial heat is too costly and limited in its range to be of practical use where sunshine can be used. A careful examination of the subject will show that the sun has not such a preponderating advantage as is supposed. There are sections of California where the air is so cool and damp that evaporators become a necessity. In Santa Cruz and Sonoma counties, for instance, large quantities of apples are cured by means of evaporators, and in northern California and in Oregon this is the only way to cure prunes.

As there is still a possibility that the Government may prohibit the use of sulphur in fruit drying, it may become necessary to use evaporators, for cut fruit, dried in the sun without sulphur, will not sell at a profitable figure, and would hardly be fit for human food, being apt to be infested with insects and their eggs, and yielding partly decayed or mouldy fruit where bruised or over-ripe.

For the purpose of making a comparison between the two methods, let us take an evaporator capable of holding five tons of fruit at one time and drying that amount every twenty-four hours. There are certain physical conditions that make it impracticable to build evaporators beyond a certain limit in size. A machine holding about 300 wire trays, 3 by 8 feet in size, with capacity for 10 tons, is as large as the writer would venture to build.

The cost for labor to cut and spread the fruit on the trays, place trays on drying ground or in an evaporator, sorting and taking the dried fruit off the trays, would be the same by either method. The little extra labor of caring for the fire is offset by the convenience of not having to run all over a five-acre lot in handling the sun trays. This leaves the cost of fuel, wear and tear of machine, interest on investment, and insurance, to be considered.

The cost of fuel varies according to kind and price of fuel, kind and size of evaporator, kind of fruit, climate, etc. Under fair average conditions it would range from fifty cents to a doller per ton of green fruit.

Let us say that the five-ton evaporator costs at the outside $1500. Beginning with apricots and ending with late apples, the season might be five months long; but call it 100 days, at 5 tons a day; we could handle at least 500 tons. With proper care the machine ought to last 15 years; but call it ten, making the wear and tear about $150 per year; dividing this into the 500 tons, we get 30 cents per ton, the cost per ton for wear and tear. Lumping interest and insurance (at 10% upon the $1500) makes $150, or 30 cents per ton. This gives a total of 60 cents per ton for fixed charges.

For sun drying, estimate ten times as many trays, making 1500 wooden trays, 3 by 8 feet, costing 50 cents each, and we have $750. Tracks, cars, turntable, etc., would cost about $150—a total of $900. Estimating the fixed charges the same as for evaporator, we have 20% of $900, making $180. But the season for sun drying would be considerably shorter, and so less work could be done, making the fixed charges probably about the same per ton either way.

The cost of a few acres of drying ground need not be reckoned, as it can usually be cropped for enough to pay interest on its cost; wear and tear and insurance are not usually chargeable to land.

So finally we have only the item of fuel to charge against the evaporator. It takes about five pounds of cut, unpeeled fruit to make one pound dried. Five times 75 cents makes $3.75, or less than two mills per pound of dried fruit, as the cost for fuel. For prunes the cost would be about one mill per pound dried.

The quality of the product would be superior by the evaporator, for it would be free from dust and insects, and in case no sulphur is used to cover up defective, bruised or overripe fruit, the consumer could see that he was getting only sound, wholesome food.

Other things may be said on both sides of the question, but no one need fear that the fruit curing business is going to be ruined, either way.

Fruit Evaporators.—The handling of the immense fruit crops in California calls for equipment capable of doing business on a large scale. To dry fruit one would naturally expect to pile up hundreds of thousands of trays of fruit in a big room and force a current of dry hot air through it, and so dry it by the wholesale. But there are certain physical limitations which cannot be entirely overcome.

A cubic foot of heated air in passing through a mass of fruit absorbs vapor and loses heat. As it cools it condenses and its capacity for holding vapor is reduced one-half for every 30 degrees of temperature lost.

If the air is heated too high at the start it scorches the fruit. If the air is carried too far in the fruit chamber it gets so cool and saturated it cannot do any drying, but instead condenses its vapor and deposits it on the fruit, thus wetting instead of drying it. These conditions limit the amount of work any certain quantity of air can do.

One way to meet this difficulty is to force the air through the drying chamber at a high speed, by means of a blower and an engine. This means greater expense for machinery, larger heaters and more fuel to operate it; but, worst of all, the strong blast dries the outer surface of the fruit faster than the moisture inside of it can pass out and keep the crust from hardening, which makes inferior work.

Another way is to arrange the fruit trays in small compartments, giving each a separate supply of fresh air. The principal objection to this is the extra amount of labor required to watch and keep track of so many places, which in a large machine would be a serious expense.

Another way is to hang the trays on the spokes of a large double wheel, and pass the fruit through the air by revolving the wheel. This has its merits, but is expensive, and is faulty in that it passes the fruit repeatedly through the hottest place and often scorches it.

Many driers have been built on the upright plan: the hot air passes from the heater below up through the stack of trays, finding its way as best it may between the pieces of fruit to the ventilators on top. This seems simple, but has some serious defects. If each tray is placed in its position to dry until done, they dry very irregularly, the bottom tray drying in perhaps half the time the top one does, and each tray between taking its own go-as-you-please gait. When there are several hundreds trays to be looked at, each through a separate door, to be opened and shut perhaps twenty times, the operator gets all mixed up, not knowing when or where the next tray will be ready to come out. The bottom trays are liable to be scorched, and the top ones, receiving all the vapor from the fruit below, dries as easily as a woman's wash does on a foggy day.

Some machines have a hoisting apparatus, so that the trays can be raised gradually, thus putting all the fresh fruit in below and taking it out at the top; but frequently the top tray is so slow in drying that the bottom one is scorched or overdried while waiting for its turn to move up, and the top tray often has to be taken out before it is done, to let the lower ones move up a peg, to save the bottom one by placing a fresh tray under it.

Probably the best way of all is to pass the heated air horizontally through between the trays of fruit, from one end of the drying chamber to the other, thus drying the upper and lower surfaces of the fruit evenly. But here we find another difficulty. Hot air rises. When it enters the fruit chamber at one end, it works its way upward toward the ceiling as it passes along, thus flowing over and above much of the fruit at the farther end, and the bottom trays drying much slower than the top ones, for the difference in temperature between the upper and lower trays is from 40 to 60 degrees in a chamber five or six feet high.

This may be corrected by introducing five of six floors into the fruit chamber, making it as many stories high, through which separate currents of air pass, being held to their work by the floors above, so reaching every tray.

These are some of the most successful methods, and there are others. They nearly all have their merits and can do good work in the hands of a skilled operators; but not one can be called entirely satisfactory on a large scale.

The best method this writer knows of is embodied in several driers he built, on a moderate scale, a few years ago, which have given their owners great satisfaction and are declared to be a perfect success and surprisingly economical in fuel. The largest one holds about a ton, but there is every reason to believe that the same principle would work satisfactorily in a machine five times as large.

It is a horizontal machine. The lower chamber has brick walls and contains the furnace and flues for heating the air that enters at one end near the ground, passes through to the other end, being heated, and then passes through an opening into the fruit chamber above. A sheet-iron floor separates the heating chamber from the fruit chamber. This iron floor is warmed by the furnace under it, and in turn helps to warm the fruit above it. The hot air entering the fruit chamber at one end passes horizontally through, over and under the trays of fruit to the other end. Then, instead of going up to the ventilator on top, it is drawn down to near the bottom of the fruit chamber and passes out through an opening in the side of the drier, into the ventilator or exhaust flue standing by the side of the drier, and is thence drawn up to the outer air. The smokestack from the furnace is enclosed in this ventilator, serving to re-warm the air and increasing the upward draft, thus drawing the air by suction out of the drier.

This method compels the warm air to flow down ward instead of upward in the fruit chamber, and thus by actual test by thermometer the bottom tray is as warm as the top tray, and there is no difference between them in drying. This does away with the horizontal flues.

These driers are three and a half feet wide. In a large one, six feet wide, there might be some difference in the movement of the air currents. On the side where the outlet is the air might move faster than on the side where there is no outlet, so that a 6-foot tray might dry faster at one end than the other. This can be corrected by making an outlet on each side and joining the two halves of the ventilator overhead.

This is the simplest, most effective, economical, and in every way satisfactory evaporator *known* to the writer, who, having retired from the business, gives it to the public without any patent claims.

[Mr. Parsons' latest idea of design and construction, with explanatory drawings, will appear in next week's issue.—EDITOR.]

Citrus Fruits.

THE KEEPING QUALITY OF LEMONS.

By Mr. RODNEY H. TRUE and Mr. A. F. SIEVERS, of the Bureau of Plant Industry of the U. S. Department of Agriculture.

[In our last issue we introduced the work named above, and emphasized its value to California, first because California is the only commercial lemon-growing State, and because the research work was done in this State. The phase which we take up in this issue involves the chemistry of the lemon, and we shall select from Circular 26 of the Bureau of Plant Industry those conclusions which are of the greatest practical significance.—EDITOR.]

The chemical study of lemons as regards acid, sugar, and water content has been undertaken in the hope that it would lead to information which would offer some suggestions for improving the handling and curing of the fruit.

Acids.—The acidity of the lemon is considered by some to be an important factor in determining its keeping quality, it being asserted that lemons containing a high percentage of citric acid resist decay for a longer period than lemons of a lower acid content. The results thus far obtained show the average acid content of the different sorts of fruit calculated as citric acid to be as follows:

	Acid in juice, %.
Dark green fruit (picking stage)	6.08
Light green fruit (picking stage)	6.14
Tent-cured fruit (marketable stage)	6.80
Sweated fruit (marketable stage)	6.45
Tree-ripe fruit	5.91
"Sinkers"	5.68

These results were obtained from a large num-

ber of lemons taken from various packing houses, and they indicate that there is a difference of a trifle less than 1% of acid between the best keeping grade of fruit, the tent-cured, and the "tree-ripes," which represent the poorest grade on the market. This deficiency seems too small to account for the marked difference in the keeping quality of these two grades of fruit. Other points of difference much more striking seem to indicate that other factors have a greater bearing on this problem than the acid content. It has been found, furthermore, that tree-ripe lemons showing an average of 6.88% of acid, which is exceptionally high, when stored decay fully as quickly as other fruit of a lower acidity. Sicilian lemons of a good grade bought on the open market showed on the average 6.45% of acid. This is less than is found in much California fruit of a corresponding grade.

In order to determine whether the curing process has any marked influence on the acidity of the lemon, a series of determinations was made during February and March, 1908, beginning with the time of picking and repeated at weekly intervals until the fruit was ready for market. The percentage of acid in juice on February 3 was 6.32, and on March 30 it was 6.73, showing that the percentage of acidity shows a tendency to increase, due chiefly, perhaps, to the water loss accompanying the curing process.

Sugars.—The study of sugars has thus far been confined to estimating the quantity of reducing sugars in the juice of the dark green, light green, and tent-cured fruit. An attempt has also been made to trace the development of reducing sugars as the fruit develops in the orchard. The tests which were made during seven stages of development, the last three stages representing the dark green, light green, and tree-ripe stages, respectively, showed the following percentages of sugar in the juice:

	Sugar in juice, %.
First stage	1.63
Second stage	1.27
Third stage	1.38
Fourth stage	1.19
Fifth (dark green) stage	2.66
Sixth (light green) stage	2.64
Seventh (tree-ripe) stage	2.68

These analyses show that there is relatively little change in the sugar content during the early history of the fruit, and that the principal development comes after the fruit has almost reached its full size and is beginning to ripen.

Sugar determinations were also made upon fruit undergoing curing in the curing tents. The estimation was made during February and March, 1908, once a week from the time the fruit was picked until the fruit was ready to be marketed. The results show a very low percentage of sugar compared with the fruit above studied, with no definite trend toward either increase or decrease as the curing proceeds. The following tabulation summarizes the analyses:

	Sugar in juice, %.
February 3	1.18
February 10	1.36
February 17	1.17
February 24	1.38
March 2	1.02
March 9	1.19
March 16	1.19
March 23	1.09
March 30	1.11

Water Content.—Some investigations were begun relative to the loss of water from lemons while undergoing curing, both by the tent-curing method and by sweating. The green fruit as it comes from the orchard has a rather thick rind, with considerable spongy tissue. During the curing this tissue shrinks to a considerable extent, and the rind becomes somewhat thinned and toughened. This change is believed to be due chiefly to the evaporation of water from the rind. In order to determine the extent of this evaporation, both as to the total amount evaporated and the stages of the curing process during which most of it occurs, a convenient quantity of lemons was placed in a separate box and kept in a tent with about a carload of other fruit, and weighed once a week. The lemons were divided into two lots by a partition through the box, the bottom of one half being lined with paper. This was done with the object of determining the extent to which evaporation is retarded by lining the boxes with paper, a practice which is sometimes resorted to during extremely dry weather. The following shows the percentage of total water loss during 22 days from three sorts of fruit:

Sort of fruit.	Paper lined boxes. %	Without paper lining. %
Dark green	3.03	3.47
Light green	2.86	3.44
"Tree-ripe"	2.73	3.11

These experiments show that the loss of water from the fruit does not increase or decrease week by week with any regularity. Some weeks show a decided increase, and are immediately followed by a corresponding decrease. The explanation for these irregularities can probably be found in existing weather conditions, especially as regards humidity and wind. A very humid day would cause a decrease in the evaporation from the fruit, whereas a high wind, even though not exceptionally dry, would penetrate the usual form of packing house and convey the moisture away through various doors, cracks, and other openings to such an extent as to increase the water loss from the fruit. Careful manipulation of the tent and good judgment as to when and how much to ventilate the fruit would doubtless do much to minimize these fluctuations.

In comparing the results shown in different tents it must be borne in mind that the respective location of the tents has a very material effect on evaporation. A tent which is in close proximity to the open side of the house or to doors and corridors where currents of air can circulate around it would necessarily show wider fluctuations in its evaporation than a tent located in the center of the house and well protected from external atmospheric changes.

In sweat rooms, where the fruit is kept at a much higher temperature, very different conditions are met with. Owing to the high heat with lower relative humidity, the evaporation takes place much more rapidly. The total percentage of water evaporated at different intervals from the fruit in such a sweat room, the fruit being sweated twenty days, a period considerably longer than is usually required, is shown below:

	Water evaporated, %.
February 23	...
February 25	0.85
February 26	2.10
February 27	2.76
February 28	3.40
March 1	3.84
March 5	4.60
March 9	6.10
March 13	8.05
March 16	9.25

This shows that curing in a tent removes about one-third as much water as curing in a sweat room for about the same number of days.

Forestry.

PLANTING AND TRAINING OF EUCALYPTS.

By Mr. George C. Roeding of Fresno.

This great Australian tree is at present more extensively planted than all other varieties of deciduous and evergreen trees combined. The economic value of its timber has become well established, hence far-sighted business men are engaging in the planting of eucalyptus trees on a commercial scale on reasonable priced lands throughout California. The waning supply of hickory and other hard woods in the Eastern States, which cannot be replaced except with probably the timber from our fast growing eucalytus (in the culture of which California will have the monopoly), is in itself sufficient encouragement for the widespread interest which is being manifested in its planting. The timber is used by shipbuilders, railroad engineers, implement makers and for numerous other purposes. No farm, no matter how small, should be without its eucalyptus trees, and this is emphasized particularly where fire-wood is scarce and expensive.

Eucalypts are either transplanted from pots or from flats, the latter being boxes three inches deep and about eighteen inches square, holding 100 plants. It is not practical to grow trees in the open ground in nursery rows and transplant them, for they will not grow.

When to Plant.—Transplanting into the field should not commence before March 1, and it may continue in localities where there are no great extremes of heat until July, although the early planting is always advisable, the plants getting the benefit of the spring rains and more favorable climatic conditions.

How to Plant.—Above all things have your soil in a high state of tilth by deep plowing and thoroughly working with a harrow. The thoroughness of this work will have much to do with the subsequent growth of the trees. The most favorable distance to plant is either six by six feet or eight by eight feet, with the preference for the latter distance. When taken from the nursery, the flats should be given partial shade for a week to cause them to harden up, before taking them to the field. The day before transplanting to the field water them well. To transfer from the flats, first remove a side board and then cut out each plant with a square of earth. Never pull them out by the roots. Use a trowel for transplanting and set the plants an inch deeper than they stood in the box. After the plant is set press the soil around the block of earth, using proper care not to break it. Each plant should be watered with a watering can, to further settle the dirt and start the plant on its career. The following day loosen up the soil with a hoe. Watering should follow at intervals of not more than ten days, unless rains should intervene. Until the plants commence to grow, watering in the manner described is preferable to irrigating in furrows.

During the summer months the plants should be maintained in an active state of growth by irrigation and cultivation; the larger and stockier the seedlings, the more resistant they will be to frost.

Training.—One of the great difficulties experienced in a eucalyptus grove is to get the seedlings to grow straight. Staking a large grove is an expensive operation. To overcome this difficulty, cut the trees off with an inch of the ground the following year, just before the new growth starts. Allow all sprouts to grow to begin with, then select the strongest and remove all others. This shoot will make a remarkably vigorous growth and will require no staking. Do not cut off the lateral branches the second year, as this will cause the trees to grow spindling and retard root development. In the third year the laterals may be removed, if they interfere with cultivation, up to a height of three feet, and where there are two leaders, one should be cut out. Under ordinary conditions, they will practically care for themselves after the third season, although cultivation and irrigation will have a decided influence on the more rapid development of the trees.

NEW FOREST TREES FOR CALIFORNIA.

The Pacific coast will soon be the scene of an interesting tree-growing experiment. The United States Forest Service is planning to introduce a number of the more important Eastern hardwoods into California, and will this year experiment with chestnut, hickory, basswood, red oak and yellow poplar or tulip trees. Small patches of these trees will be planted near the forest rangers' cabins on the national forests, and if these do well larger plantations on a commercial scale will soon be established on wider areas.

There are over 125 different species of trees in California, a number of which produce some of the most valuable varieties of lumber in the country. Although considerably over one-half of the species are hardwood or broad-leaved trees, yet, with the exception of the exotic eucalyptus, there is not a single species of hardwood here ranking in commercial importance with the leading Eastern hardwoods. Climatic conditions in many parts of California are undoubtedly favorable for the growth of a number of the valuable hardwoods, and the absence of these trees is due mostly to unfavorable factors of seed distribution.

If the experiments are successful, a valuable asset will have been added to the forest resources of this State, which should prove of special benefit to the local furniture and vehicle industries. Chestnut and red oak are highly esteemed for furniture, while with hickory, basswood and eucalyptus at its command, California should lead all other States in the vehicle industry.

AGRICULTURAL REVIEW.

Cannery and Packing News.

The Walden cannery, at Geyserville, has more than 50 people at work putting up cherries.

The Farmers' Union at Dinuba is making an effort to establish a packing house at that place.

tI is announced that the Armsby Preserving Co. has secured 1000 tons of fruit to put up in its cannery at Yuba City this summer.

At a meeting of the Farmers' Union, held at Orosi last Thursday, it was unanimously agreed to incorporate for the purpose of building a growers' packing house.

The Stewart Fruit Co. expects to ship 150 cars of fruit from Kings county this season. It expects to commence packing 15 cars of plums at Lucerne within the next few weeks.

A Florida Citrus Exchange.

At a meeting held at Tampa, Florida, recently, which was attended by nearly 300 delegates, it was decided to form a Citrus Exchange, with headquarters at Tampa. The fruit growers who had taken the trip to California were present, and it was their report upon the handling of the California crop that induced the growers to organize for the better handling of their fruit. Estimates of the orange crop of Florida for the coming season place it at 6,000,000 boxes. The Florida Orange Growers Co., which has been in existence for some time, has agreed to abandon its organization and join the Exchange.

June Crop Report.

The summary of the crop conditions for June 1 for the United States are given by the Department of Agriculture as follows: Winter and spring wheat, oats, barley and rye are about 4% below that of the same date last year, and about the average for the last 10 years. Apples are 10% below the average, peaches 8% below, sugar cane is better than last year, and small fruits and vegetables are about the same as a year ago.

Fair Dates.

For California Circuit:

San Diego	July 5-10
San Bernardino	July 12-17
Los Angeles	July 19-24
Fresno	July 26-31
Salinas	Aug. 2- 7
Pleasanton	Aug. 9-14
Woodland	Aug. 16-21
Chico	Aug. 23-28
State Fair at Sacramento	Aug. 31-Sept. 4

Horticultural Notes.

Brawley shipped the first table grapes from the Imperial valley this season.

The famous 156-acre walnut ranch of George F. Smith, near Carpinteria, has been sold for $75,000.

Apricots are bringing better prices this year than last, the opening quotations in various places being about $25 per ton.

The California Dried Fruit Agency is enlarging its plant at Fresno by adding a seeder with a capacity of three cars a day.

A melon pool has been agreed upon by growers controlling over 150 acres at Dinuba, that will handle the crop there this season.

The cherry season in the Yucaipe valley, San Bernardino county, opened last week. The crop is large and of excellent quality, and will find a market in southern California, Utah, and Colorado.

Watermelon growers of the Turlock district have formed an association to market their crop. The yield promises to be large, and will be ready for market commencing about July 10. The association proposes to sell only f.o.b.

The canteloupe crop of the Imperial valley commenced to move this week in car lots. The crop is estimated by one packer at 750 cars, and the Coachella valley crop is estimated at 50 carloads.

At the meeting of the San Jose Grange last Saturday, the committee on fruits and crops reported that a large sale of prunes was made last week on a 3-cent basis; that a large sale of Moorpark apricots had been made at $25 per ton on the tree.

The new crop of raisins is placed at 60,000 tons by a Fresno packer, which is about 10,000 heavier than last year. The amount of old raisins now on hand is estimated at 8000 tons in the hands of the growers and 11,000 tons held by packers.

C. G. Marchus, one of the largest apricot growers of the southern end of the State, reports a larger crop of cots in prospect than ever before. He has a large acreage in the San Pasqual valley, San Diego county, and dries his own fruit.

This year there are many orchard sales of the apple crop being made in the Pajaro valley. Last week the 58-acre orchard of the Condit estate was sold for the next three years for $20,000, the buyer to do all spraying and cultivating.

The Fresno Republican states that the grape shipments will commence from that locality about the middle of July, and that the estimates now place the amount tobe sent out at about 1000 cars. Prunes will be shipped from around Sanger in a few days.

The Vacaville Fruit Growers' Association is a new organization to enter the shipping field. T. H. Buckingham is the president, J. T. Montgomery first vice-president, George Alger second vice-president, J. C. Uhl secretary, George Samuels treasurer, and Ray Rippey manager.

The hot weather of two weeks ago caused a very heavy "June" drop of the growing oranges through the southern part of the State. While the loss was very much greater than the average, yet old-time growers say that the setting was heavier than usual, and the chances are a normal sized crop will be picked next season.

The Sebastopol berry growers' organization is meeting with great success in finding markets for their fruit. Last week they shipped three cars out by express, one car going to Portland, one to Denver, and the other to Salt Lake. All are reported to have arrived in good condition and sold for good prices, and orders have been received to duplicate the shipments. Co-operation in fruit handling is the way to make a success in the selling end of the business.

In its monthly report the Kings County Horticultural Commission says that the fruit crop of that county will be nearly as large as last season. Grapes are estimated at 25% short, prunes normal, apricots 50% short, peaches nearly a full crop, and pears a good yield. There were shipped into the county during the last season 427,000 trees, of which 100,000 were ornamental and eucalyptus. Besides these there were received 1,107,112 rooted vines and cuttings.

General Agriculture.

Two cars of new crop potatoes were shipped from Anaheim last week, which netted the growers $1.75 per sack.

The Hollister Bee says that the hay crop there is proving to be good. Forty-six hay presses are at work baling the crop.

Hay shipments from the Imperial valley are now very heavy. It is stated that last week between 40 and 50 carloads per day were sent out.

The first grain of the season arrived at Modesto last week, and the barley brought

Agricultural Portable Railroads



Our Booklet PR-1001 Gives Valuable Information. Means a Saving of 75 Per Cent on Transportation Expenses.



For Ranches—Fruit Drying Yards—Vineyards—Sugar Beet Fields Dairies—Cattle Stock Farms—Canneries—Packing Houses, Etc.

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REX FOR MILDEW

The famous Rex Lime & Sulphur Solution has proven to be the best means of clearing vines from Mildew. It is much cheaper than dry sulphur, remains on the vines and plants longer, and not only kills the Mildew, but invigorates and stimulates the growth of the vine.

It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

CALIFORNIA REX SPRAY COMPANY
BENICIA, CALIFORNIA.

DUST SPRAYING MACHINES
BAKER & HAMILTON
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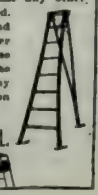
For **DUST SPRAY** Use
VIGORITE BRAND HYDRATED LIME
MANUFACTURED BY
THE HOLMES LIME CO., Inc.
Mutual Savings Bank Building
San Francisco
Write for Samples and Prices.

LAND PLASTER
(Gypsum)
Nearly every California ranch needs Gypsum. It corrects soil conditions, helps other fertilizers give better results and aid fertility in the soil. Alfalfa, grain, vegetable and fruit crops are greatly increased.
Write for booklet and prices.
PACIFIC CEMENT PLASTER CO.
AMBOY, CALIFORNIA.

THE BOSS FRUIT AND STEP LADDER



Is known to be the lightest and strongest made. A ten-foot ladder weighs 30 lbs. We have been making these ladders since 1886. All fruit growers like them. Many of the big office buildings in San Francisco will not use any other. We make them with three or four legs as preferred. We keep in stock Fruit Ladders 6, 8, 10 and 12 ft. and House Ladders 4, 5, 6, 7, 8 and 10 ft. We make longer Fruit Ladders up to 24 ft. at short notice. Our House Ladders are made with a safety lock to prevent the legs from spreading. We will ship one or more to any S. P. R. R. station in California and prepay freight on receipt of price, 30 cents a foot.



DRIVER, ABER & CO., SAN LEANDRO, CAL.

"THE SEED HOUSE OF THE GREAT SOUTHWEST"
Plant Seed Suitable to the Season.
For reliable seeds and reliable information Address
AGGELER & MUSSER SEED CO.,
113-115 No. Main St. Los Angeles, Cal.

CRIMSON WINTER RHUBARB
Now is best time to plant Rhubarb.
$1.50 per doz., $6 per 100, $40 per 1000.
All kinds of small fruit and berry plants.
J. B. WAGNER, Pasadena, Cal.
The Rhubarb and Berry Specialist. Dept. I.

$1.30 and oats $1.60. The grain crop of Stanislaus county will be much better than expected.

The grain crop in the Perris valley is now being harvested and is a good crop, some fields going as high as 30 sacks per acre. The hay crop in this valley is also good, and is being shipped out rapidly at a good price.

The grain crop now being harvested in Madera county is reported to be turning out very good, especially on the West Side. The grain is clean and bright, and it now thought that Madera county will have the best crop of any county in the San Joaquin valley. The crop around Angiola, in Tulare county, is also proving to be very good.

Stock and Dairy Notes.

The Maple Grove creamery at Hanford is adding to its machinery and otherwise enlarging its plant.

Seventeen cars of fat cattle were sent from Porterville last week to Pueblo, Colorado. The high price of cattle East caused this shipment to go East instead of to Coast points.

The largest shipment of sheep from Hanford for years was sent out recently by J. D. Biddle. The sheep numbered 4000 and occupied 31 cars, and were billed to Kansas City.

Imperial valley is rapidly becoming a great cow section, and the indications are that many more head will be sent there this summer. Last week one firm bought 276 milch cows in San Diego county to be sent to Imperial county.

The Corcoran Journal says that Geo. A. Smith of that place will soon have the largest Jersey farm in the world. Recently he purchased 640 acres to add to his 480-acre ranch. All of the late purchase is to be planted to alfalfa this fall. Mr. Smith has now 200 head of registered Jersey cattle on the ranch. So far this year the sales of stock from the place have exceeded $1000 per month.

Miscellaneous.

The new winery being built near Lodi is expected to be ready to crush grapes by August 1, and that 8000 tons will be handled by the plant this season.

Approximately 48,000 gallons of apple vinegar is "ripening" at the Bidwell plant, near Chico.

The San Jose Mercury reports that the winery of the California Wine Association located at that place is to be moved to San Martin. The move is made to place the winery near the vineyards, as those around San Jose have gradually been dug up and the ground used for other purposes.

AN ENGLISH COMPLAINT.

Among the many other evils of the present unrepresented state of agriculture, says the London Farm and Home, is the continual piling on of charges which are supposed to be for the benefit of the nation, and which the nation should in honesty pay. Why should trade and commerce, the army and navy, rob farmers of their most valuable assets, in the form of their best men and women, make the greatest possible use of them, and then, when they are worn out, return them, in addition to the poor unfortunates who are weak and ailing in body and mind, to be kept by the owners and occupiers of the land? Why should the country districts be forced to pay high rates for the giving to the youthful portion of the population a so-called education which renders them unfit for the tillage of the soil and the production of stock? Again, why should the land be charged with the cost of the main roads, which are mainly kept up for the benefit of those who pay comparatively no rates in the country districts? All these, and other anomalies, would cease if farmers were directly and actually represented.

Even under the most favorable conditions British farmers are under very considerable disadvantages as compared with their foreign rivals, who have little or no rent and rates to pay, and have a virgin soil, and its stores of thousands of years gathered fertility to draw upon, and yet that power and influence which should be of enormous advantage is frittered away by want of combination and allowing ourselves to be tools in the hands of party politicians.

SPANISH AND NOT FRENCH.

The spelling of the name of a National Forest in Utah was made to conform with the name of the French explorer La Salle, through a misunderstanding, when the forests of the State were redistricted last July. The correct local application of the name, however, is to the Salt mountains, called by the Spanish "La Sal" mountains, evidently in deference to the salt deposits found in the region. Besides the range of mountains, a town and a creek in this part of Utah have the same name.

Pear Blight

We have positively demonstrated that WE CAN CURE THIS DISEASE.

Write us for particulars.

Pear Blight Remedy Co.
VACAVILLE, CALIFORNIA.

TREES TRUE TO NAME. The SILVA-BERGTHOLDT CO. NEWCASTLE, CALIF. PLACER NURSERIES

FRUIT TREES
ALL STANDARD COMMERCIAL VARIETIES
The best that good care can produce
Write us now concerning your Fall and Winter Planting
AGENTS WANTED
The Silva-Bergtholdt Company
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TREES OF ALL SORTS
25 years experience in growing nursery stock. 1500 acres devoted to the business.
CALIFORNIA HORTICULTURE, The Fruit Grower's Guide, fully illustrated, describes 2000 different varieties of trees and plants. Contains valuable information.
Sent postpaid for 25 cents in stamps.
PAID-UP CAPITAL $ 200,000.00
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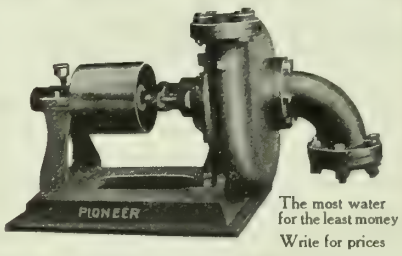
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75 H. P., 3-Cylinder, Vertical, Gasoline Engine; never been used; $1600.
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LEMON TREES
Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Citrus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.
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SECOND HAND **PIPE**
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All our pipe and casing has newly cut threads with new couplings attached and dipped in asphaltum. Guaranteed good as new. Prompt delivery on carloads or less. Small orders receive same attention as large ones. All sizes of pipe, also fittings and valves.
WEISSBAUM PIPE WORKS
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SCALEFOE
Greatest Known Spray or Wash for Scale: San Jose, Black, Red, Purple and Brown. Also a sure thing for Red Spider, Canker Worm, Moss, Caterpillars, Lice, Coddling Moth, and all Insects and Bugs that infest plant life; without injury to the plants, and with positive benefit to the soil, when applied. Scalefoe has long been the leading Spray or Wash in many sections of the country, wherever introduced. Also kills Lice and Mites on Poultry.
Gallon can, 85 cents; 5 gallon can, $3.75. Prices f. o. b. Los Angeles, but if not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Satisfaction guaranteed or money back.
MADE BY THE
WEST COAST MILL
LOS ANGELES, CAL.

PIONEER CENTRIFUGAL PUMPS


The most water for the least money
Write for prices
PEERLESS IRON WORKS
SACRAMENTO, CAL.
Agents wanted. Mention this paper.

REDWOOD TANKS
Fifty tanks from one thousand to ten thousand gallons that must be sold regardless of profit.
Fruit Boxes—Egg Cases.
Write for prices.
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ORCHARDISTS and FARMERS
who have used our goods once, will always come to us for their fertilizers. We are making a special study of plant life and are therefore in a position to manufacture fertilizers that exactly meet the requirements of each plant. Let us know what you intend to plant, and we will name your special compositions. Write for our new booklet "The Farmers Friend," for 1909.
THE PACIFIC GUANO & FERTILIZER COMPANY
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Best FRUIT LADDER Made
We can guarantee the most durable and practicable ladder for the money. Send for catalogue and price list.
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SAN FRANCISCO SULPHUR COMPANY, Importers and Refiners of
"Anchor" Brand, Velvet Flowers of Sulphur; **"Volcano"** Brand, Sublimed Flowers of Sulphur; **"Tiger"** Brand, Sublimed Sulphur; "<S>" Brand, Refined Flour Sulphur; **"Fruit"** Brand, Powered Sulphur, **Roll** or Stick, **Virgin Rock** and Crude Sulphur. AGENTS FOR **"Fleur de Soufre"** Extra Fine .Sublime Pour Blanchiment (for bleaching and spraying.)
Refinery: BORDEAUX, FRANCE.
Office—624 CALIFORNIA ST., above Kearney, San Francisco, California.
Samples and Prices on Application. Telephone, Kearney 4836.

"SPRAY-MULSION"
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FOR
APHIS
ALL KINDS on ALL PLANTS.
Also for SCALES, and other soft bodied sucking insects.
Contains petroleum oils and gives a milk-white, permanent emulsion by simply adding water. Packed in barrels, 10-gal. cases, 1-gal. cans, quart cans. For garden or orchard use.
MADE ONLY BY
R. R. ROGERS CHEMICAL CO., 527-529 Commercial Street, San Francisco, Cal.

TWO KINDS OF FARMERS.

There was recently published in London a book entitled, "My Life in the Open," in which a globe-trotting Englishman tells of his observations. He spent part of his time in America, and gives curious and sympathetic comparison of British and American farmers:

The farmer of the United States is one of the hardest workers in the world. The better class English farmer, whether seasons be good or ill, grows jolly and fat in his congenial occupation. He grumbles a good deal, but soon forgets his troubles over a flagon of ale or a glass of port, or in the heat and hurry of a flying forty minutes with the foxhounds. He "manages" his farm from a pinnacle of social superiority, ruling over a half-dozen careful and conscientious laborers, whose interest in the property is no less than his own. The American, on the other hand, lean, cadaverous, energetic, clad in blue jeans, smutted with the grime of his engines, and coated with the grease of his machinery, toils closely and intimately on the soil, leading, with indomitable personal energy, a couple of unreliable, irresponsible hired hands—suspicious of condescension, impatient of advice and control. He works long hours and works with a savage energy, tearing up the rich brown earth for its treasure, draining the wet lands and irrigating the dry, himself always a leader, labor personified and glorified. "Forward and upward" is the motto written with his plowshare on the green banner of his pasture; he is frankly eager, openly impatient, splendidly in earnest. He must have the lightest machines, the latest labor-saving appliances, the quickest stepping horses; no work is too hard for him if, in the interests of his prosperity and progress, it is work to be done.

The British farmer plods slowly and deliberately along the roads to failure or success, turning now to the right and now to the left, to pluck a flower of leisure or chase a butterfly for sport. The American, with head bent down to the path, hurries fiercely forward to the dim indefinite goal of wealth acquired and leisure won. He has no time for flowers and butterflies. The American farmer reads with conscientious care every word in a half-dozen farm papers to which he subscribes. The British farmer takes a local weekly and a red-covered sporting journal, and looks with contempt upon the newspaper articles of agricultural writers—as a rule. The American sends for the bulletins of the State experiment stations and reads them eagerly, hoping ever to find in them some new thought that he may absorb, and so outstrip his neighbors in the race for gold. The jolly Englishman laughs at the idea of any college professor, however astute and able, being in a position to dictate to him on a subject the theory and practice of which he has absorbed as a heritage from sire and grandsire. So each in his different way passes along the broad road of agricultural practice toward the distant goal, one sturdy in the hidebound beliefs of ancient tradition, the other strong in the over-confidence of present toil and future progress. Both, as it may be, somewhat in fault; but both, as the wide world admits, greatly to be admired.

SEAWEED FOR FERTILIZING.

We receive from time to time, especially from subscribers along the oceanside in southern California, inquiries as to the availability of seaweed for fertilizing purposes. There is unquestionably much plant food substance in the seaweed, but the use of it profitably doubtless depends upon how much it costs to handle it, and that is fixed by the current labor wage, which is so high in California that the question becomes rather vexed. Still our readers may be interested in what others do with the material.

Seaweed as a fertilizer is very much appreciated by the French fishermen, who cultivate little vegetable gardens on St. Pierre and Dog islands. Even the farmers of Miquelon and Langley, the two large islands in the group, find the sea grass deposited in large quantities along the shore equally as valuable as manure from the barnyards.

Only Miquelon and Langley can be said to have any agricultural interests whatever, but in spite of prevailing high winds and a rocky soil it is surprising what quantities of vegetables are produced in the little patches of ground fit for cultivation on St. Pierre and Dog islands. Dog island seems to be little more than a great rock, and St. Pierre is not much better, but here and there in the "pockets" are found little plots of earth. These are carefully and gradually developed by annual applications of seaweed until the maximum of production is reached. From that time on the weed is used to maintain the strength of the soil.

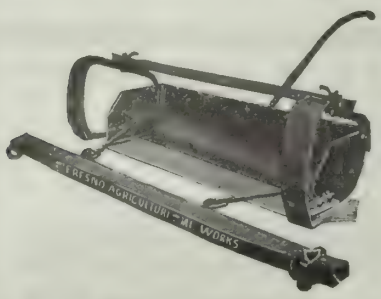
Seaweed is used for fertilizer in some other parts of the world, but usually the grass is first burned, and only the ashes are put on the land. It St. Pierre, however, the weed gathered on the rocky shores is spread broadcast in its natural state. Newfoundland dogs, which are largely used as beasts of burden here, are factors in this work of gathering and distributing seaweed. The faithful creatures can often be seen struggling up the hills, drawing heavily loaded carts.

Seaweed is very plentiful, especially after storms, when it is found in great quantities on the beach. The fertilizing power of seaweed is evidenced by the odor which begins to arise as soon as the plant starts to decay, becoming more pronounced and unmistakable as the decomposition advances. This odor leaves no doubt of the presence of quantities of animal matter in the seaweed. Cabbages, celery and lettuce thrive in this sea fertilizer. Potatoes, however, do not seem to do so well. Beets and certain kinds or varieties of peas also yield satisfactorily.

DISKING ALFALFA IN CALIFORNIA.

Mr. A. A. Dexter writes from the Imperial valley country to Hoard's Dairyman in this way: I send you today, under another cover, a sample of alfalfa pulled from the garden here on the desert that never had any water on it till December 20, 1908. I have 20 acres sowed March 22, 1908, cut four times last year, pastured during winter. Cut March 1, 1909, and averaged about 1200 pounds to the acre; Cut April 23, and averaged about a ton to the acre. We pasture some the year round, disc in the fall; but in new fields cut as soon as tall enough, as it grows faster from wounds than otherwise. The disc or sharp harrow tears it up so that it spreads and increases fast, and the leaves keep the land fertilized so it does not need resowing unless to kill weeds and grasses.

The Fresno Scraper



Send for Raisin Machinery Catalogue.

FRESNO AGRICULTURAL WORKS

FRESNO CALIFORNIA.

Put Up 145 Acres Heavy Hay in Seven Days

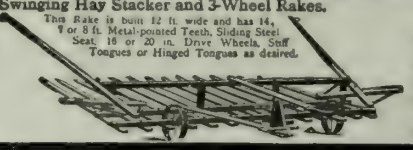
The Horse Swings the Load as He Raises it, which makes the Fleming the Only Automatic Swinging Stacker Made.

Will Build a Stack 20 Feet Wide by 50 Feet Long, 25 to 30 Feet High.

Made in 3 Sizes.



Field view from photo on D. R. Love's farm, Falmouth, Ill., with Fleming Automatic Swinging Hay Stacker and 3-Wheel Rakes.



This Rake is built 12 ft. wide and has 14, 7 or 8 ft. Metal-pointed Teeth, Sliding Steel Seat, 16 or 20 in. Drive Wheels, Stiff Tongues or Hinged Tongues as desired.

In order to introduce our machines to every hay raiser we will sell direct from Factory to user a limited number of machines at prices to suit you. Write for circular.

Manufactured by

FLEMING & SONS MFG. CO., Huntsville, Mo.

WE SEED FORTY ACRES TO ALFALFA ON OUR

California Improved Farms

In the Sacramento Valley near Arbuckle, California

We are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. We offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land.

THE IMPROVEMENTS INCLUDE

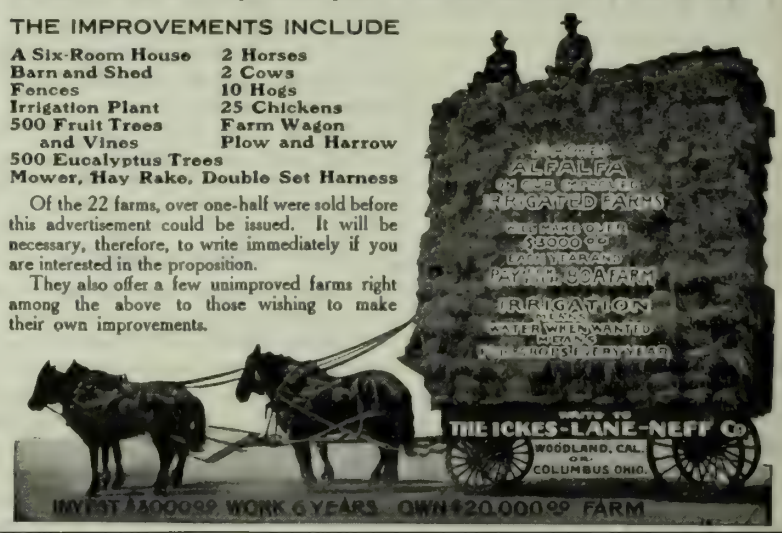
A Six-Room House	2 Horses
Barn and Shed	2 Cows
Fences	10 Hogs
Irrigation Plant	25 Chickens
500 Fruit Trees and Vines	Farm Wagon
	Plow and Harrow

500 Eucalyptus Trees

Mower, Hay Rake, Double Set Harness

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.



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AND
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CATALOGUE MAKERS
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WHERE THE POLAND CHINA CAME FROM.

Mr. H, C. Dawson, who is described as having bred hogs ever since the time of David Magie's work in the Miamo valley, Ohio, gives the Nebraska Farmer an account of the building up of the Poland Chinas which may be news to some of the younger breeders of this State:

In different sections of America we find today species of hogs, as the Mexican Mule-Footed and Peccaries in the South, and a few of the old wild hogs on to the north part. These, no doubt, are descendants of the away-away back kind, but the first real hogs undoubtedly came with our first settlers (at least, it is hard to believe that the Irishman didn't bring his pig). Our first record of a shipment was made by the Duke of Bedford to George Washington in the 1760's, but were shipwrecked on the New England coast, and their progeny became known as the Bedfordshire hogs.

Moving westward with the settlement of the country, these hogs soon were predominating in the great corn-producing valleys of Ohio. This breed was a very large, coarse, sunfish-shaped animal of not over-large bones, but good travelers, going then in droves many miles to slaughter. They were in color sandy and spotted, some black and white, and a few very striped, with big flopping ears, and not quick to mature or fatten.

As times changed, a more profitable hog was demanded, and in this period the Irish Grazier, The Russian, The Byfield, The Leicestershire, The Old Style Berkshire, and Tamworth hogs—all very similar in type—commenced to show up, and the importations of the Essex, The Neapolitan Berk, Siamese, and Chinese hogs.

The Bershire then was a big, coarse, lop-eared hog, of black, white and spotted, sometimes sandy and entirely red in color, and a very good hog for this period. With the many breeders then contending, crossing and recrossing, commenced the parting of the ways that has finally culminated in the many distinctive breeds of today.

The Improved Berkshire of today in the main traces back through crosses of the Essex, the Neapolitan Berk, and the Black Hog of Spain to his old namesake, the Old English Berkshire.

Just how the Poland comes, no one man can tell, but through the Byfield, the Leicestershire, the Siamese, the Chinese, the Warren County, the Butler County, and other similar breeds, he reaches the old Bedfordshire. Many old-time breeders differ as to the infusion of Berkshire blood. But in Dave Magie's and Milliken's time I have shown some very black pigs in contest with some very black pigs of like parentage, but I believe that since the days of record no breeder has overstepped in this respect.

How the Poland China got his name is mostly conjecture. But the fashion then was to call hogs by the names of those who raised them, and a Polander by name of Asher raised and sold many to hogmen far and near, and in time they became known as "The Polander Hogs," and with the later infusion of the Chinese blood, eventually were coupled up with the present Poland China appellation.

Due credit must be given to all breeders, old and new, for the wonderful improvement of this breed. Being of so many discordant types—not unlike the mixture that makes us the great nation—all blended into one, they have made themselves the wonder of hogdom, and no higher compliment can now be paid any breed than to say, "They are as good as Poland Chinas."

Notwithstanding all this, today it takes the best educated men, more care in mating, and personal supervision of the hog business, than ever before to perpetuate and improve the present high standard; also to realize a profit, a most essential feature. Knowing that the hog is so easily blended, it would not seem impossible to go swiftly backward with certain crosses to the old original types, which would be a very unprofitable hog for the present day demands. The true course is onward. Produce something that is better, something that will bring more dollare with the least expense, something to be proud of—a hog of perfection—and whoever produces a great individual or accomplishes good results should be given due credit by all breeders. The question of type comes here. The environment of this Western country has necessitated advance in size as well as quality and finish. Another hundred pounds or so to the hog, and another pig to the litter, is surely an advancement, when the same amount of quality is retained in the individual, and the stronger he is bred along these lines the better. One bad out-cross will take years to mend.

INDIVIDUALITY IN HORSES.

Probably everyone who has to do with horses notices what seem to be striking mental differences, and will sympathize with the protest from a writer in the Breeders' Gazette who says that someone recently claimed in his hearing that "the horse is the stupidest of brutes." I am willing to admit, he says, that there is occasionally a lunkhead among horses, just as there is infrequently a dunce among men, but horses as a class are not stupid. I sold a work horse not very long ago because he was too smart. He was young, sound, true to pull, pleasant to work, and a good looker. Everybody on the farm liked him. The man who worked him regularly was in love with him, loved him as a boy loves his dog. He was very intelligent, but, like some smart boys, when he was idle his intelligence was devoted to getting into mischief. He could open the barn doors; he could slip the wire that held the gate; he made a practice of teasing one of our older family horses when they were loose together in the pasture, until the women folks as well as the old horse were thoroughly exasperated. If a gate was found open, or a pile of posts pushed over; or if a crib door swung ajar, we instantly credited it to Ike. And Ike was only six years old when we sold him.

Squire was sold at three years of age for practically the same reason. He was a beautiful saddle colt, broken to ride and drive, gentle as a kitten, and just as mischievously playful. He was a colt that by careful handling would have developed into a trustworthy, absolutely dependable woman's driver and saddler, but I was afraid to keep him. Other demands were taking me away from home much of the time, and I felt certain that if I left Squire in the hands of the boys and hired men they would some day be careless with him, he would never forget how he obtained the advantage of them, and I would have a tricky horse on my hands. So I let him go. He is one of the sort of horses which when impatient to get started home will dange until the driver takes the whip out of the socket. He has enough sense and self-control to stand still so long as the driver holds the whip. I know all about him; he is still owned in our neighborhood, and is recognized as an exceedingly smart horse.

I will grant that some horses are lacking in intelligence, just as quickly as I will grant that men are not all equally smart. The intelligence of horses runs to as many different specialties almost as in men. Now Matty, for instance, is dull. We raised her from colthood and therefore know her. Matty does not possess enough sense to be a first-rate plow horse. She never has learned anything, and probably never will. She submits to the harness without rebellion and goes along all right with another horse. Her team mate, Old Frank, is as smart a horse as Ike was, but he is lazy and therefore does not make trouble. By using Old Frank and Matty together as a team we persuade him to furnish brains for both.

Matty is a dullard, but another mare, sold years ago, born here on our farm and used so long by the family that her name is linked with the history of our home and farm, comes to mind. Her name was Sprite and we used her for years and years with Sultan, which (like Frank and Matty) furnished brains for the pair. Sprite was shallow, weak-minded, had no character. Matty, though stupid, has sufficient character to make it possible for her to get mad; Sprite had not even enough character to get mad. Sultan, however, is as genuine a character as any village oddity. He was foaled my property 22 years ago. Sultan in his old age is cranky and easily alarmed. We cannot trust him as we used to do. In his prime he was one of the most sagacious and trustworthy animals I have known. Talk about horses not being intelligent; what do you name the quality that induced Sultan, when pulling a cart loaded with small children, to wait until they were safely settled before starting? Many times have I seen the old horse stop inside the front gate on returning from town with a squad of hilarious youngsters. Over his shoulder he would watch the gate being shut; watch the child who shut the gate crawl up the wheel and clamber over into the cart; wait till every little body was adjusted, and then start.

If Sultan does not possess intelligence, what makes him stop on a hill and hold the buggy with his haunches, as he has done so many times, when, thanks to the hitching of thoughtless children or careless men, the breeching comes loose? Why, unless he can think intelligently, will be stand while the whip is used on him under such circumstances? Repeatedly the women or children have used the whip to make him go on, discovering the disar-

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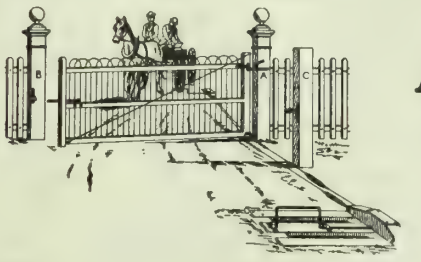
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ranged harness only after his refusal to move convinced them that something was wrong.

UNIVERSITY OF CALIFORNIA EDUCATIONAL BUTTER SCORING CONTEST.

Report of third entry, scored June 11, 1909, at the University Farm, Davis, California, submitted by HERBERT A. HOPPER.

Interest in the contest seems to be growing, as more entries have been received this time than at any previous contest. The exact number is uncertain, as we have method-blanks for one or two entries that have not yet arrived. In general, the butter came in good condition, and, with a few exceptions, was well packed. Several persist in sending entries in odd-shaped packages, when the size specified could as easily be made. Consequently their butter is at a disadvantage. One package that came is especially worthy of mention. The container was a second-hand fish tub, simply washed out and lined with one layer of parchment paper. In view of the general appreciation that butter readily takes up strong odors that it comes in contact with, this incident is the more remarkable. To say that this entry was "fishy" expresses it mildly. We are glad to note greater care in filling out method blanks, as this is a great help in making criticisms.

Reference is made in this report to "whole-milk" creameries. As will be seen by the appended statement, only three whole-milk creameries appear, and one of these receives some gathered cream. The competition is really between gathered-cream creameries. The entry from one whole-milk plant had not been received at the time of preparing this report.

The quality of the butter, all lots considered, averages poorer than at the April contest, though several excellent entries were examined. The reasons for this decline are obvious to all creamery men. The method blanks show, in some cases, that too high temperatures were used for churning and washing. Butter makers must exercise their wits to devise means to hold the temperature down these warm months. Oily and old cream flavors were common in the lower-scoring entries.

As concerns starters, there is encouragement. At least 17 out of 27 entries were made by their use. The amount varied from 8 to 50%, with an average of 16. The number of contestants employing starters in their work seems to be on the increase. The butter that scored highest was made from 32% cream, one day old, ripened to .5% acidity and cooled to 50° F. Ten per cent of starter was used. The three highest scores went to butter made from cream ripened with starter. Those using artificial culture will do well to secure some for it from their nearest supply house. An order for a starter can, if it is properly used, will go a long way toward improving the quality of future entries. Individual letters of criticism will be sent to each contestant. All California creamery men not already competing, who desire to enter the next contest, which will come in August, should address the undersigned in time to receive instructions.

The list of creameries scoring 90 or above, as placed by Mr. Mitchel and members of the dairy department, is as follows:

Name of Creamery.	Score.
Colusa Butter Co., Colusa	95
Castroville Creamery Co., Castroville	94½
Gridley Creamery, Gridley	94
Pozzi Creamery, Meridian	93½
Western Yolo Creamery, Winters	93½
University Farm Creamery*	93
San Pasqual Creamery, Escondido	93
Homestead Creamery Co., Nicaso†	93
Elite Creamery, Nicaso†	92¾
Edence Creamery, Petaluma	92¾
Tulare Co-Op. Creamery, Tulare	92
Orland Creamery, Orland	92
Crystal Cream & B. Co., Sacramento	92
Hicks Valley Creamery, Hicks Valley	91¾
Salinas Creamery, Salinas	91½
Rose City Creamery, Chico	91½
Ceres Creamery, Ceres	91½
Suisun Creamery, Suisun	91½
Laton Co-Op. Creamery, Laton	91½
United Creameries, Arcata	90½

*Not competing. †Whole milk.

BREWERS' BY-PRODUCTS AS DAIRY FEED.

Denver is now in a turmoil over the old question: "May brewers' grains be fed to milch cows?" Dr. G. H. Glover of the Colorado Agricultural College gives this review of the points involved:

Brewers' swill is composed principally of from 75 to 90% of water, and the balance is mostly protein, fiber, and nitrogen-free-extract. Brewers' malt is often dried, and in this condition it makes a food that will keep for a long time, and make a very good feed. Again, if fed when fresh, as a part ration, it makes a good feed, and is in no way injurious. The objections to it may be summarized as follows:

First.—It increases the quantity of milk at the expense of quality.

Second.—During the hot weather this food will ferment in 48 hours, and it then becomes unwholesome.

Third.—In brewers' malt flies breed faster than in almost any other material. Wherever there is brewers' malt there are always hordes of flies.

Fourth.—Brewers' swill being cheaper than other foods, there is always the temptation to feed too much of it.

Fifth.—It must be kept in perfectly water-tight tanks, and unless it is all fed out and the tank washed clean every two days, the place will become unclean and harbor germ life, as well as maggots, flies, etc.

Sixth.—Most large cities prohibit the use of brewers' grains as feed for milch cows, purely on the basis that its use always leads to the abuse of it.

Seventh.—The hauling of the malt through the streets is of itself a public nuisance. The approach of such a wagon is always heralded by a swarm of flies and wherever this product is unloaded there the flies remain.

Eighth.—Cows largely fed on brewers' swill become unhealthy, and their milk, of course, objectionable.

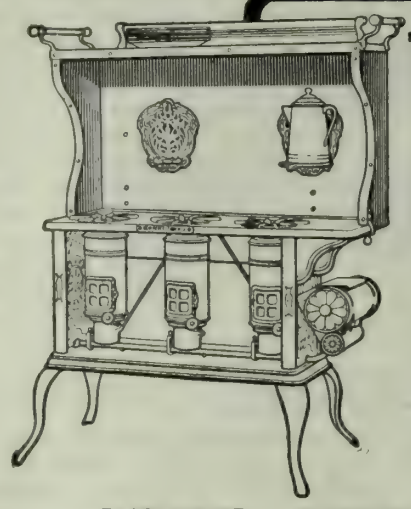
Ninth.—No city can afford to pay inspectors enough to regulate the feeding of this product.

From the brewers' standpoint, it is desirable, of course, to have a profitable market for this refuse material. From a sanitary standpoint, it is objectionable in every way you look at it. The sale of brewers' malt, brewers' swill, or brewers' grains is almost impossible of satisfactory regulation, and therefore should be prohibited.

CAPTAIN TAYLOR IN HIS NEW HOME.

Many Californians know Capt. Murray F. Taylor, once of San Simeon, in San Luis Obispo county, California, and before that of Kern county. Captain Taylor is now a resident of Virginia, and was lately visited by Mr. Joseph E. Wing of the Breeders' Gazette, who gives this note of him:

"Fall Hill, the home now of Captain Taylor, overlooks the quaint old village of Fredericksburg. The way up to the house lies along a curving road between apple trees and through a clover meadow. At the top a fine old house, the ancestral home of the Captain's people for many generations. Great trees overshadow the home; flowers and blooming shrubs embower it. The Captain looks hale and hearty, though he says he sometimes misses California's suns. We saw the alfalfa first. It is good alfalfa. The land is warm, naturally well drained, and has been limed. It now needs phosphorus, I should say, to make a maximum California crop, but it was so healthy and vigorous that it gave one good courage just to see it. It is sure that this land will grow alfalfa as well as will California, only, unlike California, it needs liming and enriching. But the market is so much better that the Virginian has the advantage, after all. It is a good land, a land to make homes in."



The Oil Stove With a CABINET TOP

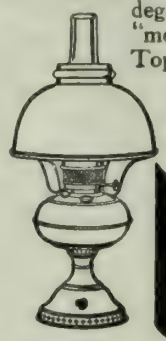
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REDUCING STOCK GROWERS' ENEMIES IN OREGON.

Oregon's new scalp bounty law is in force now, says the Pacific Homestead. The bounty on varmints is $1.50; for lynx, bobcat or wildcat, $2; for gray of black wolf pup, $2.50; for mountain lion, panther or cougar, $10, and for gray or black wolf, $15. Two affidavits are necessary before this bounty can be collected. One affidavit must be made by the hunter, who must appear in person before the county clerk and swear that he killed the animal within the preceding six months; that they were killed in the county where the bounty is claimed; that they were not whelped in captivity; and that they were not brought from any other county or State. The second affidavit must be by a resident taxpayer, stating that he is personally acquainted with the person who seeks the bounty, and that he believes the statements set forth in the first affidavit are true. There is one more point to be covered in the original affidavit, and that is, the hunter must swear the animals were not killed prior to February 1, 1909. This clause is to prevent payment for animals killed before the scalp bill was introduced in the Legislature. Instead of having the scalp with the ears attached as evidence, the law now demands the entire hide, including scalp, for coyotes and wolves, and all four feet of wildcats, mountain lions and other beasts. The county clerk is to sever the scalp or two front feet, according to the kind of animal, and return the rest of the pelt to the hunter. This makes it impossible to cash the same hide more than once.

WHAT STOCK DO YOU CARE MOST FOR?

Is not this touching? It was written by a South Dakota farmer to the Country Life Commission:

"Late last fall on my way home from town, two little boys were herding sheep in the stubble. There was a bitter cold wind, and their clothing was none too warm. When I got near them they came toward me and asked me the time of day. I told them, and the smaller one, with trembling lips said, 'Mister, I wish there weren't any sheep.' Here were two boys whose love for the farm was ebbing very fast. They were about 8 and 10 years old, and should have been in school. How often when the boys come home from school and ask for a piece of bread they are told to shut in the hogs first or go to a neighbor's and get the calves. I don't think I am overstating it when I say that 25% of the live stock of the country are raised at the expense of the health, education and happiness of our school children. I have a neighbor whose love for lots of stock broke up his whole family. Every fall he would buy a hundred or more stockers and feed several cars of steers. He had five boys six years ago. Today he is alone and can't tell you where his boys are. They don't care enough for home to write. Can you blame them?"

FLIES IN DAIRIES.

"Screen your dairies against flies," is the warning which has been sent out to the dairymen who send milk to the District of Columbia, by Health Officer W. C. Woodward.

Concerning the screening of dairies, the letter says:

"The Department considers that under the above section all dairy rooms are required to be effectually screened against flies. Flies, whose habits cause them to visit places where filth abounds, such as manure piles and other accumulations of refuse, are known to carry not only small particles of refuse or filth on their bodies and legs, but also to carry other contaminating matter, such as germs which cause disease. Thus by excluding the flies from your dairy, you remove a source of contamination by dirt and disease germs, both of which are liable to alter unnecessarily the quality of your milk.

"This letter is a warning and a notice to you to screen effectually all openings into your dairy room, including windows, doors, cracks and all other apertures, on or before May 15, 1909. Failure to comply with this notice will render your permit voidable, or, if you are operating under an application, will render it liable to rejection."

ALFALFA IN MEXICO.

To the Editor: I have about 100 acres of raw river bottom land which has just been cleared of mesquite, which I wish to plant to alfalfa. The land is a mixture of several soils—black and red sand, silt and adobe. Surface water is from 5 to 15 feet from the surface, according to distance from the river. Can be irrigated. Rainy season here is from July to October. I will plow and cross-plow and harrow and plant about the middle of August. The rainfall averages about 23 inches, mostly in thunder storms in the months named. Much less humidity here than in California (of which I am a native), with possible exception of Colorado Desert or Death Valley. Do you approve of my method? Do you think 20 pounds of seed sufficient per acre? Is there any other book that treats of the semi-arid growing of alfalfa that would meet the conditions here, other than Coburn's? Is Utah grown seed considered the best? Is mesquite a legume?—Subscriber, Mexico.

Your soil should carry alfalfa, and your method of putting in to get a stand by rainfall is good, so far as we can judge without knowing anything more about the conditions than you describe. The amount of seed is a good average. There is no alfalfa book better than Coburn's, and he takes due account of semi-arid conditions. Utah seed formerly had the call because the fields were clean, but they have been careless about it lately. As good seed can be had in California, because our growers have taken the opposite track and have been taking greater care. Your mesquite is a legume; a grass which sometimes goes under that name in this State is not.

ALFALFA WITH BERMUDA AND JOHNSON.

Referring to the interesting note about his experience with alfalfa and morning glory which Mr. Everts gave on page 433 of our issue of June 5, there comes an account of what a Mississippi farmer has achieved with alfalfa on Bermuda and Johnson grass sods. He says: I plowed up Bermuda and Johnson grass sod in January, February and March, 1908, disked my ground seven times and harrowed twice with a harrow. A perfect seedbed resulted. I sowed 11 pounds of alfalfa seed per acre and horrowed it twice more with a common harrow. I sowed the alfalfa the middle of April and cut it July 1. Some alfalfa stalks were 34 inches high; the field would average two feet. I had plenty of Johnson grass with the alfalfa, and it is fine hay. I cut the alfalfa again the middle of August, and cut more stalks 34 inches high, and any amount 30 inches high. Then our rains let up, and the next crop was not more than 8 inches high. After that the stock of the country was turned out, and there were from 50 to 75 horses and mules on it constantly, besides cattle and hogs, and there were only 12 acres of alfalfa in the piece. New Year's Day saw my fence completed and free pasture at an end. I got my first crop in April, and will get five more cuttings after that, besides pasture the rest of the year. From that part of it which has been covered with manure I expect something very interesting indeed. This same piece of ground has grown at least fifty successive crops of cotton, but for the last 10 years has been covered with Johnson and Bermuda grass. These grasses intrude in cotton fields and run the cotton out. Alfalfa grows equally well by itself or with either or both Johnson and Bermuda grass.

This agrees with Fresno experience, reported some time ago by Mr. John S. Dore and others.

DID HE GET A JOB?

A boy, shabbily dressed, applied to the foreman of a sheep farm one day for work. The foreman looked him over and inquired what he could do.

"Oh, I don't know much about farm work, but I used to be a good runner at college, and I can run some."

"Well, go over on that hillside and run those sheep into the yard, and then we'll see what we can do for you."

The boy was gone for a long time, but finally returned to the foreman.

"Did you get them all in?"

"The sheep were no trouble, but the lambs took most of the time, but I got them in, too."

"Lambs, lambs! Why, there aren't any lambs; you must be crazy."

The foreman put on his hat and went to the corral and found two rabbits. He looked at the boy, who said:

"I told you I could run some."

Apiculture.

ABOUT CALIFORNIA HONEY.

Mr. M. H. Mendleson, a well known California beekeeper, gives an interesting note about California honey handling to Gleanings in Bee Culture which should be widely read in this State. He writes:

If we are successful this year in producing honey, would it not be well for us to consider thorough ripening of the honey, so that it will be thick and ropy beyond criticism. Well ripened California honey has no equal as to keeping qualities or flavor; but it must be mellow and thick. You can not afford to take any further chance on the good reputation of our honey. I do hope our large producers will take this advice into serious consideration, for the future sales and prices will depend on quality. Thin, souring honey will lessen our sales, while the well ripened article, free from specks, will increase the amount consumed and advance prices.

Some of our large buyers came to me recently, requesting me to mention the importance of skimming all honey thoroughly before drawing it off into cans, and saying that it should not be drawn too close, as this results in many of the "specks" getting into the cans.

The producer who regards the quality can command prices, and will always find ready sales; while one who pays little attention to quality and is indifferent in regard to the grading rules, may find much of his honey rejected by the carload.

We should be careful also to grade our honey. Each extracting and each tankful from each apiary should be lettered and numbered. I have my apiaries lettered, and each extracting of uniform grade numbered. For instance, my home apiary is lettered E; the initial letter of the apiary, and the first extracting is, therefore, E1; the second, E2, etc. All of the shipping cases are lettered and numbered on the lid. In this way there is but little chance of mixing the grades.

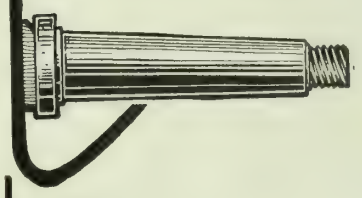
Cases of extracted honey should never be piled more than three tiers high in a car, and I prefer but two tiers. If there are more than three tiers the danger is greater on account of the rough switching.

One horse is as good as two when



MICA AXLE GREASE

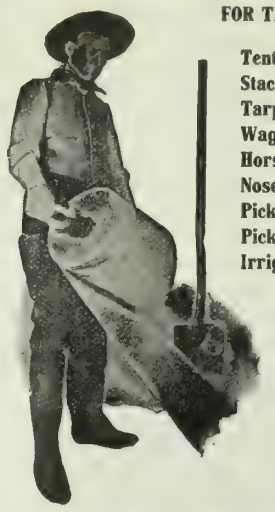
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LOS ANGELES

The Poultry Yard.

IN THE SUMMER TIME.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

With the summer time come complaints from the poultry yard. Certain diseases, while not peculiar to the season, take on an aggravated form during the hot weather. Summer troubles may be grouped under the following heads:

Lice and mites.
General debility.
Diarrhea and cholera.
Roup and chicken pox.

LICE AND MITES.—Without unremitting attention, vermin are always there or thereabout in the poultry quarters. They increase rapidly with the coming of warm weather, and reach the high-water mark in August, at which time the poultry keeper must run them out, or they will run him out of the business.

TREATMENT FOR LICE.—Lice live upon the bodies of the poultry, and treatment for them must be applied to the fowl. Adult poultry in good condition, if supplied with mellow damp soil, will free themselves of lice. Young chickens and debilitated fowls will not. Dip a large sponge in a pan of coal oil or distillate; squeeze it dry. With this wipe the head, neck, legs and under the wings; then dust buhach through the feathers; put plenty under the wings, through the feathers about the neck and the fluff; hold the wings down meantime to keep the powder in. When the roots of the feathers are covered with buhach, wrap a sack tightly about the fowl for several minutes; after which it will not matter if the bird shake itself.

TREATMENT FOR MITES.—Mites are poultry bedbugs. They nest and breed in the sleeping quarters and nests of the fowls, and swarm over them at night or, when hens are sitting, in the daytime. Though these pests prefer to lie low in the daytime, and usually leave the fowls by morning, when they become very thick in a poultry house many of them will remain on the fowls and harass them both day and night. Unlike body lice, powders have no effect upon them, neither do the fumes of sulphur. Boiling hot liquids, coal oil, carbolic sprays, etc., must be used. Right here let me say that, while they much prefer filth to cleanliness, even cleanliness in itself will not keep them hence, and as for dust, which some fancy is hurtful to them, they will bed in even lime dust. In the early days of my poultry keeping I made the mistake of thinking that cleanliness and lime dust were all that are necessary to be exempt from their company. It takes something stronger than these where they have once got a foothold. The quickest and most effective treatment in bad cases is crude petroleum applied to the inside of the house. It should be thinned to the consistency of paint with coal oil, or the fuel oil, prepared for burning in engines, should be used. Use a wide paint brush—the petroleum will not injure the brush, but softens and preserves it—and paint thickly the entire inside, tearing off all loose strips and filling all cracks with the petroleum. When complete, tack strips of sacking along the sides of the walls where the fowls are likely to rub against, and at the ends of the perches, to protect their plumage. Now sprinkle the floor with air-slaked lime and throw in two or three buckets of hot water; then with a stubby broom scrub this mixture of lime, petroleum and hot water into all the floor cracks. It will form a kind of whitewash and finish any mites that happen to be promenading over the floor. As far as the house per se is concerned, your work is done for the season; the mites, young and old and in embryo, are defunct and buried. The petroleum does not dry for months, and there is no getting over it or around it for the mite. Even if one has escaped in some deep crack, he can't get out. Of course, before beginning the house you have taken out all perches, nests, etc., and made a bonfire of all the trash in and about the house, together with the old nesting. If the nest boxes are of little worth, better burn them with the rest; but if of account, soak them with cheap coal oil (the distillate may be had for from 8 to 10 cents per gallon), or with hot brine or lye. Treat the peaches and other fixtures in the same manner. Crude petroleum cannot be used for any of these as it remains sticky for a long while and wil lsoil the plumage of the fowls and the caretaker's hands and clothes. After treating the inside of the house and the fixtures, give the outside, together with fences, posts, etc., a thorough whitewashing with hot wash containing plenty of salt. The very next day, go over the perches and nests again with an application of coal oil, for there are sure to be a few insects left over. Treat the perches and nests every day for a week, and afterward once a week; keep the nests clean and supplied with clean dry filling, and the yards clean and mellow, with a bathing spot where the soil is slightly dampened. We will insure any person against lice, mites and fleas who faithfully follows the above treatment.

Poultry Notes.

POULTRY AT THE STATE FAIR.—Cash poultry prizes to the amount of over $3000 will be awarded on merit at the State Fair to be held at Sacramento, August 28 to September 4, 1909. Secretary Kavanaugh says: "We want to make the Poultry Department this year a feature of the Fair, and if fanciers can be made to see it aright, we shall have the best collection of birds ever gathered in the State."

Entries close August 21, 1909.

THE GOOSE IS INTELLIGENT AND AFFECTIONATE.—An educator of the trained domestic fowls and animals of the circus says: "A goose is absolutely the most intelligent of the feathered tribe, and the most affectionate. Chickens, ducks and turkeys never show affection, but my goose follows me everywhere, and is actually lonely when I leave him. It takes about a week to teach a hen to march around after me; a duck will learn to go around in about three days, and a goose will get used to the noise and lights and people in less than two days, and he never forgets what he learns; then the goose has some comedy in him. Pigs learn readily enough, but their consarned perversity is what upsets the whole thing. I don't think a pig has any affection. He is smart enough; a pig six weeks old will learn a trick in half the time required by a puppy of the same age."

Questions and Answers.

THE MEAN LITTLE CHIGGER.—J. W. McC., of San Jose, writer: "A few questions, please. Can you recommend a machine to cut alfalfa hay short enough for chickens?

"Has anyone made and used chicken houses of iron throughout, so that about once in three months or oftener, straw may be put in, and chiggers, lice, etc., burned up? Also are there nests made of wire, so that they can be burned out as often as infested with vermin? It is too bad to be outdone by a thing as little and mean as a chigger or chicken louse. Can you help a fellow?"

From the tenor of our inquirer's note, we judge that he has had a bout with his small adversaries and been worsted. There is one attribute which he might copy to advantage from the "mean little chigger" and use in his warfare against it—persistence. The poultryman, usually on finding the premises taken over by the enemy, jumps in, cleans up, sprays, whitewashes, etc., and then feels that he has earned a rest, and proceeds to take it. Not so with the persistent mite, a scattering remnant of which will be left even in the most thorough treatment. He gathers himself together and works overtime, and presto! a few weeks finds him swarming and in complete possession of the clean premises—and the astounded poultryman calls for help and an iron house!

Give the "chigger" the treatment recommended on this page and you will down him. Many poultry keepers use the five-gallon oil can for nests. The writer does not fancy them; but there are certainly no cracks for vermin to hide in, and our inquirer could touch a match to the straw and convert the nest into a crematory on short notice.

A good clover cutter, obtainable at any large hardware store or poultry supply store, you will find all right for cutting the green alfalfa hay.

GREAT SPEED OF A PIGEON.

A speed of more than 2300 yards a minute for 71 miles has been attained by a homing pigeon belonging to Mrs. R. Swarbrick Roebuck, in the Northwest Lancashire Federation race from Stafford.—London Standard.



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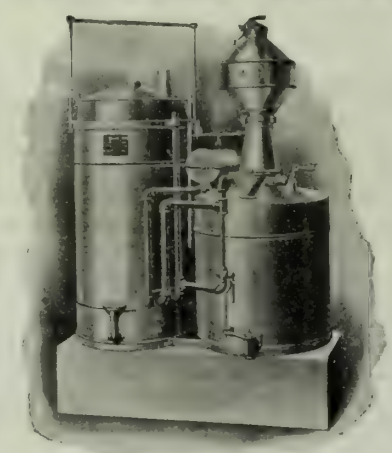
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The Home Circle.

The Children's Plea.

Give us light amid our darkness;
  Let us know the good from ill;
Scorn us not for all our blindness;
Love us, lead us, show us kindness—
  You can make us what you will.

We are willing, we are ready;
  We would learn if you would teach;
We have hearts that yearn toward duty,
We have minds alive to beauty;
  Souls that any heights can reach.

Raise us by your Christian knowledge;
  Consecrate to man our powers;
Let us take our proper station,
We the rising generation,
  Let us stamp the age as ours!

We shall be what you will make us;
  Make us wise and make us good;
Make us strong for time of trial;
Teach us temperance, self-denial,
  Patience, kindness, fortitude!

Look into our childish faces;
  See you not our willing hearts?
Only love us, only lead us,
Only let us know you need us,
  And we all will do our parts.

—*Mary Howett.*

Pets for the Children.

The normal child has an inborn love for pets. It is a wholesome affection and should be encouraged; yet how often it is disregarded, even frowned on. Love, it has been said, flows downward. The love of the little ones for their pets, things even smaller and more helpless than themselves, has the added quality of tenderness and protective care—the better part of love. Many of the small tragedies of childhood has to do with the loss of its pets. That simple poem in the old school reader, "The Sale of the Pet Lamb," has brought tears of sympathy to many childish eyes. That tragedy came of bitter necessity, but how often it comes to little hearts through the indifference, the blindness of parents! The cultivation of affection in the child-nature tends to kindliness and loyalty. Children who love their pets sincerely and have been taught to care for them faithfully will be more devoted as sons and daughters, more tender and true in all the relations of life.

It is worth the while of parents not only to allow their children to keep pets, but to interest themselves in directing the selection and care of them, so that the children may get the most pleasure and the pets shall not suffer at their hands. To permit a child to neglect or misuse such helpless creatures is nothing short of wicked, and it has a hardening effect upon the plastic nature of the child. Again, parents should respect the property rights of the child as sacredly as those of a grown-up.

As children grow older, especially boys, they must see something in it before they will devote much time to pets. By proper direction and encouragement these larger children can easily make their spending money in this way, and at the same time be learning valuable lessons in that most important science of life—getting a livelihood. In the selection of pets it is well to choose some of the small or ornamental breeds among the poultry, and the pure Belgian hare instead of the common rabbit. With proper care these may be made quite profitable, and the young folks will feel more interest in them and may be encouraged to read up and try to learn about them.

Care of Bunnies.—Perhaps there is nothing which so appeals to the small boy or girl as a bunny; it is soft and harmless and invites coddling. The Belgian hare is very prolific, does well in small quarters, and requires little care other than keeping its hutch clean and dry, and providing it with hay, grain, vegetables, just about as you would feed a sheep. If given plenty of clover or alfalfa hay, hares require little else. Green succulent feed must be fed with caution, as they are very apt to overeat and injure themselves. Dry feed is the best for them. A box some two feet high, three feet wide, and four feet long is roomy enough for the buck or doe. They should be kept separate; also the young of different ages must be separated. The doe will need a box in her huch for her litter. This should be about 15 by 20 inches in size and four inches high, with a lid to the top so that it may be readily removed for cleaning. On one side have a five-inch opening. Give bunny plenty of clean straw for her nest, and keep the nest and the hutch clean and dry always. When the young are about four weeks old they are ready to wean, and should be taken to a hutch of their own. The doe may be bred in two weeks after having her young. These hares commence to breed at about six months of age, and produce on an average six litters a year, with six youngsters at a litter. Sometimes this number runs up to 12 young at a litter. A pair of these bunnies will afford the children pleasure and profit if the elders will take an interest in having them properly housed and cared for. When kept in a clean and healthy condition their meat is as sweet and delicate as chicken or turkey, and in demand during the cool months or game season. If pedigreed stock, there will always be a sale for the best specimens in the litters for breeding purposes and at a good figure. Then the children can learn to know the "points" in their pets, and to strive for prizes at the annual shows; all of which will prove highly educative as well as pleasurable.

A Pen of Bantams.—A piano box or large drygoods box will make a house for a bunch of these. It should be battened tight, with tight roof and floor, and one side be left partly open, and protected with inch-mesh wire; the house should be set up a foot or more from the ground. In the town or city their runs should be entirely inclosed, as these little birds can fly "over the moon," and cats are often very destructive to them. They require the same care as other fowls. These little hens are good layers and mothers, and always a source of interest to children, and grown-ups as well. Then there are the Polish breeds, which, together with the Houdans, seem almost too ornamental for every-day use, but are, in fact, among the most profitable as layers of nice white eggs. All these crested birds require well protected runs as well as good houses, and the same general care required by all fowls. Even the common biddies, when they are the children's very own, and no one else has a "say" about them or their eggs and chicks, may be dearly loved by the young folks, and lots of pleasure to them.

On the farm there are many more things which the children can have as pets—lambs and kids, calves and colts. Give the children pets. Encourage them to love and care for them, and home will be the dearer to them.

"I suppose you will do a little gardening this year?"

"No," answered Sirius Barker. "I tried it once. It made me so sympathetic with the people who raise things to eat that I stood for any overcharge the huckster chose to suggest."—Washington Star.

He was making his arrangements to spend the summer at a farmhouse. "What have you in the way of scenery?" he asked. "There's nothin' in the way but a couple o' mountains," replied the farmer. "If it wasn't fur them you could see scenery clear to the county seat."—Philadelphia Record.

"What is conscience?"

"A thing that we always believe ought to bother the other fellow."

Helps and Hints for the Home.

House Pests.—The housefly neither stings nor bites, yet he is proved to be the most dangerous pest that insists upon sharing our "bed and board." His ill-mannerly conduct might be borne with equanimity if he were at all nice about himself, but he wallows in filth and covers himself with typhoid germs and others, then takes a bath in our teacup, trails through our pudding sauce and walks over us generally. He is especially baleful to children. The little ones are likely to be sweet, literally as well as figuratively, and the deadly fly delights in gluing himself to their tempting lips.

This pest is termed the "typhoid fly" by Dr. Howard, chief of the Bureau of Entomology. In a recent bulletin he assures us that the apparently harmless housefly spreads typhoid germs by the wholesale and that deaths without number may be attributed to him, particularly among children from intestinal diseases. Surely every city, village and rural district should work together to exterminate this pest. When it is considered that our Government has eradicated both the fly and the mosquito from the face of the Isthmus of Panama, there would seem no cause but indifference for our being tormented by these filthy death-dealing insects. The housewife and mother, at least, should feel it a point of duty as well as nicety to keep the house free from flies, and particularly the dining room, pantry, kitchen and storeroom. This is really not so difficult. It requires thoughtfulness, care—and screens! The latter are not expensive. Wire screening may be bought by the yard, and the entire window of kitchen, pantry and storeroom covered from the outside. Home-made screens may be produced at little cost with this wire; even mosquito netting may be used, and will last one season at a cost of almost nothing.

The fly breeds in manure piles; its habitat the stable, the barnyard, the stockyard, etc. The rural dwellers are the worse sufferers from this pest. Plainly, it is up to the men folks on ranch and farm to join against the common enemy. Stock fall off in flesh and milk during the fly season, and suffer generally from the pestiferous fly. Perhaps the veterinarians have got on the wrong scent and the alleged unwholesomeness of country milk is due not so much to tuberculosis as to flies. Clean up the stable, barnyard and stock pens, dust them with lime, and sprinkle cheap coal oil or distillate over the manure piles. The fly must go; death to the fly!

The ant is noted for industry and wisdom and has none of the dangerous attributes of the fly; still it is regarded with even more disfavor by the housewife. Strong alum water made by dissolving a pound of alum in a quart of water and applying while very hot with a brush to every crack and place where these insects enter or gather, will stop their raids. Instead of setting the legs of pantry tables and safes in cans of oil or water, as many do, simply tack a strip of woolen cloth or flannel around the legs and dampen with coal oil. Once a week is often enough to apply the oil; this will be found a neat and effective method. A New York entomologist suggests the cultivation of the house centipede as an exterminator of the household pests. True, the centipede is capable of a vicious sting, but it is not especially dangerous—and then there's always something!

Cover the Food.—Another point to which the attention of the housewife should be drawn is in taking extra care as the hot weather advances in the covering of food. In many nice households, dishes of half used food, jelly, butter, milk, etc., will be set away uncovered, the impression prevailing that this is best in the closed and screened pantry. Every article of food should be covered until it is served. Milk and butter should be covered with a clean white cloth kept damp with brine. The doctor says: Milk and butter take up every odor flying in the air and are positively harmful to take in the stomach after standing uncovered for an hour or two, for not odors alone, but the animalculae that fill the air are attracted to milk and butter. Uncovered jelly is a menace to family health. It is a gelatine jelly in which bacteriologists imprison germs of disease to watch them propogate. They seem to thrive better on that kind of food than any other; naturally it has an attraction for all such.

Rather Pay Than Serve.

Australians still tell stories of the C. I. V.'s although the war is a far memory. One, a member of the Stock Exchange, was left one wet and miserable night to guard a wagonload of goods.

He shivered in the unsheltered place for some hours pondering many things, and then a bright thought struck him just as the Colonel came around on his tour of inspection.

"Colonel," he asked, "how much is this wagon worth?"

"I don't know," was the answer. "Much or little, we can't afford to loose it."

"Well, but Colonel," persisted the amateur soldier, "you might give me a rough idea of the value."

"About £200," said the Colonel testily.

"Very well," was the answer, "I will come down to the camp and give you a check for the amount. Then I'll turn in. I wouldn't catch my death of cold for twice that much."

What the Colonel said is not recorded.—MelbourneTimes.

"So your boy Josh is workin' up to town?"

"Yep," answered Farmer Corntossel.

"Ever go up to see him?"

"Nope. After all them funerals he's got off to attend on days the home team played, it wouldn't do fur any of his relatives to show up alive."—Washington Star.

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Lectures are given by professors from the University of California, and a course of study for High School graduates and for young women who have left school is also offered.

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San Francisco Business College
733 Fillmore St., San Francisco, Cal.

THE MARKETS.

San Francisco, June 16, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The wheat market in San Francisco is practically at a standstill and there is not much movement at any of the coast points. Offerings are extremely light and very firmly held at the prices formerly quoted, and buyers are taking no active interest under present conditions.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling	2.20	
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	@2.20

BARLEY.

The barley market shows increasing weakness, with more or less decline in prices, and the arrivals have been quite liberal. Feed is about the only item to show any activity, as brewing and shipping interests are holding off for a complete adjustment of prices. Grain to arrive later in the month is selling somewhat below the spot quotation and July barley is still lower.

Brewing	Nominal	
Shipping	Nominal	
Chevalier	$1.70	@1.72½
Good to Choice Feed, per ctl.	1.45	@1.46¼
Common Feed	1.42½	@1.45
New Feed, June delivery	1.42½	@1.45

OATS.

Red oats are inclined to easiness, as offerings of stock to arrive are being made considerably below the range of spot prices. The spot offerings, however, are still light and closely held, and the prices are pretty well maintained, though there are no transactions of any consequence.

White, per ctl.	$2.15	@2.20
Gray	2.10	@2.15
Red, choice	2.10	@2.20
Common	2.00	@2.05
Red, to arrive	1.75	@1.85
Black	Nominal	

CORN.

All prices are more or less nominal, as buyers are taking no interest in the market, though some grain is offered from time to time. Holders are asking a slight advance on all western grades, but California and Egyptian varieties are unchanged.

California Small Yellow	$1.85
California Large Yellow	1.87½
Western State Yellow, bulk.	1.82
Mixed, in bulk	1.80
White, in bulk	1.85
Egyptian White	1.90

RYE.

This grain is entirely cleaned up in the local market, and in the absence of business no quotations can be given.

Rye	Nominal

BEANS.

The bean market in general remains very firm, with a fair inquiry for all varieties, though slightly lower prices are quoted on red kidneys, blackeyes and gravanzos. There has been quite a liberal shipping movement in pink beans recently, under the stimulus of the lower freight rate, and it is believed that the supply is decreasing rapidly. The price on this variety is accordingly very firm, and dealers look for an advance. White beans are becoming extremely scare, and the movement is expected to be over in the near future. Small whites show a further advance. There is also a possibility of an advance in limas, as there is a fair inquiry and the stock is running low.

Bayos, per ctl.	$5.35	@5.50
Blackeyes	3.25	@3.50
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.40	@6.60
Large Whites	5.25	@5.50
Limas	4.15	@4.25
Pea	6.25	@6.50
Pink	3.15	@3.25
Red	Nominal	
Red Kidneys	3.25	@3.50

SEEDS.

There is practically no movement in this market at this time of year and prices are almost entirely nominal, though dealers are naming the same figures as before.

Alfalfa, per lb.	18 c
Broomcorn Seed, per ton	$20.00@ 25.00
Brown Mustard, per lb.	3¾ @ 4¼c
Canary	4 c
Flaxseed	4 c
Hemp	4¼c
Millet	2¾c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

The coast milling interests show no disposition to make any further advance in prices as long as wheat is obtainable at the present quotations, though the values now prevailing are strongly maintained. Trade is confined to rather narrow limits, as the larger consuming interests and jobbers are buying only for immediate requirements.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

The arrivals of the last week, an especially of the last few days, have been much heavier than before, the total exceeding that of last week by about 1000 tons. As a result the market here has been very easy, especially on the cheaper grades of hay, which are in large supply. The majority of the present arrivals are still new wild oat, barley and stock hay, with very little choice new wheat or tame oat. The wild oat hay is of good quality and is giving general satisfaction, comparing favorably with the higher grades. Some local dealers predict a heavy business in it this year. The outlook in this market is not very encouraging. Reports from nearly all districts indicate a much heavier crop than was expected, and the crop of many districts must be marketed before the rains. Old hay is practically out of the market.

Choice Wheat, per ton	$19.00	@20.00
Other Grades Wheat	14.00	@19.00
Wheat and Oat	15.00	@18.00
Tame Oat	15.00	@18.00
Barley	11.50	@14.50
Wild Oat	11.00	@14.00
Alfalfa	10.00	@12.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

Feedstuffs show comparatively little feature at present, as the demand on most lines is rather light, and there is a general tendency to easiness. Bran, shorts and middlings show no change. Bran is fairly plentiful for present conditions, with liberal arrivals from the north. Rolled barley is lower again, corresponding to the decline in the new grain, and lower prices are also given for mixed feeds and rolled oats.

Alfalfa Meal, or mealfalfa, per ton	$23.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	33.00	@35.00
Mixed Feeds	25.00	@30.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	31.50	@33.00
Shorts	31.00	@32.00

VEGETABLES.

Australian onions are no longer much of a feature in the market. New local stock is becoming plentiful, new yellows being offered at moderate prices, and Bermudas are nominal. Summer vegetables in general are in good demand, but the supply is excessive in some lines, causing a general downward tendency. Asparagus is well maintained, as the surplus is taken by the canneries, but rhubarb is lower. Local tomatoes are arriving in fair quantities, but the quality is poor and prices are low. The supply of cucumbers is also excessive, and the price of summer squash is much lower. Green peas and beans are quite plentiful, with some reduction in price. Corn is lower, with liberal arrivals from the Winters district.

Onions, new red, per sack	50	@ 60c
New Yellow, per sack	75c	@$1.00
New Green Onions, per box	35	@ 50c
Garlic, per lb.	4	@ 5c
Green Peas, per sack	$ 1.00	@ 1.75
String Beans, per lb.	3¼	@ 4½c
Cabbage, per ctl.		1.25
Tomatoes, per box	50c	@ 1.00
Green Peppers, per lb	10	@ 20c
Green Corn, per doz	25	@ 35c
Asparagus, extra choice, box	1.50	@ 2.00
Asparagus, common to choice.	1.00	@ 1.25
Rhubarb, per box	1.00	@ 1.50
Turnips, per sack		1.50
Summer Squash, per box	75c	@ 1.00
Cucumbers, per box	65	@ 75c
Egg Plant, per lb.	10	@12½c

POULTRY.

The market shows comparatively little change, prices being steadily maintained at the figures formerly quoted. The arrivals of Eastern stock this week are about normal, though California poultry is arriving more freely. The local demand is hardly as active as it was a few days ago, and there is accordingly an easier feeling, with the possibility of a decline in the near future.

Broilers	$ 3.50	@ 4.50
Small Broilers	2.50	@ 3.00
Fryers	5.50	@ 6.50
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	5.00	@ 5.50
Old Roosters	4.00	@ 5.00
Young Roosters	8.00	@ 9.00
Young Roosters, full grown	9.00	@10.00
Pigeons	1.00	@ 1.50
Squabs	1.50	@ 2.00
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50

BUTTER.

Extra butter advanced half a cent several days ago, but the feeling since then has been one of easiness, though the price is still maintained on the Exchange. The arrivals have been considerably above the needs of this market, and with no shipping demand of any consequence the surplus hase been moving into storage. Some dealers on the street are quoting prices below those of the Exchange, and a general decline is looked for this week.

California (extras), per lb	26½c
Firsts	25½c
Seconds	25 c

EGGS.

Extras are quoted a little higher, the price being maintained for several days without change, though a slight decline has taken place in the lower grades. The arrivals have been quite liberal for some time, and most dealers are carrying a surplus, while the consuming demand is nothing extra. The tendency of prices is accordingly rather easy.

California (extras), per doz	26 c
Firsts	25 c
Seconds	23 c
Thirds	21 c

CHEESE.

Oregon Y. A.'s are now offering at ½ cent below local stock. There has been quite a scarcity of this description, causing an advance to 20 cents per pound early in the week, but the quotation has gone back to a normal figure. Flats are featureless, with supply and demand about equal.

Fancy California Flats, per lb.	14 c
Firsts	13½c
New Young Americas, fancy	16½c
Oreon Young Americas	16 c

POTATOES.

All descriptions are now coming in rather freely and old stock is no longer in much demand. All quotations are accordingly lower, a sharp reduction being quoted in Oregon stock. New potatoes are very plentiful, and while they are in good demand the price has taken a decided drop.

River Whites, per ctl.	$ 1.60	@ 1.75
Oregon Burbanks, per ctl.	1.75	@ 2.00
Sweet Potatoes, per ctl.		2.00
New Potatoes, per ctl.	1.00	@ 1.75

FRESH FRUITS.

Nutmeg melons are still rather scarce, and with a good demand bring better prices than last week. Strawberries are also fairly firm, particularly Longsworths, but all other varieties of berries are becoming quite plentiful and show more or less decline. Several varieties are now moving freely to the canneries, as the stocks cannot be moved in the local consuming trade. Prices on fruits are also generally lower, cherries being extremely plentiful. New apples are lower, but old stock is dull at former prices. Figs are higher, as the arrivals are still light. Apricots are arriving freely and are offered at low prices, though good packed lots move off freely. Peaches are also lower and meet with little demand, as there is not much choice fruit offering. Good prices are received for attractive lots of plums, but general offerings receive little attention. Pears are also neglected.

Melons, Nutmeg, per standard crate	$ 4.00	@ 5.00
Raspberries, per chest	4.00	@ 6.00
Gooseberries, per lb.	4	@ 7c
Currants, per chest	5.00	@ 7.00
Loganberries, per chest	2.00	@ 3.00
Blackberries, per chest	4.00	@ 6.00
Strawberries—		
Longworths, per chest	7.00	@ 9.00
Large verieties	3.50	@ 4.50
Cherries—		
Black, per lb.	3	@ 5c
Royal Anns	3	@ 5c
White	2	@ 3c
Apples, per box	1.00	@ 1.50
Figs, per box	1.50	@ 2.25
Apricots, per box	50	@ 65c
Apples, new green, per box	35	@ 50c
Peaches, per box	50	@ 75c
Plums, per box	40	@ 65c
Pears, per lug box	2.00	@ 2.25

CITRUS FRUITS.

Arrivals of citrus fruits continue liberal, though with deciduous lines plentiful and cheap little attention is paid to them. Navel oranges are unchanged and Valencias are a little lower. Grape fruit is higher. There is nothing new in lemons and limes, which are moving about as usual.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.00
Standard	1.00	@ 1.25
Limes	4.50	@ 5.00
Oranges—		
Navels	1.50	@ 2.50
Valencias		2.50
Grape Fruit	2.50	@ 3.00

DRIED FRUITS.

Spot prices are unchanged, and most lines are still very quiet, several being practically nominal. There is little activity in prunes in this market, but there are receiving considerably more interest in the East, owing partly to the recent advance in apples. The stock there is said to be fairly well cleaned up, though the small sizes have been moved at low prices. Peaches are dull all round, with little inquiry for new crop offerings. Buyers are also holding off in regard to new prunes, as they are counting on lower prices than the growers are willing to accept. New apricots, however, are beginning to move freely at prices within the range quoted, though sales have been made a little above the usual spot value at present. There is little movement of spot raisins, but the outlook for next season is improving. Spot sales are being made at 2 to 2½ cents, sweatbox, and there seems to be some possibility of obtaining 3 cents for new crop, though local packers are not willing to offer that price at present.

Evaporated Apples	7¾	@ 8¼c
Figs, black	4	c
Figs, white	4	c
Apricots	7½	@11 c
Peaches	3½	@ 4 c
Prunes, 4-size basis	2⅛	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$ 1.00

NUTS.

This market shows little feature, as walnuts are still dull, with the prospects of more or less stock being held over, and almonds are about out of the market. The new crop in some districts is very short and prices are expected to remain rather high.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Arrivals are considerably larger than last week, but prices are still rather unsettled, dealers as a rule holding for the prices last quoted, at which there has been a fair movement. Some decline is expected, however, as soon as the immediate needs of the trade are satisfied.

White Comb, per lb.	12	@15 c
Amber Comb, per lb.	10	@12 c
White, extracted	6	@ 8 c
Old, candied		4 c

HOPS.

Spot hops are practically nominal, the old crop being mostly cleaned up. The market shows decided firmness, and reports indicate a shortage in all markets. The Oregon crop is decidedly short, and buyers have been actively in the market for the new crop, causing a further advance in contract prices. A large proportion of the local crop was contracted earlier in the season, and growers who will have free stock to offer expect to realize high prices.

Hops, Old, per lb.	6	@10 c
New Crop	10	@14 c

WOOL.

There is little change in this market, as most of the spring clip has been taken out of growers' hands. Prices remain firm, and shipments of the California clip are going forward rapidly.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

The meat and live stock market shows a general tendency to easiness, as the supplies have been liberal for some time. Dressed beef is a little lower, and there is a slight decline in live steers. Lambs are also lower again. Prices are maintained on hogs, as the arrivals are light, but with very little demand the market has no strength.

Beef: Steers, per lb.	6½	@ 7¼c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal: Large	6½	@ 8½c
Small	8½	@ 9 c
Mutton: Wethers	7	@ 8 c
Ewes	6	@ 7 c
Lambs	8½	@ 9½c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers: No. 1	3¾	@ 4¼c
No. 2	3½	@ 3¾c
Cows and Heifers: No. 1	3¼	@ 3½c
No. 2		3 c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½	@ 4 c
Sheep: Wethers		4½c
Ewes	3¾	@ 4 c
Lambs	4¾	@ 5 c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾	@ 7 c
Common Hogs, lb	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., June 15.—The citrus market is looking up a bit and the best grades of navels are bringing very fine prices indeed, prices that are on par with anything received last year at this time for the same brands. The ordinary brands of commercial pack are also higher, while the poor stock that is weak and shrunken is even lower that it has been; it is simply not wanted.

As usual, the New York market was the highest of the seven on Monday. The Cerrito, packed by L. V. W. Brown of Highgrove, was the top-notcher, with a price of $3.70, and several other high-grade brands sold at over $3 per box. The average for orchard run grades of the ordinary stock was about $2.50, and this is the best price that has obtained for over a month. Philadelphia and some of the Western markets showed low prices on navels, and the average all through would probably be less than $2.40 per box, meaning $1.40 cash per box at this end, which is 15 to 20 cents a box higher than prices received during May.

A few Valencias are appearing at the auctions and prices range from $2.65 to $3.25, the latter price being the value set upon them by the jobber who is trying to buy for cash at this end. There are still some sales being made at $2 per box f. o. b., and still more at less money. A few cars have been sold at $1.80 spot cash, and until the Valencias gets into its stride the price will hover between the figures given, $1.80 to $2 per box.

Growers are complaining that the drop from their navel trees this year has been excessive, and that they fear a short crop for next year. The four days of very hot weather were responsible for this drop, the heat coming earlier than common and catching the button oranges before they had had time to get a good hold. It is a fact that the drop has been heavier than common.

Lemons continue to sell low, yet the shipments are heavy, which implies that the shippers are afraid to hold and are willing to take chances on getting a margin of profit, however small, rather than to throw them away. The man who wants lemons can certainly get suited at some price, for they can be bought at from 50 cents to $2.50 per box for immediate shipment, very fair stock being offered at from $1.75 to $2 per box.

Deciduous Market Report.

By T. C. TUCKER.

Sacramento, Cal., June 4.—The market on cherries has declined the past week, which is due to the poor condition of the fruit on arrival. The supply has decreased materially—in fact, only small shipments will be made this week.

Alexander peaches have been in good demand, as well as Clyman plums. The shipments of Alexanders decreased very noticeable the latter part of last week, and there will be a lull in peach shipments until other varieties come in freely.

Royal cots have sold exceptionally well, the general average being close to $2.00. Shipments of cots from the Vacaville and Winters section will decrease somewhat, as the crop is light.

The following is the range of prices in the auction markets July 11:

Chicago—Black Oregons, $1.10 to $1.30; Royal Anns, 45c. to $1.35; Tartarians, 70c. to $1.45; Alexanders, 85c. to $1.35; Bings, $1.55 to $2.15; Royal Cots, $1.85 to $2.05.

New York—Tartarians, $1.00 to $2.10; Royal Anns, $1.10 to $2.10; Biggereau, $1.10 to $1.85; Alexanders, 75c. to $1.50; Royal cots, $1.10 to $2.85; Clymans, $1.60 to $2.50.

Boston—Tartarians, 85c. to $1.45; Biggereau, 95c. to $1.35.

On June 8 the following buying prices were established at Newcastle: Alexander peaches, 50c.; Triumph peaches, 60c.; Clymans plums, 60c.; Red June, 75c.; Newcastle cots, 65c.; Royal cots, 75c.; Royal Anns, 90c.; Black Oregons, $1.00.

The quotations to the Eastern trade are as follows: Cherries, $1.15; apricots, 90c.; Alexanders, 75c.; plums, 90c. Prices are f.o.b. California.

Prison Bags in Washington.

The prison bag question is one of much interest in the State of Washington, as is shown by this dispatch from Tacoma. The State Board of Control has determined to make penitentiary grain sacks a live competitor of coolie-made foreign sacks, which are sold throughout the grain districts each summer by San Francisco importers. To this end correspondence has been started with representatives of prominent jute firms of Calcutta. The Board will follow the market carefully to purchase, if possible, raw material at the bottom of the market. A new plan of making delivered prices for bags identical at any station in the State, instead of the old policy of making a flat price at Walla Walla, will be consistently followed.

Indications now are that every bag of prison product will be promptly disposed of better than before, and that a similar ready sale will follow when the new and enlarged mill is in service later in the year. Late this summer the Board of Control will be in the market for a large quantity of jute from which to manufacture next year's supply of bags.

It is likely that different weights of bags will also be turned out in future, as farmers find that cheaper and poorer foreign bags stretch more than prison sacks and thus contain more grain.

Packing With Ferns.

It has recently been discovered that the leaves of the fern plant, which grows almost anywhere, is an excellent preservative for packing articles of food, fruit and even meat. It is said that on the Isle of Man fresh herrings are packed in ferns and arrive on the market in as fresh a condition as when they were shipped. A number of experiments have demonstrated that potatoes packed in ferns keep many months longer than those packed in straw. In fact, potatoes packed in fern leaves are as fresh in the springtime as when they were first dug in the fall.

Farmers as Employers.

The following paragraph by Mr. Falconer in the Rural New Yorker is worthy of careful study: Broadly speaking, there is no more willing and reasonable employer than the farmer. If he has the reputation of exacting much work for low wages, it is because the necessities of his calling—the large and constant expenses, the great drains in the way of disproportionate taxation, and the small margin of average profit on his operations—have in the past allowed him little alternative. The modern farmer is of all employers least anxious to exploit the needs of his helpers. He wishes to give fair return for satisfactory service rather than to enrich himself at the expense of others. Agriculture is of all occupations the most complicated and difficult. The truly successful farmer is only so because of superior energy, intelligence and the shrewdness that combines habitual economy with sufficient daring to undertake well-considered ventures. The employment of labor in the face of tne tricky markets in which the farmer must dispose of his products, and the unfair prices he is compelled to pay for the bulk of his supplies and transportation, is such a venture. He is willing and anxious to make it whenever circumstances appear to warrant. It is likely that the season of 1908 will far exceed that of former years in farm development in the more congested Eastern States. Idle land will be put in crop and farm improvements, long held up on account of the cost and scarcity of labor, will be undertaken. At the same time farm employes worthy of the name will probably gain more consideration and receive better compensation for their actual hours of labor than before. Substantial progress is likely to be made in the way of placing farm labor on a more business-like footing than before.

Ate a Chick With Big Eyes.

A trainman is telling an incident that occurred on a Mohawk & Malone train up in the woods the other day. The train was standing on a siding, waiting the arrival and passing of another train, when an Italian walked through the coach, his hands crossed on his stomach, and his head wagging from side to side in a doleful manner.

"What's the matter, John?" someone inquired.

"Oh, me sick—me sick as dev," replied the man, rolling his head still more distressingly and continuing the rubbing of his stomach.

"Sick? Well, what you been eating?" asked the sympathetic passenger.

"Eata de chick with the big eyes," responded John, as his groans increased.

John had killed an owl the night before, and it didn't agree with him.

Every Dish at a Banquet Made of Potatoes.

One of the most remarkable menus ever drawn up must have been that of the feast to which Franklin, Lavoisier and other distinguished men sat down as guests of Parmentier. Every dish at this banquet was made of potatoes, and even the brandy and liqueurs were the product of the same vegetable.

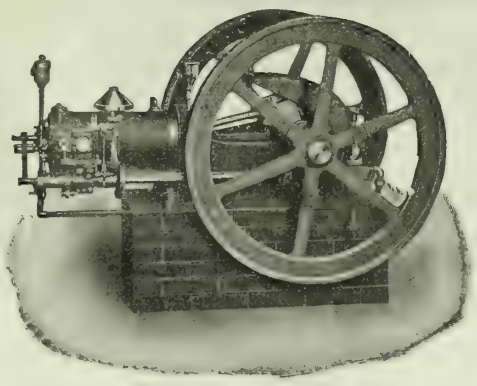
This was Parmentier's final proof to his skeptical fellow-countrymen that potatoes were not poison, as they persisted in believing. Louis XVI himself was one of Parmentier's earliest converts, and did not disdain to wear the potato flower as a boutonniere. Then Parmentier cleverly posted guards around his potato fields by day and withdrew them by night, so that people were tempted to come then, steal, eat and be convinced. The all-potato banquet was the climax of the great campaign.—London Chronicle.

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Provincial medical men have made and are making considerable use of pigeons in connection with their practice. They will take with them a basket of pigeons in their motor cars. After visiting the patients the necessary prescription is written out and forwarded home by pigeon post; the dispenser at once makes up the prescription, and practically before the physician has finished his rounds, and long before he has reached home again, the boy in buttons starts off to deliver the bottles of medicine in his bicycle car. In many provincial districts it is of course useless to write out prescriptions to be sent to the local chemist, for the nearest is often some miles away.—Tit-Bits.

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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

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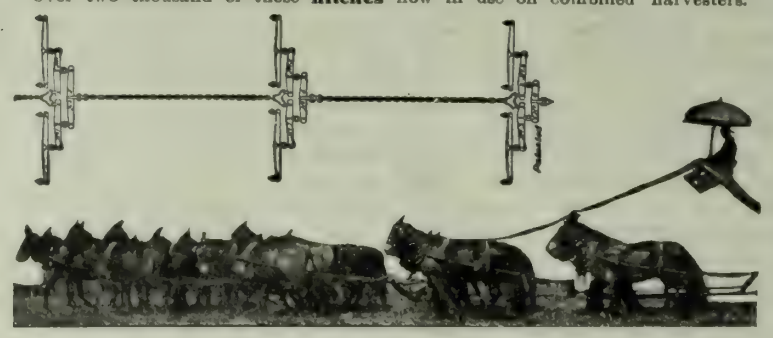
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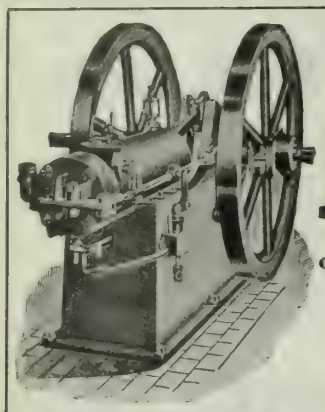
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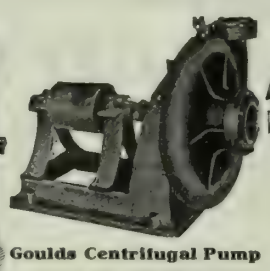


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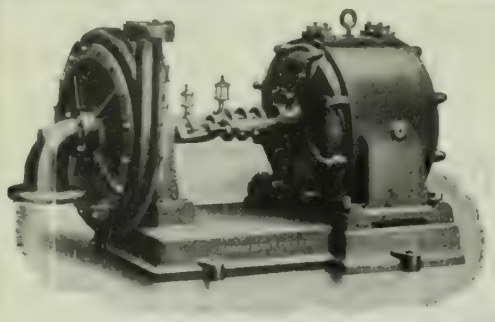
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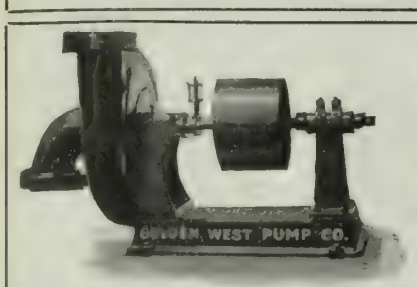
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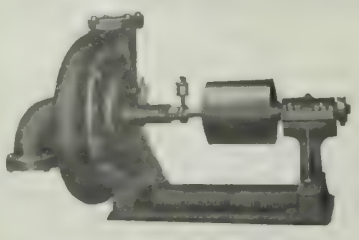
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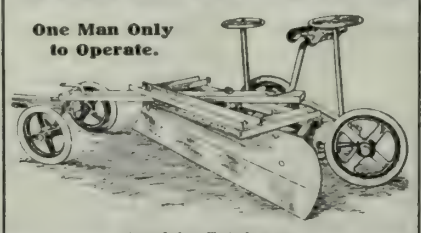
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVII. No. 26. SAN FRANCISCO, SATURDAY, JUNE 26, 1909. Thirty-ninth Year.

How to Build and Operate a Good Fruit Evaporator.

Writen for the PACIFIC RURAL PRESS by Mr. L. W. PARSONS of Campbell.

A fruit drying chamber capable of holding about two tons is about as large as one heater can well handle.

Wire trays two feet wide by five feet long are as large as one strong man can conveniently hanrde; he might prefer them shorter; in fact, if the smaller tray would give a drier with sufficient capacity to meet the demands of the owner, he could make the trays two by four feet, with a narrower furnace, to correspond. Where two men are always available, trays three by six feet have been found to work well.

A drier five feet wide and twenty-four feet long, having ten trays in its length and twelve trays high, holds 120 trays 2 by 5 feet, or a total drying surface of 1200 square feet, which at the rate of 3 pounds per foot give a total of 3600 pounds at one time: that is, it would take that much gross weight of fruit before cutting to fill the trays. Large fruit would amount to more, and small fruit or culls might not go above two pounds to the foot.

By making the drier one or two trays longer and higher, and a foot or so wider, the capacity may be materially increased. But if much more capacity is desired, it would be better to build another drier, or several of them, alongside of it, which would work satisfactorily.

The fruit drying chamber rests on top of the hot air chamber, which is surrounded by brick or cement walls about eight inches thick, and is as long and wide as the fruit chamber above. The height of these walls depends on the size and shape of the heater enclosed by them. The furnace is a very important factor: it must be strong, not easily burned out, smoke-tight in all its its joints and flues, with caps or covers so placed to facilitate cleaning out soot and ashes. There must be room between the sides of the furnace and the side walls to allow for circulation of the air to be heated.

Fresh air enters this hot air chamber through openings about a foot square at the bottom in front between the furnace and the side walls; passes along on the sides and top of furnace and flues until it reaches the back end of the hot air chamber, where it passes up through an opening into the fruit chamber above.

The next, and perhaps the most critical, part in the construction, is the sheet iron floor which covers the furnace and flues and separates them from the fruit chamber above. This iron floor is made of either black or galvanized iron, not thinner than No. 24; thicker would be better. It rests on rods or bars of angle or T iron stretched from wall to wall, with ends built into the walls. These rods are spaced about two feet apart. The sheets of iron should be riveted or bolted together. The edges of this iron floor should project into and be imbedded in the brick walls in front and along the two side walls as far back as the floor goes to the other end of the drier. Cover this floor with an inch or so of sand or fine earth, so as to stop up all cracks. At the back end of drier this iron floor is cut short one foot, allowing an opening of one by about five feet to allow the hot air from the heater below the iron floor to pass up into the fruit chamber above. This floor must be made tight everywhere, so no hot air can possibly leak upward and scorch the fruit or the woodwork above.

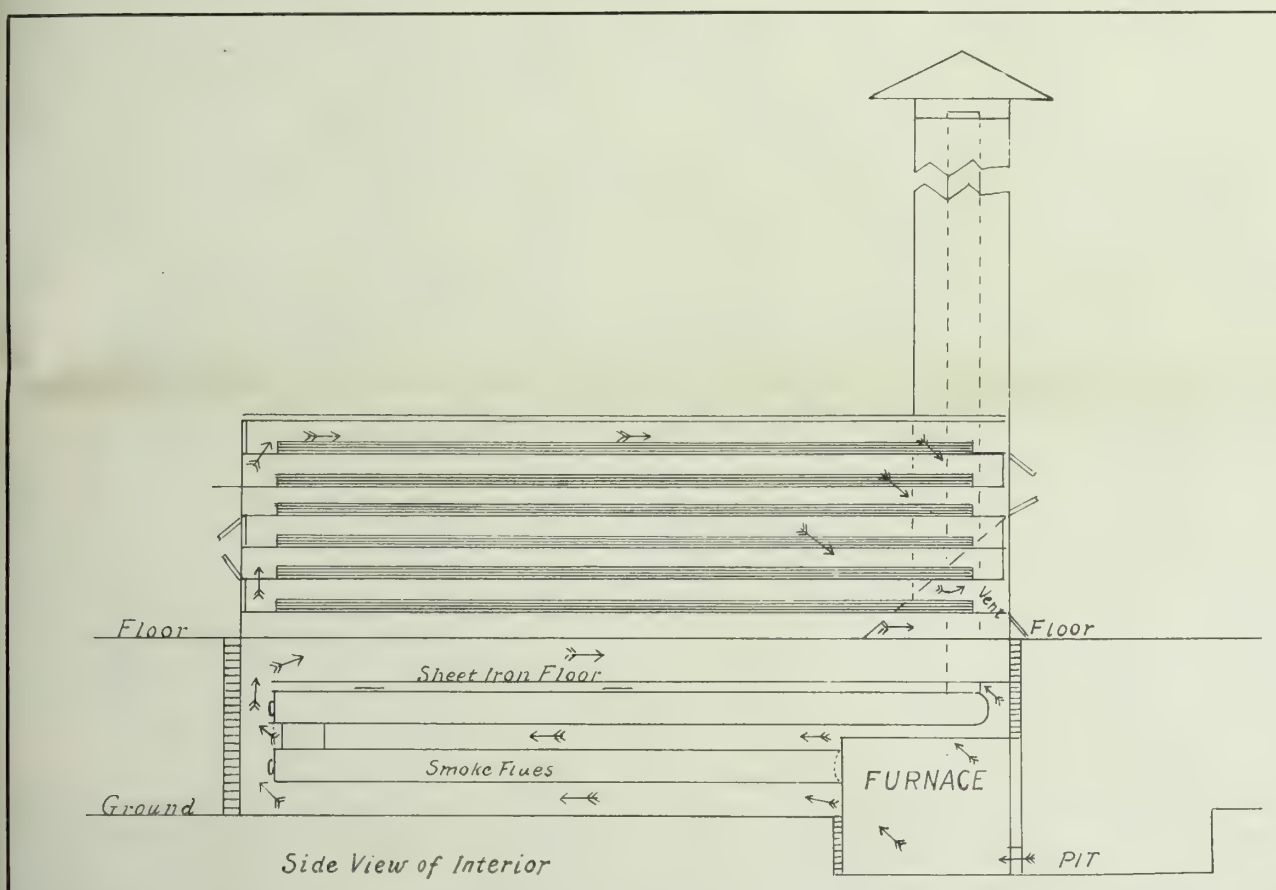
The brick walls should be built about eighteen inches above the iron floor, so that the wooden frame which rests on top will be safe from burning.

The furnace may be about four feet high by three feet wide, with an ash pit in the bottom part, and six or eight or more feet long. This will handle four-foot cordwood conveniently and make a liberal combustion chamber for the flames. It may be a cylinder or shaped like a boiler, or have brick walls, with a cast iron arch on top. Or it may be a big wrought iron box made of quarter-inch boiler iron, braced with angle iron to prevent warping.

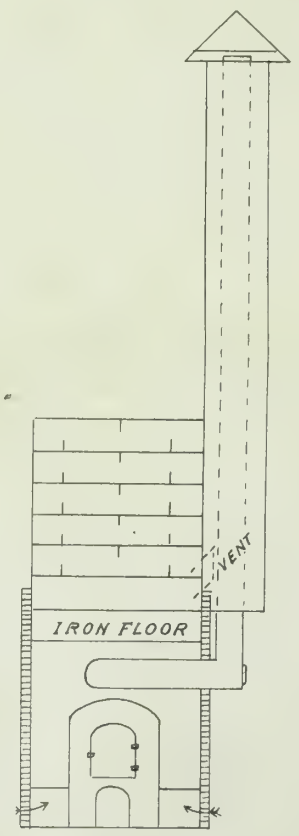
Smoke pipe one foot in diameter connects with the back end of the furnace, passes horizontally to near the back end of the drier, then by a short elbow doubles back, coming to the front over the top of the furnace, and then, by an elbow, to right or left through the side brick wall to connect with the pipe inside of the ventilator shaft or flue.

If the furnace is four feet high and the pipe above it one foot thick, allow six inches space

(*Continued on Page 476.*)



Sectional View of Drier Showing Heating Arrangements, Trays of Fruit and Movements of Air, Etc.



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The Week.

The most notable incident of the week, from an interior point of view, is that this issue of the PACIFIC RURAL PRESS completes Volume Seventy-Seven, and indicates that the journal has finished thirty-eight and one-half years of uninterrupted existence, because it began in 1870, and had no time to lose to be 38½ years old at this date. The PACIFIC RURAL PRESS has never had, fortunately, any periods of suspended animation, and has never, in fact, lost a single issue, except the one which was burned up just as it was ready to print, on April 18, 1906. These are proper things to be thankful for, and to be even more thankful for the experience with the volume which is now closing. Probably not for a couple of decades has the RURAL kept its printers so busy as during the last six months. The page number, as may be seen upon the last page of this issue, is 484, which is 12½% above normal, as 416 pages is the amount for which the publisher has an implied contract with his patrons. In other words, the publisher has given the equivalent of four and a quarter issues above his contract as his thanks for the increased patronage which has been granted him. He has had much reason to think that the quality has been considered good, so it is not too much to claim that he has made a substantial contribution to the entertainment and edification of readers, and has set up a bigger and more varied show—all for a single price of admission, as the showmen say. It is true, of course, that the editor has had 12½% more fun, just as the readers have, and has enjoyed the increased chances to get at them, as is shown by the index of the volume, which has flown back from its usual perch on the last page, as the increased numbers of titles have required more space. From all points of view, the closing volume has been widely pleasant and profitable, and perhaps the best thing about it is that the realization of the present is but a token of what the future will bring forth. The California people seem to enjoy a journal with a buoyant California spirit, and yet free from exaggeration in statement or inflation in anticipation. They like facts which are richly suggestive, rather than dreams which are apt to dupe and disappoint. They do not desire to argue illogically from premises which are undetermined, and it is such a course which the PACIFIC RURAL PRESS keeps as far away from as it can. The editor thoroughly enjoys the support of readers along such a line of effort, which he tries to follow, and therefore feels strong and confident for the future, which may be like the present but more abundant.

The question of machine evaporation in California is an old one. Machines have never been long or largely used because the sun has heat and the face of the earth is swept by currents of dry air so that fruit dried naturally and only protected from agencies at enmity with beauty and wholesomeness, is superlatively fine and capable of vast production. But while this is true, there has always been safety in having recourse to closed evaporation, and sometimes certain duration of atmospheric conditions which restrict solar evaporation. For these reasons we have undertaken some expense to set before our readers clearly a form of simple design and construction for machine evaporation, which anyone who desires has a right to construct for his own use, and thus add considerably to the equipment of his fruit growing enterprise. The designer of the drier, which is described and illustrated in this week's issue, Mr. Parsons of Campbell, has given the best part of his life to thought and experiment along the line of artificial evaporation, and now gives to the public through this journal the fruits of his ripened experience. As he has said in the text of his writings, the patents, which cost him much, are now, by the flight of years, public property, and rather than allow them to pass from sight, he takes what is essentially best in them and builds upon the foundation of what seems to him the most available evaporator for fruit farm use in this State and wherever conditions like ours prevail. We advise all readers who are in fruit lines to study carefully Mr. Parsons' propositions and arrangements and to undertake what seems to commend itself to their judgment as a valuable means of supplementing sun-curing or of making a substitute for it whenever it may be, for any reason, less available than usual. If any reader decides to equip himself in this way, we shall always be glad to hear of his experience, and Mr. Parsons will continue his help whenever it may seem in individual cases to promise to be acceptable.

California fruits are now going forward actively. Citrus fruits promise to go out before the end of the citrus year to a total of 35,000 cars, which is an increase of about 25% over last year's figures—but it is a little early to say what will be done by October. Deciduous fruits promise to make a very good total. The statement is made that the Pacific Fruit Express Co., which handles all fruit shipped over the Harriman lines from California and other Western points, alone during the last year moved from the Pacific Coast 43,700 carloads of fruits of various kinds. Expectations for the present years are for a total shipment far in advance of that amount, and the company is contemplating during the coming year an expenditure of $1,250,000 for improvements, both in terminal facilities and in rolling stock.

A very important contest, from the point of view of those who grow field crops, is that which has arisen between the melon growers of southern San Joaquin county and an Eastern seed dealer. It seems that Jones & Doty, of Manteca, have sued for $5000 damages in the United States Court because the watermelon seed sold them last year was not up to the standard, and they thereby lost considerable trade from firms that had used their melons exclusively. Jones & Doty assert that they were greatly damaged, as they have the largest trade in melons in the West, having supplied ten or twelve different States during the last three years. Just how the quality of the melons produced last year, which the plaintiffs claim to be inferior to those of other seasons, can be classified, is a question the courts will have to decide upon. It seems that Jones & Doty received good seed for two seasons from this Eastern house, but the third year they were stung. We remember seeing the fields of unharvested melons last winter, and unquestionably there must have been a large loss. The question will probably turn, as it has before, upon whether the seedsmen gave any guaranty of the quality of the seed or not. Usually dealers clearly state in their announcements that they will do their best, but are not responsible if their best is bad. This question of good and bad seed, so far as its capability to produce a desired type of product is concerned, is a far-reaching one. The dealers have, of course, the regulation of it. If they grow their own seed, or have it grown under contract, with adequate supervision, they will get good seed. If they buy anything that growers will gather for them out of surplus melons, or whatever it may be, they will get seed of inferior product and reversionary tendency. In a sense, the farmer is to blame for gathering up such seed for them and for not applying any principle of selection, but still, the dealer is the regulator, because it lies in his power to make such uncreditable work unprofitable. One is certain a man who pays a good price should get good seed, and that he is far from doing because quality is not protected and assured by too common ways of doing business.

Another desirable form of commercial truth is just as urgently needed in some of our land and development enterprises, and we are always glad to know of movements to secure it. It is a good thing therefore that an investigation has been started by the Sacramento Valley Development Association to put a stop to the practice of claiming for certain tracts things that it is known they cannot produce. A committee of three from the association has been appointed to make the investigation. T. B. Gibson of Woodland is the chairman. If the committee finds that companies are using fraudulent means to sell land, it will lay the matter before the United States Postoffice Department. Mr. Gibson says the Sacramento valley wants settlers, but it does not want to bring them here under false pretenses. He believes the plain facts should be told of all land for sale. He says that nothing can hurt the valley more than to bring people here by wrong advertising. All of which is perfectly true and important. We know there are promoters who are promising people every ridiculous thing they can think of as sure to be profitable, when we also know that these promoters do not know anything about the land except that it is out of doors, and we are disposed to believe that some promoters who do know about land do not hesitate to say that it is good when it is bad and incapable of production. The Sacramento valley is too good to have its future discounted by any such operations.

The several Australian States are coming to like irrigation development amazingly, and are trying to get the services of our best American experts in quantity. Prof. Elwood Mead is now serving a five-year contract with the Government of Victoria at a compensation of something like $15,000 per year. The Government of New South Wales, or some part of it, is seeking to secure the services of Mr. F. W. Roeding, who is now in charge of the Irrigation Investigations of the U. S. Department of Agriculture in this State. Mr. Roeding, who had his first experience in this line on the farms of Fresno county, has since done work for the Government in many of the Western States, and is recognized by the authorities as a leader in the Department of Agriculture in his line. It is probable, on account of important work in which he is at present engaged for the Government in California, that he will not accept the position in New South Wales which has been offered him.

We had something to say the other day about the farming of the Duke of Bedford and the interesting experiments he is making. Some of these need interpretation or they may seriously mislead people in the arid region. For example, we see quite widely published a statement of results obtained by planting young trees carefully by

spreading the roots or by bunching the roots and ramming the earth hard around them in a small hole. Experiments were made at various places in planting in different ways, and the following are said to be the results: "59% of the sets showed in favor of ramming, 27% showed no difference (i. e., all the elaborate detail of the ordinary way of planting was simply a waste of time), and only 14% were against ramming." It is also claimed that "examination of the trees shows that ramming has led to a copious development of fibrous roots. Direct experiments showed that the fibrous and small roots produced in the nursery before lifting play no great part as roots during the subsequent life of the tree; the important point is to induce fresh root formation, and ramming does this more rapidly than the orthodox method of planting. No harm was done, and sometimes even good resulted, when the old roots were deliberately damaged before planting."

The proper comment upon these things, which seem to strike a writer in the great scientific journal, Nature, as of momentous importance, is the old one that the claims which are true are not new, and those which are new are not true. Close contact of the soil with the root at transplanting has long been known and practiced, and this firming is secured by tramping or by water-settling. The uselessness of small, fibrous roots is generally recognized by all modern planters: the injunction to get as many fibrous roots as possible from the nursery is very old—from a California point of view at least—and very incorrect. All our planters know that. Proper firming is necessary to secure a new outfit of fibrous roots—that also is well known. But ramming the earth around a tree as you would plant a post, compacting the soil at the surface, is the worst possible practice. This may not matter so much in the humid climate of England, and with the heavily manured soil which has been made friable by generations of treatment in this way, but under ordinary conditions, and surely under arid conditions, ramming the surface soil around the young tree will seriously interfere with its growth.

Queries and Replies.

Rational Work on Adobe.

To the Editor: I have about 40 acres of orchard, part of it on heavy adobe which is very sticky in winter and cracks in summer. The government soil survey maps mark it Fresno gray adobe, though it looks black to me. I suppose the answer is that trees should not be planted on such land. However, the trees planted there (prunes on myrobolan) have made a satisfactory growth and bear good crops of good-sized fruit. On the other hand, the land is hard to work, though in less degree than when I began to work it fifteen years ago, for many crops of grass and weeds have been plowed under. Also I have noticed that where I have burned brush on my patch of dry-ground the hay has made a vigorous, luxuriant growth the following year, from which I inferred that potash might be needed. Now, from the special articles published by you lately on the uses of gypsum, I gathered the impression that possibly gypsum would lighten the soil and so prevent cracking in summer and also release potash and make it available for use by the trees. What could I hope from the use of gypsum on this soil; when, how and how much should be applied? You are to be congratulated on the high class and helpful nature of the special articles published during the last year, though, of course, I consider the query page of most value to your readers.—L. J. Lathwesen, San Jose.

You are right both in your observations and conclusions. Adobe is hard to work, but for roots which will stand it, like the myrobolan and pear especially, it is a strong and enduring soil. Other roots will do well also if the moisture can be kept about right—neither water-logged nor dried out. Gypsum or other forms of lime would also improve the soil as described by Mr. Matthews in the Rural Press of June 5, page 422, and the amounts and method of application stated. This treatment and the continuation of plowing under green stuff will make you glad that you have an adobe foundation. We hope you are as correct in your estimate of the value of our query columns as you are about the other things.

A California Wild Pea.

To the Editor: Enclosed is pea-like vine found growing on hills hereabouts. It is a good winter grower, apparently a perennial. Stock seem to like it. What is its name? Is it a good feed plant? Can seed be got at seed stores. With hay at nearly two and a half times the price of grapes, it behooves the rancher to improve his pasture and waste land as much as can reasonably be done.—Farmer, Sonoma county.

It is a native wild pea (Lathyrus vestitus). It has not been investigated for feeding value, but it probably stands well among forage plants. You will have to gather your own seed, as it is not offered by dealers. As it is perennial and perhaps somewhat drouth resistant, because of its strong deep roots, it would be desirable to extend its area if you find it practicable.

Orange Trees Needing Drainage.

To the Editor: In your issue of May 22, page 383, I read with interest your reply to "Enquirer" regarding oranges in Mexico over a leachy subsoil. Here is another problem. How would you extend the life of orange trees that are planted on very stiff clay soil, with a rock foundation that will hold water that lies below surface from 18 to 36 inches? We have these very conditions here. I note that a few trees which have reached with their tap roots this hard pan are dying. Can anything be done except to abandon this soil.—Subscriber, Cuba.

The remedy is to put in tile under-drains at a depths of three or four feet or nearer the surface if the rock is higher. You must draw off the standing water to as deep a level as you can, so as to give the trees as much available soil as you can. Then overcome the stiffness of the clay by the use of lime and by plowing in as much green leguminous growth as you can and use commercial fertilizers in addition to the green stuff to feed the trees. If you have long dry spells you will also have to use irrigation. The trees will live longer and perhaps be profitable if you get rid of the surplus water by drainage and then feed the trees just right. Under the conditions you describe the natural soil is little more than useful to hold the tree upright; like a kid in a high chair, you must feed it just right.

Lemon Pruning.

To the Editor: I am up against a serious difficulty as to the pruning of a lot of lemon trees. The trees are two and three year old buds, and have quite bushy heads, consisting of from 8 to 15 branches varying from 3 to 15 inches in length, and are very thrifty. It is my plan to prune according to the Baronio system, cutting the centers out and leaving 3 or 4 well balanced leaders about 8 inches long. Would you advise me to prune immediately after setting out, or wait until the new growth starts? My idea in waiting to allow the new growth to start first would be to enable me to know for sure what leaders were going to grow well and those that were not. On the other hand, in allowing all the leaders to start, and then cut the greater part of them away, seems to be a great waste of sap that would have entered the leaders to be left, had the others been cut away early. What do you advise?—Planter, Ventura County.

We would unquestionably allow the trees to establish themselves well before attempting to get the shape which you propose, and from the form of the tree as it thus presents itself select what seems most desirable as a foundation of the Baronio framework. It is, on the whole, very desirable to give the tree a chance for free growth before applying this system, which is severely repressive in its effect, and if begun too soon is apt to result in a multiplicity of weak shoots. If, however, the tree is allowed to get a good headway, you will get stronger shoots, and the tree will be likely to bear better on such growth. What seems to be a loss in cutting away a larger tree is, in fact, rather a means toward a greater accompishment in the end.

Cover Crops for Sonoma Vineyard.

To the Editor: As I intend to plant something for green manuring in my vineyard in Sonoma county next fall after the grapes are picked, I would value your advice very much as to what to plant. One party advised me to try either vetch (Vicia sativa) or Canadian field peas. I hope you will set me right; also please state how much is required per acre. Another question: would it be advisable to plant something again in the spring? Would it prevent the grapes from baking in case of extreme hot spells before ripening?—Subscriber, San Francisco.

You have had good advice about selecting legumes for your district. We would try some of both, to reach your own conclusion as to which makes the better growth under your conditions. Sow broadcast chiefly in the centers, throwing as little seed around the stumps as yon can conveniently, or drill in the seed in the centers. If drilled, probably 30 pounds of vetches and 50 pounds of peas would be enough seed. If broadcasted, about one-half more seed would be required. Do not for a moment think of carrying a spring-sown legume crop without irrigation. It would do more harm than good by exhausting moisture and preventing cultivation, which is essential to its retention. Rather than grow a summer legume you must be very careful to plow in your winter growth while it is still succulent and get the ground in shape early for clean summer cultivation.

Forcing Strawberries.

To the Editor: Will you please let me know through your paper what variety of strawberries will be most suitable for forcing; and also what will be the best construction of the forcing house or pit? I wish you would give me all the detailed accounts on forcing strawberries, my intention being to gather the berries in winter and early in the season.—Reader, San Benito county.

We do not know that this has been worked out for California, where such undertakings are rather hazardous because of conflict with open-air product from thermal situations. You had better proceed very cautiously. Study principles and arrangements as laid down in Bailey's "Forcing Book," published by Macmillan Company and experiment on a small scale to see where you come out.

Good for the Ladybird.

To the Editor: We are pleased to report that the ladybirds are doing great and good work in destroying the young of the Auosa tristis or common squash bug. These bugs were doing serious damage to our berries, and in picking we noticed the empty skins of the squash bug, and upon investigation found the ladybirds massacreing a whole colony of these pests, and it was a very interesting sight to watch them. We have countless numbers of the ladybirds of several species. If they will only attack the Diabrotica we will feel more elated.—Claud D. Tribble, Elk Grove.

We are sincerely glad that the ladybirds have acquired this taste. Perhaps the squash bug is like Limburger, and does not taste as bad as it smells. We have always supposed that ladybirds were hunting berry aphis and that sort of sweetcake when we have seen them on the plants. Mr. Tribble's observation is good news.

Horticulture.

RABBITS AND SQUIRRELS.

To the Editor: I wanted a formula for a liquid that I could put on plants with a medicine dropper to poison rabbits, so I imitated a squirrel poison recipe in "California Fruits" as well as I could. The juice of two lemons will easily dissolve one-eighth of an ounce of strychnia crystals. To this I add three-sixteenths of an ounce of cyanide of potassium dissolved in as little water as possible. These I combined, and then mixed with about two times their measure of honey. This is certainly a most effective poison, but I find that the rabbits will not eat this as readily as they will without the honey. In some cases they seem to get used to it and learn to cut off the stems next to the vine and eat them, and leave the leaves, which naturally they like the best, untouched. I know that squirrels like sweets, but I am inclined to believe that rabbits do not. They will eat the rind of watermelons, but hardly ever touch the red portion except to pick out the seeds, while squirrels dearly love the ripe portion, seed and all. Do you know of anything that I could use in place of honey, and that the rabbits will like to eat? As it is, my solution saves my crop, but I believe it also saves the rabbits: that is, it seldom kills, yet it keeps them off the vines almost altogether. The loss is probably not over 2% when the poison is applied to one-fifth of the vines every five days, one drop to each hill every fifth row.

I read with amusement that it is "said" that tying paper around trees will keep the squirrels off trees. It may do so for a single day. The way to keep them off is to poison them with wheat or other grain. This will not be effective except when applied liberally, yes, prodigally; then two applications about a week apart will rid a field of nearly all of them. As to the paper, I sometimes tie it around trees to prevent sunburn, but if there are any squirrels near at all they will steal the paper for their nests. That is the way it scares them for me. J. C. OESTERGARD, Burbank.

We are not well informed as to rabbits' taste, but if you want something that would retain its stickiness and would have no particular flavor, a little glycerine could be used, in the place of syrup. It is, however, generally quite desirable not to apply a squirrel or rabbit poison directly to the plant to be protected, but to tempt the pest to eat something else instead. Have you tried to get rabbits by putting a little strychnine in a piece of fruit and fixing the fruit on the top of a little stick about eight or ten inches above the ground. This is an old way, which some have found successful, the rabbit being fooled, probably, into thinking he is gathering something from a tree. If you have not heard of this, possibly you may like to try it.

There seem to be all sorts of opinions about the efficacy of newspapers against squirrels, some being quite convinced of their value, some pronouncing them useless, as you do. If you wish to apply a repellent to foliage, spraying with water in which one pound of commercial aloes has been used to each four gallons, gives an intensely bitter taste which repels leaf eaters.

GETTING YOUNG TREES INTO SHAPE.

To the Editor: We have five acres of peaches, seven of apricots, three and a half of English walnuts, and two of Bartlett pears, all in their second summer's growth. Last fall we pruned them carefully according to instructions secured from your fourth edition of "California Fruits," a treatise all fruit growers should be very thankful for. This spring we could not find time to pinch the young shoots off the under side of branches, or confine to any definite number the growth of new branches on the main branches; consequently we have a large amount of growth not needed. The weight of these on the main branches is causing them to drop almost to the ground. Others, growing horizontally, interfere with cultivation, and the tops of centers are a mass of limbs.

Would you advise pruning the undesirable limbs at this season of the year, being careful to leave the small growth to protect the tree from sun? If no evil would result from it, I can keep the trees in much better shape, and would it not also throw the strength into remaining limbs? I am careful to cover all cuts with white lead and oil.

The apricots are of course the trees chiefly making such rank growth, but I thought perhaps I might make the question general regarding deciduous fruits.

I also have four acres of oranges. What is the season to prune them? They are the same age as the other trees.

I regret to trouble you so much, and for explanation will say that my ancestors were business men, and I was in the hotel business 15 years, at the East, so you will see I am taking up a new line, and almost everyone has a different opinion regarding fruit culture, and perhaps there are many methods, but I desire to know what general experience has taught to be the best.—Beginner, Riverside County.

We would advise you to remove the surplus growth at once, and allow the branches to assume a more upright position, or, if you do not find it too much labor, you can tie up the drooping branches with bale rope, and remove what is not desirable to keep at the next winter pruning. Working on a large scale, the removal of these out-of-place shoots is desirable, because it is cheaper. You need not fear any injury to the tree from the removal of such branches at any time.

Removal of undesirable shoots, suckers, etc., can be made from orange trees whenever you discover them. The heavier pruning is usually done after the fruit is gathered, which would be about the time the new growth starts in the spring. We are interested in your undertaking. It is not unusual for men of good powers of observation, trained in other lines of activity, to produce even better results in fruit growing than those who have always engaged in that line, because they seem to have learned to think more and imitate less. You need not fear to proceed with your work, and to disagree with your neighbors sometimes, providing you can give a satisfactory reason for your operations.

RASPBERRY CANE BORER.

To the Editor: I am sending you a few shoots of my Mammoth blackberry and Loganberry, showing the holes bored by a little worm, which I send also. I suppose that some kind of a fly deposits an egg on the young shoots, in due time it hatches, and the worm destroys the shoots. Spraying at this time would spoil the fruit. Could it be done effectively early in the season, before the berries are formed?—Reader, San Jose.

This is the common raspberry cane borer. It is not easy to reach by spraying, both for the reason you mention, and also because it is an inside feeder and gets quickly out of reach. To clip the twigs while the worms are inside, as you have done, is about the only way now known to reduce coming generations. You are right about the way the insect attacks the plant.

The Raspberry Cane Borer Not an Unmixed Evil.

To the Editor: In the June 5 issue of the PACIFIC RURAL PRESS we note the troubles of J. S. of Trinity county relative to an insect boring the tips of his berry canes. This intruder is one of the family Teuthredinideae, or saw flies. The very small maggot or larva will be found by peeling the bark carefully. This larva cannot crawl, therefore if the tips be cut and the worm is taken out he will die. A better way is to cut all tips, as fast as they show signs of wilting, and burn them. Thorough work in topping is absolutely necessary, so as to be sure that none of the worms remain to produce flies. The adult insect is a small fly, usually black in color. We do not know the name of the species.

With us, we consider it does more good than harm, in causing the canes to throw out laterals, thus producing more fruit. The canes are not affected after July.

CLAUD D. TRIBBLE.

Elk Grove, Cal.

PUYALLUP PRACTICE WITH SMALL FRUITS

The Puyallup valley, lying between Tacoma and Seattle, is one of the great gardening and small fruit districts of the northern stretches of our coast. No doubt our growers of berries will be interested to consider methods prevailing there, as outlined by President B. Gaisford of the local co-operative association:

For a commercial berry plantation the first requisite is deeply plowed and thoroughly pulverized soil. Every farmer knows how to do that. Open up deep furrows with plow and cover bottom of furrow with barnyard manure. Cover manure with a little soil and place your respberry plants about 2¼ feet apart in the row. Rows should never be less than six feet apart. Before plants are set out, trim off all mutilated roots, and cut tops back to 10 or 12 inches. As soon as the young canes reach one-half the height of the old ones, cut off all the old canes. This gives the young cane the benefit of the whole root system to make a strong growth the first year. If more than one cane starts to grow, cut out to a single cane. If laterals start out from this single cane, trim them off as soon as they appear. One stout, straight cane is worth more than three weak ones, and will yield larger and better berries.

Culture.—A row of vegetables can be planted between the rows of young canes during the first year after setting out. The concensus of opinion among our best growers is that shallow cultivation is best, and keeping the surface of the ground as level as possible. For this purpose we use the 5-shovel cultivator and 14-tooth harrow cultivator. Stir the ground every week if possible during the growing season. If weeds or grass foul the ground at any time during winter, use a small plow and turn in a light furrow, and then harrow a week or so later. Never plow deep. We are thoroughly convinced that deep plowing mutilates and destroys many feeding rootlets, which grow near the surface.

If canes have made good growth during the first year, put in posts and wire. We usually place posts 25 feet apart. Then suspend two wires on crosspieces nailed to the two posts. Stretch wire taut, and make two saw curfs in each crosspiece to receive the two wires. The latest device for keeping the fruiting vines apart from the young growing vines is a double wire on each side of the rows. In between these double wires the bearing canes are placed in the early spring or during the winter months. This leaves the center for the young growing canes. This makes the picking easier, and keeps the young canes from injury during the picking season.

Varieties.—Our staple varieties of raspberries are the Cuthbert and Antwerp. They are both good shippers when picked at the proper time. The Antwerp is the most prolific bearer, as well as being the earlier bearer of the two varieties. It can be picked when just beginning to color a little, and will turn a brilliant red in the box while enroute for distant shipments, and stand up better than when allowed to turn red before being picked from the vines. The Cuthbert is a week later. It can not be picked until ripe. Although softer than the Antwerp, it is a good shipper, and makes a better canning berry. Of course the early berry brings the highest price. We are experimenting on several other varieties of raspberries, such as the King Superlative and the Marlboro. We have not tried them long enough to be satisfied with results.

Before the raspberry season is over the Snyder blackberries are ripening, and usually find a good market at top prices. This blackberry is the heaviest cropper I know of, and as it comes first in the season it makes a connecting link between the picking of reds and blacks.

Training Blackberries.—We treat the Snyder canes very differently to any other upright blackberry. While the canes are soft and tender we pick them off with thumb and finger when they reach the height of 4½ to 5 feet. This treatment causes laterals to grow out from the main stock, which produces the fruit. Lawtons, Kittatiny and Mesereaus we let grow full length and bend them over, somewhat like we do evergreens. We give all upright blackberries more room and space than raspberries. Rows should be 7 feet apart, and plants 3 to 4 feet apart in the rows. While some of our growers adhere to the stake method, most of us use wires in preference.

We have experimented on the Himalaya Giant, the Mammoth, and others, but have found the Evergreen the best shipper and cropper of all. We plant them 16 to 18 and 20 feet apart in the row. The present tendency is toward the shorter distances. We make the rows 7 and 8 feet apart. We put posts midway between plants and suspend the fruiting vines on two upper and the young growing ones on two lower wires, the upper wires 4 and the lower wires 1½ feet from the ground. Eight to 12 canes are plenty to leave in each hill for the fruiting, half of which are trained in opposite directions. We place the upper vines with wire and wooden stays. The wooden stays are made of 1 by 1½ inch cedar wood, with two saw curfs to hand on the wires and hold up the vines, and wire stays, with crook on each end to hold the vines down. This process binds the vines down firmly to the wires and holds them in position.

The Yield Per Acre.—The common average of raspberries per acre is 300 crates. I have known 500 per acre to be raised on good soil, well manured and thoroughly cultivated, combined with a favorable season, and of the Antwerp variety.

A general average yield of Evergreen blackberries per acre is 500 to 600 crates. Our manager, Mr. S. B. Dodge, lives on a ranch that produced the enormous yield of 1115 crates on an acre—less 3000 square feet—the so-called acre actually measured 3000 square feet less than an acre. These vines are planted 20 feet apart in the rows. The soil, however, is strong and moist, and has been manured every year, and the very best attention given to it.

Marketing.—It is just as important to obtain a market as it is to produce fruit. Make sure of your market, for without a market your fruit is useless. The best market getter is a man. Telephone, telegraph and mail are excellent servants, but none of them are equal to the individual man. This man should be your manager or president—someone who has full authority to represent you in all business places. Have him personally interview the merchants with whom you want to do business. Have a complete understanding with them about shipments, collections and commissions. Attend to all these things before a single berry is formed on your vines. As your berry acreage increases, keep a sharp lookout ahead for more markets. There is but one place for soft berries—the cannery. Make terms early in the season with your canneryman, and have a sliding contract. You will see at once that I do not advise you to build and equip a cannery of your own. It is too expensive a venture. It requires a large amount of capital to begin with, and still more to run it successfully. A first class canner commands a salary of from two to three hundred dollars per month.

WHAT THE HOOD RIVER GROWERS THINK OF APPLE BOXES.

Manager H. M. Huxley of the Hood River Apple Growers' Union voices the sentiments of all Pacific Northwest apple growers, protesting against any change of the box adopted by the Northwest Fruit Growers' Association, from the following open letter:

"It takes an average man two seasons of careful work to become an expert apple packer. The net results are about as follows: (1) Good apples. (2) A full box of apples packed tight in the box. (3) Sizes uniform, the apples not varying one-eighth inch in diameter. (4) Apples packed high enough in the boxes in layers. (5) Apples packed high enough in the boxes to afford a sufficient bulge for the top and bottom of the boxes to hold the apples firmly in place. (6) Enough apples in a box to measure approximately a bushel. The contents of the two sizes of apple boxes we now use are respectively 2173 cubic inches and 2200 cubic inches. The swell on top and bottom increases the cubic contents approximately 200 cubic inches, making contents considerably more than the Porter bill calls for, namely, 2342 cubic inches. All of these requirements are met by our present method of packing apples.

The Porter apple box bill provides for a box containing 2342 cubic inches of fruit, but the shape of the box can be left to the grower. A bushel contains 2150 cubic inches, while with the bulge leading apple sections of the Pacific Northwest pack contains 2200 cubic inches. Our apples are grown and graded to sizes which exactly fit the boxes now in use, and also exactly fill a car, eight rows wide, says Hood River Glacier. But seven rows of the new box would go in a car, and then leave a space on one side. The whole Northwest is up in arms against the proposed change, and we have assurance from our friends in Congress that the bill will be defeated. Yet, should the bill pass, it is believed by legal authorities that we could still sell our apples in the present size box, but could not call them standard, simply local brand pack. However, should the commission men in Chicago or other places boycott our apples should we refuse to use the new size box, it would work a hardship and a loss.

Citrus Fruits.

THE KEEPING QUALITY OF LEMONS.

By Mr. Rodney H. True and Mr. A. F. Sievers, of the Bureau of Plant Industry of the U. S. Department of Agriculture.

[In the two preceding issues we have indicated the relations of handling and of the chemistry of the lemon to keeping. We now follow the investigators named above in their efforts to find out the physical characters to the keeping qualities of lemons.—Editor.]

To anyone who has carefully examined lemons as they come freshly cut from the orchard or as they hang on the tree it is clear that the fruit is oftentimes extremely variable in size, shape and texture. It is quite generally held that lemons of a certain form are likely to prove good keepers, while those having other forms are liable to decay early. The unsymmetrical, usually undersized lemons grown in the bright sun are thought to be poor keepers, while those from the portions of the tree where the fruits are well enveloped by leaves and have a good size and symmetrical form are believed to have good "life." It has not been practicable thus far to experimentally test these suppositions, but it seems from what has been done that there is a considerable degree of variability in the keeping qualities of lemons from the same orchard and probably from different parts of the same tree.

Relation to Structure.—Certain structural features, viz., those belonging to the rind, seem to be especially important in this connection. The rind, which consists of a layer of white, spongy packing tissue having a very variable thickness, is covered on the surface by the epidermis. This covering consists of a layer of cells so modified chemically as to be almost impervious to water. The degree of imperviousness is greatly increased by a dense outer cuticle of a very resistant material which is practically waterproof. There are a vast number of small pores (stomata) in the epidermis, through which gases enter and water, as vapor, escapes. These stomata open into small chambers in the outer part of the rind.

Additional characteristic structures, known as oil glands from the substance which is formed in them and which they retain until the skin dries up, are found embedded in the outer part of the rind at different distances from the epidermis. The oil in these glands is a volatile product, giving the characteristic lemon odor to the fruit.

As has been already indicated, the losses assigned to the blue mold are in a very large measure due to the development of the fungus following injuries. It is probable that the true blue mold cannot penetrate the uninjured epidermis of a healthy lemon, but when a break occurs it is able to enter and bring about the characteristic rot. The development of the defensive outer layers of the rind is a matter of great importance in view of the ease of producing slight, but fatal, injuries to the fruit.

To test the strength of this defense, a simple puncture experiment was devised. It consisted essentially of an apparatus so constructed as to enable one to apply known and regulated pressure to a blunt point in such a way as to get the amount of pressure needed to force the point through the epidermis. The needle tip was found to puncture the epidermis and bring oil to the surface with more readiness when it was applied over an oil gland—that is, on the surface of one of the projecting papillae—than when applied in the sunken places between these. It appears that the nearer the oil glands are to the surface the greater the ease of rupture. In tree-ripe lemons it seems from the evidence thus far gathered that the outermost glands are likely to be less protected than in the fruit which is picked green. This would seem to indicate that tree-ripe fruit might show a greater loss from mold due to injury than fruit picked while green.

In a similar study of tent-cured fruit, a resistance markedly greater than in tree-ripe lemons was shown. Indeed, the resistance to puncture in tent-cured fruit seems to be double that of tree-ripe lemons. This difference is probably due in part to other factors than the absolute strength of the walls of the epidermis, but the result represents practically the relative liability to damage dependent on the structure of the outer tissues of the lemon. It was found that the tissue beneath the tough outer epidermis was able to offer very little resistance when the point of a needle had passed through the epidermis.

Lemons are frequently subjected to steady pressure of various degrees of intensity, and are preserved from injury by the general strength of their tissues throughout. Under these circumstances the white, pulpy packing tissue between the epidermis and the segments plays an important part. The thickness of this tissue varies very widely. In the so-called "sinkers," which form a case of an extreme reduction, this tissue forms a very inefficient protection against injury. Hence, "sinkers" might be expected to be poor shippers.

Texture.—The relation of coarseness of texture to losses is not very clearly marked. In general, coarse lemons have a strong development of rind tissue. But many smooth lemons are equally well protected. The thickness of the epidermis and the consequent ability of the lemon to withstand wear is well tested in the box during shipment, when, as frequently happens, the jar of the car in stopping and starting is transmitted to the fruit in the box. The result follows that the fruit is "rasped" on rough surfaces of the shook, particularly of the ends and middle crosspieces when they are not planed.

Method of Curing.—The keeping qualities of different types of lemons also depend largely on the method of treatment to which they are subjected to bring them into marketable condition. Although the inherent condition of the fruit, due partly to its early history, will determine its ability to resist decay to some extent, there is reason to believe that the method of curing is an important factor in determining the life of the lemon on the market. The lemon growers as a rule agree that the so-called sweating process of curing fruit has a deteriorating effect, although no definite tests have been made which would fully substantiate this belief. The sweating process is resorted to only when the briskness of the market necessitates a rapid coloring of the fruit. The grower, although he realizes the possibility of endangering the quality of his fruit, has at present no other method of curing lemons rapidly, and is therefore compelled to make the most of the process.

The tree-ripe fruit, as has been stated elsewhere, is thought to be inferior to the tent-cured sort, and is kept in the packing house as short a time as possible. After being washed and graded, it is immediately put upon the market, as a rule, for unnecessary delay in the packing house will only shorten its life on the market.

The point to be investigated, therefore, is the relative keeping qualities of these three sorts of fruit. With this object in view, a limited series of storage tests was made in the spring of 1908.

All the fruit was shipped to Washington, D. C., and stored. The fruit was carefully examined once a week for three or four weeks, and then every two weeks during the remainder of the test. Careful note was made of the form of decay which was met with, in order to get more information as to what varieties of decay are most destructive after the fruit arrives on the market. The summarized results indicated clearly the superiority of the tent-cured over the tree-ripe fruit. In each of the five lots this point was well brought out. It was further noticed that the amount of rot in tent-cured fruit is very nearly the same in all five lots, which came from different districts of California, thus showing that there is no material difference in the fruit which has been obtained from the coast, the foothills and the inland districts.

AGRICULTURAL REVIEW.

Horticultural Notes.

Watermelons are being shipped to market from the Imperial valley.

The office of Horticultural Commissioners in Monterey county will be abolished July 1.

Advance reports from Wisconsin, New Jersey and Cape Cod state that the growing cranberry crop will be very large. The yield is estimated at 495,000 barrels.

Heavy shipments of cherries from the Santa Clara valley were made last week. Prices in the East were holding good, car lots selling for more than $3000 per car.

The Georgia peach crop will soon be ready for market, and it is now reported that the yield will be much lighter than last year. Colorado promises a full crop of fruit.

The Kinley Nursery Co. of Santa Rosa has received an order for 10,000 eucalyptus trees, to be sent to Honduras, South America. The trees are to be grown there for mining timber purposes.

The Fresno Republican states that the Wm. Forsyth crop of 1909 muscat raisins, amounting to 100 tons, was sold last week at 3 cents, sweatbox. This is the best sale so far reported for the coming crop.

The first shipments of plums this season from the Santa Clara valley took place on the 18th and 19th inst., when 185 crates of Clymans were shipped East by the A. Block Fruit Co. of Santa Clara.

A Fresno dealer states that the fig crop of the San Joaquin valley will be unusually heavy this year. Buyers are offering 2 cents per pound for the fruit in the sweatbox, but growers are asking 2½ cents.

At a meeting of San Jose Grange last Saturday it was decided to ask Congress to place a tariff of 2 cents per pound on cherries. This protection is in view of the increasing importation of cherries from France.

Cantaloupes are being sent from the Imperial valley by the carload daily. The first shipments did not net as good returns to the growers as was expected. The crop is estimated at 800 cars for the season. Some trouble is experienced in securing pickers.

There has been established at Corona, by the Blades-Long Co., a nursery in which are at present growing 300,000 citrus and shade trees, which are to be used by the firm in planting out a large acreage near there, which is afterward to be subdivided and sold.

At the annual meeting of the Co-Operative Fumigating Company, held at Orange last week, it was found that the principal object of the association had been attained during the past year, in improving the quality of citrus fruit shipped by its members, though the cost of the work had not been materially decreased.

A carload of peaches, plums, and apricots was shipped from Vacaville last week for the Philippine Islands. The fruit will be kept under refrigeration on the whole of its 10,000-mile journey, which will take a month to complete. This is the first car lot of fresh fruit to be sent to Manila, and the results will be watched with interest.

A meeting of the directors of the newly organized Santa Clara Valley Fruit Association was held last Saturday at San Jose. Negotiations were opened with a prominent fruit man to act as manager for the central organization, and preparations were gotten under way to handle the coming prune crop. Another meeting will be held Saturday, June 26.

It seems that the increased tariff on lemons of ½ cent per pound is still in the air. Senator Flint has sent to the lemon growers of California for actual figures of cost of production and net receipts, to use in combatting the figures to be furnished by the New York Fruit Exchange, which is leading the fight against increasing the lemon tariff.

The Porterville Messenger says that the recent high prices for citrus nursery trees has been the cause of many small nurseries starting in that locality. The latest nursery to be opened near there is by George Rose & Son, who have received 15,000 young trees from Los Gatos, which they have planted and will bud over, to have ready for the market two years from now.

What promised to be a record yield of Bellefleur apples in the Pajaro valley has been lost by the heavy June drop in that variety, says the Watsonville Pajaronian. Many growers have been scared into the belief that the crop would be very short, owing to the excessive drop, but it is believed that a heavy thinning has been going on, and that the usual size crop will be harvested this season.

All over the State the apricot harvest has commenced, and for the next four weeks every person in the country who wants work can secure it. In the north half of the State the crop will not average half the yield of last season, while in the southern portion the crop will be very good, though not up to last year. Around Lankershim, in the San Fernando valley, the yield will be very heavy.

The Sutter County Almond Growers' Association held a meeting at Yuba City last week, at which time it was decided to call a meeting for July 10, when bids for the almonds grown by its members will be received. The crop in that section is reported to be light, and that it will not amount to more than half the tonnage of last season, which was 200 tons. While no prices have been set, the growers expect about 13 cents per pound.

Regarding the important work being done by J. B. Neff in his walnut grove near Anaheim, the Gazette of that place says: Mr. Neff reports the walnut scions budded to trees in his orchard a year ago last spring have attained growth of from 4 to 15 feet, and several of the young tops have more walnuts than the original trees produced. He believes he has solved the blight problem, and is sanguine that success will crown his efforts to stamp the disease from among his trees. These scions were taken from a tree which has proved itself immune to blight, and which produced year before last 215 pounds of first-class nuts. Last year its product was curtailed by reason of cutting scions from it. If the top-grafted trees prove true to the parent plant, and of this Mr. Neff says he has no doubt, the remedy for blight will be at hand.

General Agriculture.

Barley around Lemoore is reported to be yielding from 30 to 40 sacks per acre.

The beet sugar factory at Chico is making preparations for a record run. This season the factory has 15,000 acres of beets under contract, which is the largest amount of any year since the factory was built.

Sacramento is shipping about 12 carloads of vegetables daily to points in the Northwest, and good prices are being secured. The shipments are mainly composed of potatoes, onions, cabbages and beans.

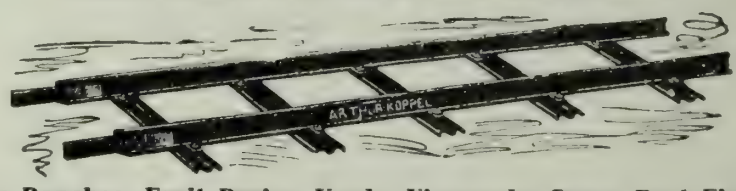
The grain harvest in the San Joaquin valley is now at its height. In Tulare county the yield is reported as being very good, especially so around Corcoran, where individual plats of wheat are reported as yielding 18 sacks, and barley going as high as 27 sacks to the acre.

Hops are good property these days, especially in comparison with prices offered

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The best that good care can produce

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LEMON TREES

Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Citrus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.

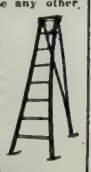
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Is known to be the lightest and strongest made. A ten-foot ladder weighs 30 lbs. We have been making these ladders since 1895. All fruit growers like them. Many of the big office buildings in San Francisco will not use any other. We make them with three or four legs as preferred. We keep in stock Fruit Ladders 6, 8, 10 and 12 ft. and House Ladders 4, 5, 6, 7, 8 and 10 ft. We make longer Fruit Ladders up to 24 ft. at short notice. Our House Ladders are made with a safety lock to prevent the legs from spreading. We will ship one or more to any S. P. R. R station in California and prepay freight on receipt of price, 30 cents a foot.



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AGGELER & MUSSER SEED CO.,
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Almond Hullers

——For Sale by——

A. O. RIX, Irvington, Alameda Co., Cal.

six months ago. The highest price is reported from Sonoma county, where 15 cents was offered last week. From Ukiah the story comes that T. E. Garner, who has a good crop growing which it is estimated will amount to 180,000 pounds, has been offered 13 cents per pound.

Stock and Dairy Notes.

Oroville will hold a Draft Horse Show on July 4. Liberal prizes for the best horses shown are offered.

The cheese factory near Armona, Kings county, operated by B. Martella, is now making about 250 pounds of cheese per day, and selling all it makes very readily at 14 cents per pound.

The California Cream & Butter Co. of Fresno is putting up a creamery at Riverside, which will have a capacity of 4000 pounds of butter daily. The new creamery is one of a string of five the company owns.

A new creamery at Sacramento, known as the Silver Crest, is now ready for business. The creamery is stated to have cost $15,000, which includes a cold storage plant. The creamery is to be run on a cream shipping basis.

Miller & Lux are shipping 10,000 head of cattle from near Klamath Falls to the San Joaquin valley this week. During the past few weeks from 8000 to 10,000 head of cattle have been shipped from the San Joaquin valley to Oregon points.

In the Superior Court at Willows the local creamery has been enjoined from moving its plant and building. It seems the plant was built upon leased ground, and now that the lease has expired, the owner of the land claims the improvements made upon it.

The wool crop so far shipped from Mendocino county this season has amounted to about 440,000 pounds. The prices received have been about 25 cents, and one instance is quoted at 27 cents. A hundred thousand dollars scattered among the wool men will help along a little.

The spring round-up of cattle in the Mill Creek and Deer Creek country, near Red Bluff, has been completed, and stockmen say that the herds show a shortage of between 600 and 800 head of stock, mostly young cattle. It is charged that cattle thieves have driven the stock away during the winter, and there is no prospect of detecting them at this late day.

The territory comprising 4000 acres, in the Laguna district, on the Fresno-Kings county line, which was placed under quarantine by the Federal authorities, has been gradually cleaned until now all but two ranches have been released. The threatened Texas tick epidemic has been controlled to such an extent that it is now thought that the last of the quarantined district will be freed by next February. A dispatch from Hanford states that Kings county has been quarantined by the Governor to prevent the spread of the Texas fever tick from that county.

Miscellaneous.

Two fires by spontaneous combustion occurred near Porterville last week in alfalfa stacks. In both cases the losses were quite heavy.

Honey shipments are being made from Tulare, and the crop promises to be good. Already over $6000 worth of orange honey has been marketed from that point this season.

The Anaheim Union Water Co. has a pumping plant at Placentia which is producing 425 inches of water daily, making a profit of $18 daily for the company. The well is rated as one of the best in southern California.

The Pacific Fruit Express Co., the organization that handles all the fruit shipped over the Harriman lines from California and other Coast points, has made preparations to enlarge its capacity by adding to its equipment $1,250,000 worth of rolling stock. This company last year moved from the Pacific Coast 43,700 cars of fruit of various kinds.

A plan for solving the water problem around Fresno is reported to be under way, backed by some of the best men in that locality. The idea is to pump the water from the east side, which comes too near the surface and is ruining the lands, to the west side, where irrigation is needed. A very simple solution of a hard problem, if it will work.

A number of farmers near Greenview, Siskiyou county, have organized a ditch company, which is to commence at once work of constructing canals and laterals which will irrigate about 2000 acres of land along the foothills on the northern edge of Scotts valley. The ditch will be 7 miles long, carrying 3000 inches of water from Kidder creek.

The ranchers of the old Newport and Delhi districts, in Orange county, decided last week to form a reclamation district that will convert 7000 acres of damp alkali lands into good agricultural territory and make it very valuable. The main canal will empty into Newport bay. As the lands are located near Santa Ana, and when reclaimed will be used largely for truck gardening, that section will be greatly benefited by the work.

How About the Largest Oak?

Gridley, Butte county, now claims the honor of possessing the largest oak tree in the world, disputing the claims of both Chico and Lake county. Gridley's great oak grows east of town, near the Feather river, and measures 25 feet 7 inches in circumference four feet above the ground, or 13 inches greater than Lake county's oak and 30 inches greater than the Hooker oak at Chico.

CRIMSON WINTER RHUBARB

Now is best time to plant Rhubarb.
$1.50 per doz., $6 per 100, $40 per 1000.
All kinds of small fruit and berry plants.

J. B. WAGNER, Pasadena, Cal.

The Rhubarb and Berry Specialist. Dept. I

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J St., Sacramento, Cal. Send for catalogue.

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We have positively demonstrated that WE CAN CURE THIS DISEASE.

Write us for particulars.

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Greatest Known Spray or Wash for Scale: San Jose, Black, Red, Purple and Brown. Also a sure thing for Red Spider, Canker Worm, Moss, Caterpillars, Lice, Coddling Moth, and all Insects and Bugs that infest plant life; without injury to the plants, and with positive benefit to the soil, when applied. Scalefoe has long been the leading Spray or Wash in many sections of the country, wherever introduced. Also kills Lice and Mites on Poultry.

Gallon can, 85 cents; 5 gallon can, $3.75. Prices f. o. b. Los Angeles, but if not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Satisfaction guaranteed or money back.

MADE BY THE

WEST COAST MILL

LOS ANGELES, CAL.

REX FOR MILDEW

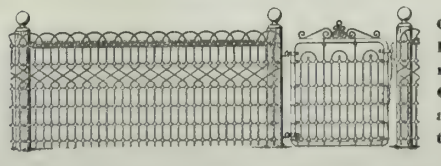
The famous Rex Lime & Sulphur Solution has proven to be the best means of clearing vines from Mildew. It is much cheaper than dry sulphur, remains on the vines and plants longer, and not only kills the Mildew, but invigorates and stimulates the growth of the vine.

It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

CALIFORNIA REX SPRAY COMPANY

BENICIA, CALIFORNIA.

California Ornamental Lawn Fencing



Cheap, durable, easy to erect. Write for Bulletin No. 11, showing designs and net prices of Ornamental Fence and Gates; also Bulletin No. 10 for square and diamond mesh Hog, Field and Poultry Fence. Address

CALIFORNIA ANCHOR FENCE CO., No. 822 E. Main Street Stockton, Cal.

GREENBANK

Powdered Caustic Soda and Pure Potash
Best Tree Wash.
T. W JACKSON & CO., Temporary Address,
42 Market St., San Francisco.

HOW TO BUILD AND OPERATE A GOOD FRUIT EVAPORATOR.

(*Continued from Page 469*)

between the top of the furnace and the pipe and between the pipe and the sheet-iron floor above it; then add the eighteen inches of brick wall above the iron floor; we get a total height of seven and a half feet from the ground to top of wall.

But only the furnace needs to be as deep as this, and it can be placed in a pit at one end of the drier. The brick walls back of the furnace do not need to go so far down by perhaps two feet. The smoke pipe leaving the furnace close to its top can rest on a brick lying on top of the ground, so the part of the heating chamber holding the long flues may be shallower, thus saving some expense in masonry. The top of the brick wall should be level all the way around and even with the floor of the house, so the operator can easily handle the trays on the upper track. Do not insert woodwork of any kind into the brickwork.

Lay 2x4 inch sills on top of the brick walls all around the four sides. Cut your upright studding of 2x4 joists six and a half feet high, spaced two feet apart, and nail a 2x4 plate on top. This is for the two long sides. The ends of the drying chamber are to be supplied with close-fitting doors. Nail surfaced matched lumber on the inner face of the studding. These boards had better be of redwood, so as not to gum up the trays with pitch.

These two side walls should be perfectly straight, plumb and level and at equal distance apart at all points, so the trays will work true and not bind or slip off the tracks. Nail to these walls tracks or slides made of strips one and one half inches square. Fasten to these tracks wheels, known to the hardware men as "sash rollers," one inch in diameter and spaced ten inches apart along the track. Cut a little notch in the edge of the track, so the wheel can turn freely, with the big side of the wheel upward. Put twelve of these tracks on each wall, spaced six inches apart, beginning six inches from the ceiling to the top of the first track, then six inches to top of next track, etc. One strong 16-penny wire nail driven into each stud will hold these tracks securely. Fasten the wheels with screws to the track on a workbench before nailing them to the walls.

Nail matched lumber on top of the plates from side to side for a ceiling. This wooden shell will have to be braced from the outside so it can stand up firmly with its load of fruit.

The ventilator or exhaust flue should be about two by three feet inside and extend about twenty feet above the top of the drier. Build it against the side of the drier, resting on top of the brick wall, close to the front end of the drier.

The smoke pipe must be carried by a suitable elbow from its position above the furnace through the side brick wall to a point under the center of the ventilator, thence up through it to the top. A sheet-iron weather cap on top should protect the ventilator and smoke pipe. Make the bottom of the ventilator where smoke pipe enters, air tight to ensure good draft. Provide caps or covers at the elbows to facilitate cleaning out the soot.

On the side of the drying chamber, at the bottom, cut a hole into the ventilator for the passage of the damp air from the fruit into the ventilator. This opening should be the shape of a right angled triangle, in such position as though the bottom cover of the side wall were being cut off. The bottom and perpendicular side of opening are to be three feet long. The lower tracks go past this opening to carry trays to the door. Some kind of a small guide rail should be placed to prevent the corners of the trays from striking against the edge of opening. The trays are to be one-half inch shorter than the drier is wide inside, so as to move freely without danger of being bound. Two or three rods of half-inch iron provided with screws and nuts should pass through from side to side of drying chamber about half way from top to bottom, to prevent the walls of the drier from warping or bulging, or else the trays will drop off the tracks. Make four sides of the trays of stuff one and a half inches square, notched at the corners of trays. Tack on No. 3 mesh galvanized wire cloth. Over this nail strips one inch thick by one and a half inches wide for runners to roll over the wheels. Nail a similar strip across the middle of the tray to prevent the wire cloth from sagging. From twenty-five to fifty extra trays will be found convenient in operating the drier. The wire cloth is two feet wide. Make the tray frames two feet one inch wide. With average prices for labor and material this drier can be built complete in a substantial manner for about $500.

To Operate the Drier.—Get started right by taking all day in gradually filling the drier, so that by night time the first trays will be within a few hours of being finished. Start a good fire before putting in the fruit, so as to burn out the oily smells of the new ironwork. Use the eight lower tracks for the fresh fruit. Put eight trays in at a time, one tray on each of the eight lower tracks about every forty-five minutes, starting them at the front end over the furnace and pushing along. After ten lots have been so placed the eight lower tracks will be full. Then take out one tray from each track at the back end and put them in on the upper four tracks, two trays on a track, to be gradually pushed along from time to time, as often as fresh trays are put in at the front, until the machine is full and the dryest trays will be at the front end on the upper four tracks. The fresh, wet fruit will in this way have its vapor drawn out through the ventilator close by, without wetting the fruit which is partly dry.

As the fruit gets dryer it is moved into dryer and warmer air at the back end. But this fresh air right from the heater below is 180 degrees hot and unsafe for fruit to finish in, so it is started back on the upper tracks to finish in a milder temperature, with enough vapor in the air to allow the fruit to finish gradually without danger of scorching, turning out the fruit in a soft and flexible condition, evenly cured and right in color. This process is peculiar to this evaporator and yields the best results in quality of work done.

If fruit is rushed too fast through the drier it will get back to the front and top too soon and will be too wet to dry readily in the lower temperature.

If the beginner gets caught this way, it will be better, after waiting a little, to take it out, and, if still too wet, carry it back to the other end and put in on the upper four tracks again to gradually go forward again. After a little experience he will learn how and when to move the fruit.

As to variations of heat in different parts of the drier and the effects thereof, it may be added that the thermometer hanging in the current of air just as it strikes the fruit may register 190 degrees and do no harm, for the fruit at that end of the drier has enough moisture to save it. The air cools rapidly, and when it reaches the other end of the drier where the fruit on the top tracks is nearly dry, the temperature will be about 40 degrees cooler. This is one of the most valuable points in this evaporator, finishing the fruit in a lower temperature and yet with but little moisture in the air.

Wood or coal fires will fluctuate in heat, and a careless operator might allow the temperature to get to 200 or 210 degrees, but if it does not last more than a few minutes, and as the fruit is not too near being finished at the exposed end, no harm is done. A thermometer resting on the tray at the back end lying between the fruit will show about 10 degrees lower temperature than when hanging clear in the draft at that point.

While drying the trays should not touch the ends of the drier, but be pushed back about a foot and a half from the doors to allow room for free circulation of air at the back end of drier and down at the front end.

It takes sixteen to twenty-four hours to dry the fruit, according to kind and size. Apples are dried in six to eight hours.

The furnace may be made to use any fuel. An oil burner is the best, because the heat can be kept steadily at the maximum.

FOR SALE.

75 H. P., 3-Cylinder, Vertical, Gasoline Engine; never been used; $1600.
Box No. 11, Pacific Rural Press.

PATENTS

White for our Guide to Inventors, sent free on request; containing nearly 100 mechanical movements and full information about Patents, Caveats, Trademarks, and Infringements.

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1105-6 Merchants Exchange Bldg., San Francisco. Established 1860.

The Fresno Scraper



Send for Raisin Machinery Catalogue.
FRESNO AGRICULTURAL WORKS
FRESNO CALIFORNIA.

REDWOOD TANKS

Fifty tanks from one thousand to ten thousand gal ons that must be sold regardless of profit.
Fruit Boxes—Egg Cases.
Write for prices.
R. F. WILSON
Stockton, Cal.

DEEP WELL PUMPS AND CYLINDERS

Water gates for pipe lines. Send for catalog
POMONA MANUFACTURING CO.,
Pomona, Cal

WE SEED FORTY ACRES TO ALFALFA ON OUR

California Improved Farms

In the Sacramento Valley near Arbuckle, California

We are the pioneers in applying the methods for years used in acquiring homes in towns and cities, to securing farm homes in the West. We offer 22 farms of 80 acres each in California, in the very best part of the Sacramento Valley. The entire cost of the improvements and equipment, amounting to over $5000, together with cost of land, is put into one price and the property is sold for $3000.00 down and the balance in yearly payments. In other words, the cash payment required is only about one-half of the cost of the improvements placed on the farm aside from the cost of the land.

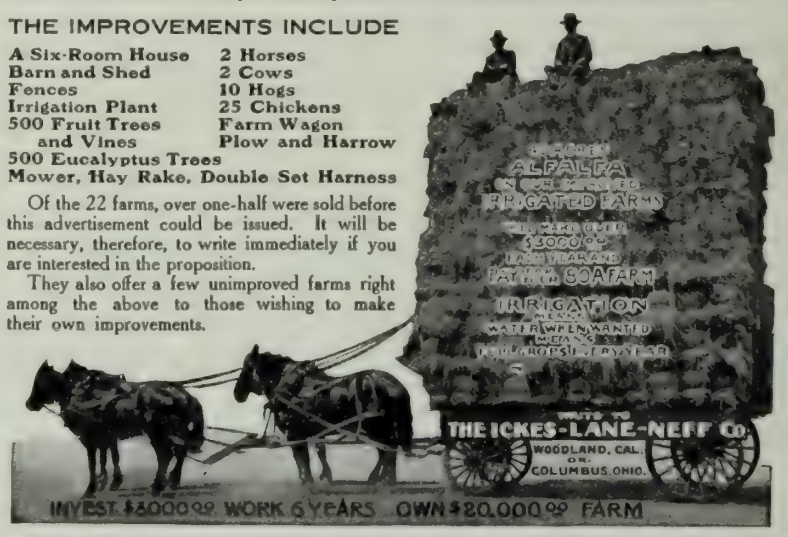
THE IMPROVEMENTS INCLUDE

A Six-Room House	2 Horses
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Irrigation Plant	25 Chickens
500 Fruit Trees and Vines	Farm Wagon
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500 Eucalyptus Trees
Mower, Hay Rake, Double Set Harness

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.





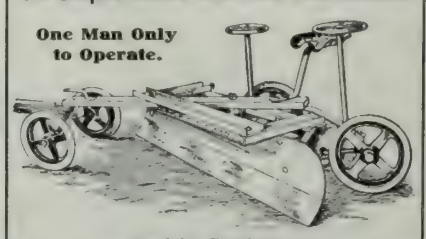
THE IMPERIAL LAND GRADER

The only grader and scraper combined that moves earth and levels the ground perfectly and with ease.

Manufactured by
Rogers & d'Artenay Mfg. Co., Inc.
Cor. 18th and R Sts., Sacramento, Cal.

The Simplex Russell Reversible Road Machine

One Man Only to Operate.



Send for Catalogue.
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LAND PLASTER

(Gypsum)

Nearly every California ranch needs Gypsum. It corrects soil conditions, helps other fertilizers give better results and aid fertility in the soil. Alfalfa, grain, vegetable and fruit crops are greatly increased.

Write for booklet and prices.

PACIFIC CEMENT PLASTER CO.
AMBOY, CALIFORNIA.

Live Stock and Dairy.

GRAZING ON THE NATIONAL FORESTS.

A somewhat prevalent misunderstanding of the significance of the action recently taken by Judge Wellborn, of the United States District Court for the Southern District of Cailfornia, northern division, in dismissing the indictments against three sheepmen—Cazajous, Grimaud and Inda—charged with having unlawfully grazed sheep without a grazing permit upon a National Forest, has led Acting District Forester Hatton of San Francisco to send to all Forest Supervisors in California a letter explaining the situation in the following passages:

"In connection with this case my attention has been called to a newspaper clipping referring to Judge Wellborn's decision as follows: 'This decision means, in effect, that from this time on there will be no restriction of the grazing which may be done in the hills—a matter of great interest to those who have herds and flocks in the mountains.'

"Another statement which appears in the clipping is as follows: 'Grazing will be permitted ad libitum on forest reserves until Congress can enact new laws to cover the situation.'

"The language above quoted indicates an entirely erroneous conception of the effect of Judge Wellborn's decision. Judge Wellborn did not question the right of the Secretary of Agirculture to control grazing upon the National Forests, nor his right to prohibit any unpermitted grazing."

After setting forth that the authority of the Secretary of Agriculture to prohibit grazing without a permit has been expressly upheld by the United States Circuit Court of Appeals, in the Shannon and Dastervignes cases, Mr. Hatton's letter continues:

"The authority of those decisions was expressly recognized by Judge Wellborn. Those cases were, however, civil cases, in which the United States was granted injunctions restraining the defendants from grazing trespass upon Forest Reservations, while the cases of Cazajous, Grimaud and Inda, decided by Judge Wellborn of Fresno, were criminal prosecutions.

"Judge Wellborn held that while the Secretary of Agriculture has full authority under existing laws of Congress to promulgate regulations prohibiting grazing upon National Forests except under permit, and while the Forests can be protected against any violation of such regulations by the bringing of civil actions and suits for injunction, still a violation of the regulations cannot be held to be a crime. In other words, the decision of Judge Wellborn did not question the right of the Secretary of Agriculture to enforce by civil process proper observance of the grazing regulations, but held merely that violations of the regulations could not be made the basis of criminal action.

"Under the Criminal Appeals Act of March 2, 1907 (34 Stat. 1246), the Attorney General has instructed the United States Attorney at Los Angeles to sue out write of error at once and have Judge Wellborn's decision reviewed by the Supreme Court of the United States. This is the first opportunity the Government has had to obtain a ruling upon this question by the Supreme Court. The appeal will be prosecuted to as early a decision as possible."

Judge Wellborn's ruling, as Mr. Hatton points out, was directly contrary to decisions of the U. S. District Courts of Idaho, Northern California, and South Dakota, and the Supreme Court of Arizona, and also to an opinion of United States Attorney General Griggs. In explanation of the course now to be pursued by the Forest Service, Mr. Hatton's letter says:

"As heretofore, the grazing regulations will continue to be vigorously enforced upon every Forest. Any wilful violation will be at once reported by the Forest officers, and prompt action will be taken. Past experience has shown that only upon very rare occasions indeed is court action necessary. The acknowledged justice and propriety of the grazing regulations have generally appealed to the sense of fairness of Forest users, with the result that willing compliance with, and hearty co-operation in the enforcement of the regulations have been the rule, and cases of wilful violations have been of rare occurrence. Where court action is found necessary it has always been, and will continue to be, the rule of the Forest Service to avoid criminal prosecution if possible, and to rely upon remedy by civil action."

After remarking that, since the United States District Court for the Northern District of California has held contrary to Judge Wellborn's decision, there is no reason why criminal prosecutions may not, in proper cases, be brought in that court, the decision of which has equal authority with that of Judge Wellborn, the letter continues:

"It is proper also to call attention to the fact that, pending the appeal from Judge Wellborn's ruling, there has been no final determination that it is not a crime to wilfully violate the grazing regulations, and if in any case flagrant abuse is attempted in the meantime, the guilty party will, if the Supreme Court disapproves Judge Wellborn's ruling, be liable in every case to criminal prosecution, and to a fine of not more than $500 or imprisonment for one year, or both, as provided by the Act of Congress approved June 4, 1888."

COST OF RAISING DAIRY COWS.

In his new book on dairying, Prof. C. B. Lane, of the United States Department of Agriculture discusses this subject, and among other things says:

It is a mistaken idea that it costs too much to raise cows. The Illinois Experiment Station carefully investigated this subject by raising 48 calves. Records were kept of 12 at a time during four different periods. It was found that they could be successfully raised on 150 pounds of whole milk costing $1.50 and 400 pounds of skim milk costing $1.20. This milk was fed at the rate of 10 pounds per day for ten days, when no more was fed. Only the ordinary grains which the farmer produces and a good quality of legume hay were fed, showing that the dairyman can raise a calf in this way with little trouble.

Successful dairymen state that they raise heifer calves at a cost of $18 to $20 up to the time they are two years old, and frequently sell them for $50 at this age. Even if it cost twice the above amount to raise them, there is a good margin of profit. This is a good business proposition, and shows that it is better to raise cows than to buy them.

That the dairymen should raise his own cows is one of the fundamental elements of profitable dairying, and the lack of

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniaments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

Contrast a dried out, weather-worn strap from a harness ignorant of oil, with the soft, glove-like springy quality of leather oiled with

EUREKA Harness Oil



Think how much better the leather looks; how much *easier it is for the horse;* and how much longer it will wear. Nothing like "Eureka" Oil to make a harness soft and black Ask your dealer.

STANDARD OIL COMPANY (Incorporated)

DR. DANIELS' MEDICINES FOR Horses, Cattle, Hogs, Sheep, etc.



27 Horses die from Colic where one dies from Fire.

Why not insure against Colic?

Daniels' colic cure is SURE, SAFE and QUICK!

$1.00 per Package—20 cents cures a horse. At Dealers, etc.

Agents wanted in each town west of the Rocky Mountains.

A. T. ROCHE & CO.

166 Valencia St., San Francisco, Cal.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg

THE CUTTER LABORATORY

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Registered Polled Angus Bulls, all ages.

My herd is headed by the Imported bull Inkerman of Cullen, No. 62268, assisted by the Blackbird bull Brechin, No. 64119. Both are splendid types of the breed. My cows comprise the Queen Mother, Princess, and Heroine families. Look up the record of this breed at the International Exhibition at Chicago, where all breeds compete. Here they have topped the beef breeds for fifteen successive years. Prices reasonable and correspondence solicited.

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A. W. LONGLEY, Prop.

FOR SALE

FOUR THOROUGHBRED AYSHIRE BULLS, Aged 12 to 20 Months.

If you don't want tuberculosis, breed the Ayrshires.

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all in alfalfa. Three artesian wells. Natural gas.

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GEO. C. ROEDING, Fresno, California. Breeder of Thoroughbred Berkshire Boars and Sows.

P. H. MURPHY, Perkins, Sac. Co., Cal. Breeder of Shorthorn Cattle and Poland-China Hogs.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

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CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.



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is interested and should know more about the wonderful new treatment for Distemper.

CRAFT'S DISTEMPER AND COUGH CURE.

One dose prevents, one bottle cures. Ask your druggist for it. If he cannot supply you, accept no other, but write me for booklet and full particulars.

Pacific Coast Agent, D. E. NEWELL, 56 Bayo Vista Ave., Oakland, Cal.

application of this principle is responsible for a large per cent of the poor herds in this country.

After all, it is not so much what it costs to raise the heifer calf from a good cow, because the good ones can scarcely be purchased at any price. Our attention was called last year to a case where grade cows sold at a farm sale as high as $120 a head. Of course, all the cows in the sale did not sell for that much money, but a few of the very best ran to that figure. Even at this price, a cow capable of producing 300 to 400 pounds of butter a year is much cheaper than a 200-pound cow would be as a gift. While much depends upon the sire used in the herd as to whether or not the practice of keeping the females is to be encouraged, yet on the whole it is wise to care well for the heifers from the good cows.

CANNED PEA WASTES FOR LAMBS.

We have given our readers many accounts of the pea-fed lamb industry of Colorado. There is another way that pea forage is making good lambs, and it is connected with the pea pods cast our in shelling peas for canning. Possibly there may be a chance to connect up with this way in connection with California canneries. At any rate it is very interesting as told by the Breeders' Gazette, which describes a silo 70 feet in diameter and 43 feet in height in which a vast quantity of green feed can be tucked away. From such a silo Stericker & Zuill of Waukesha county, Wis., marketed during the past winter 9000 fat Western-bred lambs. As results in this case showed a profit of around $11,000, better testimony as to the value of silage for lamb finishing purposes could not be desired. For the purpose of making comparisons the firm fed during the winter a smaller band of the same kind of lambs on hay and corn, and that operation barely paid expenses. The Waukesha feeding was largely of an experimental nature and was revolutionary, in that the grain ration was reduced to a minimum and silage forced on the stock. Results were so convincing that the ration of last winter, practically one pound of grain per lamb per diem with an unlimited quantity of silage, will be adopted by the firm as its standard. The feature of this feeding was the limited quantity of corn used.

In the previous year's work self-feeders were used and the lambs given all the screenings they could consume. This resulted in only limited consumption of silage, the lambs filling up on grain. Gains by this method were satisfactory, but cost was excessive and the feeders determined on a radical change. Hand-feeders were substituted and the stock practically forced to eat silage. A small quantity of corn was fed twice daily, the grain ration being from beginning to the end of a feeding period of 60 to 70 days, never exceeding 1½ pounds per day and not averaging a pound. It was a mixture of corn and oilmeal, the proportion of the latter being limited to one-quarter pound per day. At the outset one-quarter of a pound of corn per head was used, this being gradually increased to the maximum.

The previous season, when allowed all the screenings they could eat, the average consumption of grain was three pounds per head. While heavier gains have been made in the feedlot, from the standpoint of economical production this experiment was satisfactory in every respect. The season's work may be summarized by the statement that lambs fed on hay and a heavy corn ration lost money; fed on silage and a limited grain ration, profits were handsome. Corn used in this feeding cost 50 to 63 cents; screenings were worth $16 to $17 per ton. Had last winter's ration of screenings, three pounds per day, been used, the cost per head for grain would not have been 2¼ cents. Corn cost but little over 1 cent per day. The feeders demonstrated, to their own satisfaction at least, that pea silage and corn constitutes a well-balanced ration.

Montana mountain bred lambs were used, as the feeders consider them far superior to plains-bred stock. Every lamb was bought on the Chicago market, and in dividing the two bands care was exercised to give each feedlot an equal chance.

The first feed began October 19 and ended December 14. The average weight going into the feedlot was 71 pounds; at the stockyards on selling day, it was 85 pounds. The 3000 lambs, costing $5 to $5.25 when put in, sold in one lot at $7, after a 40-day feed on the silage and corn ration. The second feeding period was strung out during the winter, drafts being purchased at the Chicago market as opportunity offered. Investment prices ranged from $5.25 to $7.20, and sale prices of the finished stock from $7 to $8. They went in weighing 75 to 80 pounds. None weighed less than 90 pounds coming out, and some reached 104 pounds. All of the second feeding were shorn, and while fat lambs were mainly disposed of before the spring rise in prices (otherwise financial results would have been greater), a booming wool market added materially to the profits. These lambs enjoyed popularity in killing circles. They dressed well and were regarded by buyers as fully up to the standard of lambs fed on hay and grain. The grain delegation brought no better prices than the silage-fed contingent. The grain-fed band consumed more than twice as much grain as the others.

All this relates to pea and not corn silage, and the feed used in this instance was cannery waste. Naturally the question will be asked, Wherein lies the interest to the average feeder with no cannery waste at his disposal? The experiment has at least determined the feeding value of pea silage in combination with a small corn ration. It indicates possibilities for a vast extension of cattle and sheep feeding in an area not regarded as within the corn belt proper, embracing Wisconsin, Michigan and Minnesota, where the pea crop thrives. The best pea country in Wisconsin is in the northern part of the State, where meat production has never yet been attempted. In favorable seasons two crops of peas can be grown annually. In Waukesha county the first crop is planted about April 20 and cut June 20, in ample time to raise a second crop. Where no cannery is operated in the vicinity the grower can put the entire crop in his silo, enhancing its feeding value. There are millions of acres of land in Wisconsin, Michigan and Minnesota that by the feeding of pea silage could be brought to a high state of fertility in a few years, as the pea crop fixes nitrogen in the soil. By feeding silage an abundant supply of manure would be available.

Farmers in the vicinity of Wisconsin canneries already recognize the value of pea vines, and are bidding for cannery waste, but owners of these plants prefer to convert the stuff into manure on their own premises, thereby insuring an abundant supply of fertilizer for their pea land. Stericker & Zuill pay $1 per ton to the canning company for silage, the company furnishing silo and shed capacity free in return for the manure. The fact that every cannery operated by the company is able to dispose of the pack of peas in advance of planting time under present conditions suggests that pea silage will eventually cut a wide swath in beef and mutton making as the development of the canning industry proceeds. Formerly Wisconsin canneries were compelled to provide dumping grounds for vines, and the stuff accumulated until the nuisance stage was reached, as was the case at Minneapolis with mill screenings, until the sheep feeder devised a useful purpose for the accumulation.

KENDALL'S SPAVIN CURE



Never failing cure for Spavin, Curb, Splint, Ringbone, all Lameness. Also a great family liniment. $1 a Bottle; 6 for $5. Ask druggists. "Treatise on the Horse" free at drug stores or address
Dr. B. J. KENDALL COMPANY
Enosburg Falls, Vt.

A GREAT DAIRY SHORT-HORN.

Here is ammunition for those of our readers who desire to go to the defense of the dairy Short-Horn: On the 11th of April the registered Short-Horn cow Lula, owned by the Missouri Agricultural College, completed a year's record which places her far in the lead as the best dairy cow of this breed. Her records for milk and butter are as follows:

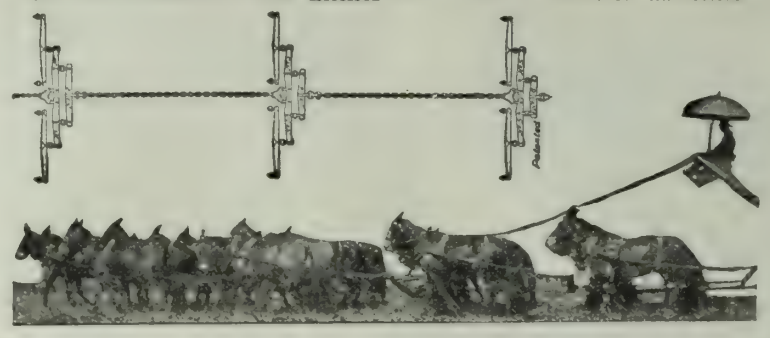
1 day	53	2.8
7 days	356	19.0
1 month	1,454	77.8
120 days	5,064	250.3
1 year	12,341	605.6

In the above the butter is estimated on the basis of containing 85% fat, as shown by the Babcock test, after the method followed by some of the dairy breed associations.

This record, as compared with other official or authenticated records of Short-horn cows, places the cow Lula almost in a class by herself. At the Chicago World's Fair in 1893, the best record for 30 days by a Short-Horn cow was 62 pounds butter, against 77.8 in the same length of time by Lula. At the St. Louis Fair the leading Short-Horn among the 29 animals of that breed competing in the 120 days dairy cow demonstration produced 5207 pounds of milk and 244.5 pounds butter. Lula in the same length of time produced 5064 pounds milk and 250.3 pounds butter, falling behind the St. Louis winner slightly in milk; on the other hand, running over six pounds ahead in butter. Next to the record of Lula, the best authenticated year's record of a Short-Horn cow at the

THE SCHANDONEY EQUALIZING HITCH

Over two thousand of these **hitches** now in use on combined harvesters.

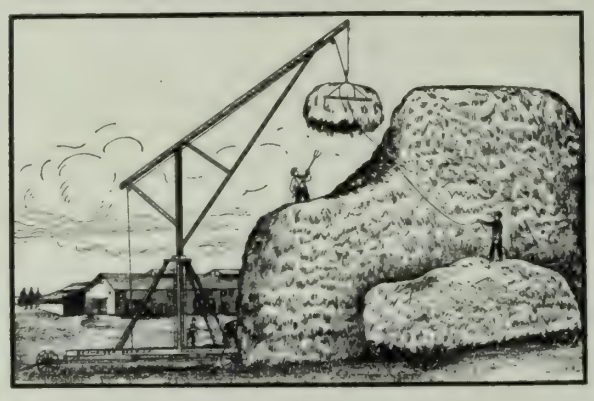


Positively prevents run-aways with combined harvesters. Runaways are more expensive than these **Hitches**—why take the chances. Any body can drive—expert driver not required.

For further information, Catalogue and Prices, address

THE SCHMEISER MFG. CO., Davis, California.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK



Hay is worth $1.00 per ton more when baled from the stack than out of the shock, besides doing away with the great loss in weight which results when left standing in shocks.

With the SCHMEISER DERRICK, hay can be stacked for 15c per ton, therefore when hay is baled, 85c per ton is gained by stacking, to say nothing of the saving in weight.

The DERRICK is worth its price alone for loading hay when baled.

Write for Descriptive Circular Today.

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WOOD PIPE

Made from California Redwood or Selected Washington Douglas Yellow Fir.

National Wood Pipe Co.

Machine Banded Stave Pipe. Continuous Stave Pipe.

SAN FRANCISCO OFFICE—318 Market St.
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SALT LAKE CITY OFFICE—Dooly Block.

Prices, specifications, hydraulic data and general information furnished upon request.

Second Hand Pipe and Casing

All sizes from ½ to 10 inch Std. and 2 to 8 inch casing all as good as new.

Write for Particulars and Prices. **PACIFIC PIPE CO.** S.W. Main and Howard Sts. San Francisco, Cal.

Cure That Horse With Tuttle's Elixir

Lame horses Veterinarians have given up and which other preparations have failed to help, have been cured, made as sound as a dollar, with Tuttle's Elixir. It produces better results than anything else because it acts on a different principle. It is something more than a mere liniment. Let us explain and show you the proofs of its value in cases of Curb, Splint, Spavin, Sprains, Swellings of any kind. Also for internal ailments.

Horse Doctor Book Free

Write for it today. 100 pages, illustrated, filled with information valuable to every horse owner. Dealers keep Tuttle's Remedies. Don't experiment. Get Tuttle's.



Tuttle's Elixir Co.
33 Beverly St., Boston, Mass.
Willis A. Shaw, Los Angeles, California Agent.

present time is 10,438 pounds milk and 494.9 pounds butter, which is 110 pounds behind the record of our cow. The third best authenticated record is 9896 pounds milk and 475 pounds butter.

The cow Lula was seven years old in March this year, and was bred in Chautauqua county, New York. Her sire is Chautauqua Duke No. 211560. She was selected by Professor Eckles of the Missouri Agricultural College from a herd of milking Short-Horns entirely on her appearance, although the entire herd was averaging over one pound of butter per day at the time. When this cow is in milk she takes on considerable of a dairy type; when she is dry she shows a fairly good beef form. Her weight averages around 1300 pounds. It cannot be said that she is entirely an accident, since she comes from a herd that has been bred for dairy purposes for 30 years. During this time every calf was raised by hand on skimmilk, and all the cows milked. In fact, the principal income of the owner was from the sale of milk.

ALFALFA AND RYE GRASS.

To the Editor: I have sowed some Australian rye grass with new alfalfa, and now have the hay to sell. As it is a new thing in this locality, buyers are likely to be a little shy of it. Could you kindly acquaint me with its relative feeding value for horses, as compared with other hay.

My primary reason for trying this grass is to exterminate the foxtail, and I am convinced that in a few years I will not have a bit of that pest left on my place. In the fall of 1907 I thoroughly disked one field of 11 acres of old alfalfa—lapping the disk half both ways—sowed the seed and horrowed in. Another field of old alfalfa, used mostly for pasture, I did not disk, but just scattered the seed. In both fields there is very little foxtail to be seen. Instead, I have been able to cut about two tons to the acre of good looking hay.

The field of new alfalfa has been cut and cleaned off, then irrigated, and the rye grass is coming along nicely with the alfalfa. It does not make a very robust showing the first season, but asserts itself with interest the next. I am enclosing a few blades of the hay under separate cover. As soon as I have fed up what hay is close to hand I intend trying my own horses with some of the rye grass hay.

I would like to add that the seed growers recommend the grass sowed in with alfalfa as an antidote to bloat in cattle. This I am not able to prove, but I am sure it would be a great boon to dairymen. I speak from experience, having owned a dairy of 50 cows.

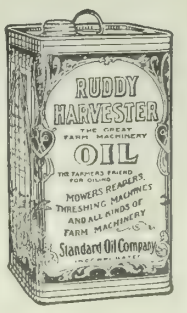
Merced, Cal. ED WHALE.

Your undertaking to crowd out foxtail with rye grass is exceedingly interesting, and, so far as we know, an original conception of the way to meet the foxtail on its own ground by the substitution of a better grass, which is also disposed to grow actively before the alfalfa starts. The rye grasses are, however, low grade grasses, so far as nutritive qualities go—that is, as compared with timothy, which is the standard for a hay grass, and which, unfortunately, will not grow except in the far northern parts of the State. We would like to know the future of your experiment, both as to the exclusion of the foxtail and the acceptability of rye grass hay to stock. We apprehend you will have to cut earlier, certainly before the heads develop so far and the stems become as hard as they are in the specimens which you send. In order to demonstrate the matter practically, if we had a lot of the hay on hand we would offer some for trial to any possible purchaser, in order that the animals themselves might pass upon it. We do not think that you need to apprehend low nutritive content from a chemical point of view; what needs to be demonstrated is how the animals will take to it and how they will thrive on it, and that can only be told by such an experiment as proposed, which would supplement your conclusions from feeding the hay to your own stock.

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is Ruddy Harvester Oil. It has a way of staying *on* and wearing *long* which makes it invaluable for farm machinery — especially when boxes and bearings are considerably worn.

Ruddy Harvester Oil



is a heavy oil, yet a free feeder. There is no acid in it — it won't gum and it won't rust. Winter or Summer, the best oil for heavy or much worn farm machinery is Ruddy Harvester Oil.

Comes in quart, gallon, 5-gallon cans, half barrels and barrels. Ask for it.

STANDARD OIL COMPANY
(Incorporated)

The dairyman who buys any other Cream Separator always hopes it will be as good as the

UNITED STATES.



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UNITED STATES.

Examine the New Models 14, 15, 16 and 17.

Selling agents located in nearly every town will take pleasure in giving a free trial to anyone interested. If you do not know agent, write us for Cat. No. **148**

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For Successfully Treating the Afflictions of the HORSE and other Domestic Animals.

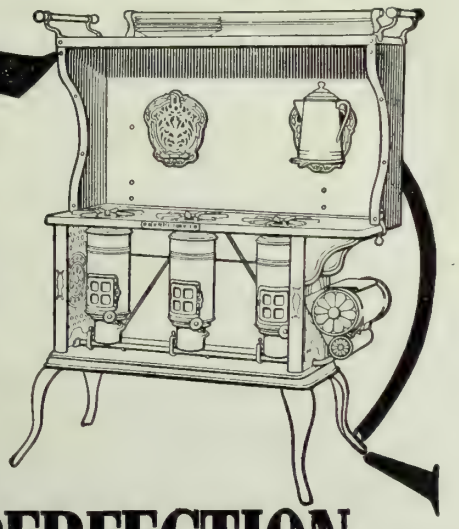
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KEEP A BOTTLE ON HAND FOR EMERGENCIES.
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Manufacturers and Proprietors.

For the Summer's Cooking



No kitchen appliance gives such actual satisfaction and real home comfort as the new Perfection Wick Blue Flame Oil Cook-Stove.

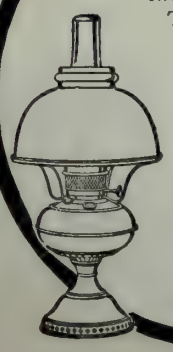
Kitchen work, this coming summer, will be better and quicker done, with greater personal comfort for the worker, if, instead of the stifling heat of a coal fire, you cook by the *concentrated* flame of the

NEW PERFECTION

Wick Blue Flame Oil Cook-Stove

Delivers heat where you want it—never where you don't want it—thus it does not overheat the kitchen. Note the CABINET TOP, with shelf for warming plates and keeping food hot after cooked, also convenient drop shelves that can be folded back when not in use, and two nickeled bars for holding towels.

Three sizes. With or without Cabinet Top. At your dealer's, or write our nearest agency.



The *Rayo LAMP* never disappoints—safe, economical and a wonderful light giver. Solidly made, beautifully nickeled. Your living-room will be pleasanter with a Rayo Lamp.

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STANDARD OIL COMPANY
(Incorporated)

TO PREVENT THE GROWTH OF HORNS.

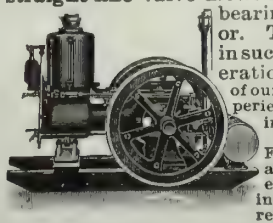
Concerning growing calves without horns, and referring to a brief answer which we made to a question in a recent issue, the following is pertinent: For several years caustic potash has been used at the University of Wisconsin to prevent calves from growing horns. G. C. Humphrey, Professor of Animal Husbandry, gives the following method, which has been very successful:

The caustic potash should be applied as soon as the button-like horns can be felt, after the calf is three days old. If postponed, the operation may give unsatisfactory results. To apply the potash, the hair is removed from about the horns close to the skin. The potash is moistened slightly and rubbed over the skin which covers the point of the horns, until the skin is white.

It is not necessary to rub the skin until blood comes, as this will cause unnecessary soreness. One such treatment is usually sufficient to prevent the growth of the horns.

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Seven sizes: 1½ to 16 H. P. Stationary and portable.

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LATEST DEEP WELL TURBINE PUMP

No valves or plungers to wear or get out of order, no gears, consequently no noise or breaking of teeth.

Compact, durable, always primed and ready to operate—constant flow.

Guaranteed to deliver any amount of water depending upon diameter and capacity of well. Belt driven or directly connected to motor.

Byron Jackson Iron Works
San Francisco, Cal.

The Poultry Yard.

A SETTIN' HEN.

When a hen is bound to set,
Seems as though 'tain't etiket
Dowsin' her in water till
She's connected with a chill.
Seems as though 'twas skursely right
Givin' her a dreadful fright,
Tyin' rags around her tail,
Poundin' on an old tin pail,
Chasin' her around the yard—
Seems as though 'twas kinder hard,
Bein' kicked and slammed and shooed
'Cause she wants to raise a brood.
I sh'd say it's gettin' gay
Jest 'cause natur' wants it's way.
—While ago my neighbor, Penn,
Started bustin' up a hen;
Went to yank her off the nest,
Hen, though, made a peck and jest
Grabbed his thumbnail good and stout,
—Liked to yank the darn thing out.
Penn he twitched away and then
Tried again to grab the hen;
But, by ginger, she had spunk,
'Cause she took and nipped a hunk
Big's a bean right out his palm,
Swallowed it, and cool and calm
Histed up and yelled "Cah-dah!"
—Sounded like she said "Hoo-rah!"
Well, sir, when that hen done that,
Penn he bowed, took off his hat,
—Spunk jest suits him, you can bet—
"Set," says he, "gol darn ye, SET."

—Holman F. Day in Lewiston Journal.

IN THE SUMMERTIME.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

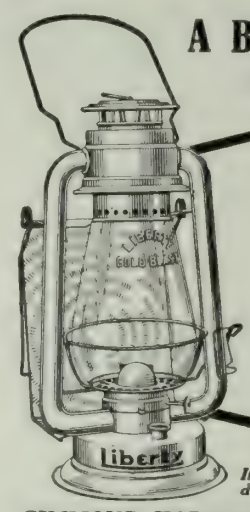
In the summertime the hen suffers more or less from debility. She has put in a term of heavy laying, her wardrobe is getting draggled and shabby and soon, like Flora McFlimsey, she will have nothing to wear. If she has been over-stimulated for egg production, pestered with vermin, and the victim of general ill-care, she is likely to develop liver complaint, consumption, "go light," and will not be able to pull through the molt unless she has a strong constitution to back her. If she is kept in unshaded sun-baked yards, she will suffer from vertigo, bumble-foot and sunburn. If compelled to drink foul water out of slimy vessels and eat her food out of dirt and filth, or given soured messes, raw or tainted meats, or allowed to range where she may feed on carrion, diarrhea, worms and cholera may be expected. In the coast climate, or wherever hot days are followed by chill nights, the fowls and chickens will develop roup, canker, etc., if allowed to roost in drafty or crowded or ill-ventilated quarters.

HOT WEATHER TREATMENT.—Make the fowls comfortable. Give them cool shade, pure water, sweet food, green feed and vegetables. How often may be seen fowls confined in small yards, the ground hard as a stone, making the unshaded sunshine doubly hot by reflection! Wet down and spade a portion at least of the yard; pulverize and mellow it so they may have a soft cool spot to rest their feet on and to roll in and clean their feathers and free themselves from vermin. It is not much trouble to give this an occasional sprinkling and stirring with the hoe. Keep the house clean, and if possible have a large portion of the north or east side always open, that the house may be cool, with plenty of fresh air but no drafts. Best results will be obtained by separating hens that show signs of debility—those with pale or discolored combs, also those that lay ill-formed or soft-shelled eggs. A range where something green may be found is the place for these run down or over-fat hens. At least provide a comfortable yard and roosting place for them. A little Douglas mixture in the water for a couple of days, and a dose of sulphur every other day for three times might be given them with benefit. If they do not begin to chirk up in the course of a week, better dispose of them. Feed is too high to keep non-producers, and it does not pay to keep a debilitated fowl through the molt, for even if she pulls through, it will take her much longer to get into laying than it will a vigorous hen.

FORCING THE MOLT.—Don't do it! It is an unnatural and unprofitable business. By extra care endeavor to have your fowls in good condition to go through the molt quickly when nature is ready. As a matter of fact, the late molters, if kept in good condition, do the most profitable laying of the whole year, in the late summer and fall. Instead of forcing the molt, encourage the hen to hold on to her old coat as long as possible. In our climate she will not suffer if she changes her clothes in December; and if we can get her to lay through October and November, her product will hit the top notch of the market and she will in truth lay the golden egg. After culling out the out-of-condition hens, give the rest of the flock the best of care, and secure this golden egg. Give them plenty of green feed, and if come-at-able, fresh meat scraps well cooked with vegetables, rolled barley and cracked corn, then chopped, salted and mixed dry with bran, but no other stimulants. In the hot dry weather it is beneficial to give the general flock a dose of sulphur in the mash about once a month. An experienced Maine poultryman uses sulphur, both internally and externally, as a remedy and preventive of lice on his chicks. He says: "Sulphur is nearly odorless in itself, but when burned it throws off a powerful and deadless gas, and the process of combustion within the system liberates enough poison to effectually destroy the lice on the chicks. This is the theoretical explanation of the fact that sulphur will kill lice on chicks and ticks on sheep."

THE BREEDING PENS.—These should now be broken up and the sexes separated, unless eggs are required for summer and fall hatching; in which case any bird at all out of condition should be removed from the pen and allowed to rest and recover, or kept out if there is not complete return of vigor. It is well to remove the male birds for a week or two and let the pens rest and recruit; this, with a general cleaning up of the nests and quarters and plenty of fresh vegetables and greens, will insure fall hatching eggs that are hatchable. Retain no bird for breeding purposes that has not a comb of clear, bright red throughout. A dark red in the comb, or even in the edges of it, is a sure sign that the fowl is out of condition.

THE YOUNG STOCK.—Be careful that these do not get a back-set. They should grow like weeds these summer days. The nickle egg next October and November, and sturdy breeding stock next season, depends upon the steady and unchecked growth of the young stock through the summer. These half-grown youngsters are always hungry and need plenty of food. Grass and grain should always be before them, and once a day a good mash containing cooked meat and vegetables. This should be fed in boxes, so that the chicks cannot get onto it with their feet or waste it. Sufficient of it should be given that all may get their fill, as the larger, greedier ones will keep the others away and stuff as long as they can swallow. Have plenty for all. Don't turn the young stock in with the old fowls, nor allow the cockerels and pullets together. Keep chicks of different ages separate; notice that the cockerels yarded together in close quarters do not injure each other. Keep the young stock clean, keep them well fed, keep them growing!



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SORE HEAD, or chicken pox, is prevalent throughout the hot sections of the country in the summertime. Two tablespoons of epsom salts in each half gallon of drinking water once a week is said to be a preventive. Strong brine, or a salve made of powdered salt and lard, or carbolic ointment, is good to apply to the sores; when these remedies fail to relieve, iodine should be used sparingly.

DOUGLAS MIXTURE.—A reader requests the recipe for this poultry tonic: Sulphuric acid, 1 ounce; iron sulphate, 3 ounces; water, 2 gallons. Put in glass or stone vessel; let stand a day or two till dissolved, pour it off in bottles and keep well corked. Dose: A teaspoonful in a quart of drinking water. For disease use it daily; for a tonic, once a week. It must never be put into tin or metal vessels.

CHARCOAL.—Keep a box of broken charcoal before the birds. It is especially good as a corrective in the summertime. Don't buy the bone charcoal; it is a mistaken idea that fowls prefer this. Wood charcoal is what they like, and that which is soft and freshly burnt, best of all. Ordinary coal will answer if fine, about the size of broken rice.

FRESH AIR FOR FOWLS.

This point is made very clear in the following article from the Detroit News-Tribune:

"In the first place, fowls never sweat—they have no sweat glands. A fowl's natural temperature is much higher than that of human beings—in fact, it is above fever heat. That is the reason that a draft of air does such mischief. We might almost say it signs a chicken's death warrant. Perhaps that is putting it a little strong, but it is not far from the truth anyway. Somebody has said that a fowl's body is a regular little engine; the heart beats like a trip-hammer and pumps blood like a fire engine. The chicken has nine extra air sacks to help force oxygen to the lungs, and therefore it needs many times more oxygen, in comparison with its size, than does the horse.

"What does this mean? How does it apply to the fresh air question? Simply this: Fowls need more air than ordinary stock, for two reasons—they consume more oxygen, and all moisture must be given off by the breath. Breath moisture is very warm, and condenses so quickly that one must ventilate to the limit to carry it off, instead of letting it form a hoar frost on the inside walls of the poultry house. If ventilation is lacking, trouble is due any moment among the flock. Houses with open front or houses with these fronts covered with burlap or oiled muslin instead of glass, are successful, because they are thus provided with ventilation; but death traps because of resulting drafts, which are fatal.

"A recent writer on this subject illustrates this point most forcibly. He uses the human need of air to make his point clear. He says: 'Open your bedroom windows wide and you will wake up in the morning feeling like a fighting cock. You have had ventilation. Open your windows an inch, and morning will find you feeling like thirty cents badly spent. You have had a draft, and you sniffle and sneeze like an old plug with the heaves. A draft is a thin stream of cold air sneaking in through a warmer body of air without mixing. Ventilation is a body of air that, however cold, comes in a bunch and has volume enough to regulate its own temperature. Drafts are fatal to health in your flock, and health means profit."

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The Home Circle.

First and Last.

They sat together, hand in hand,
The sunset flickered low;
The fickle sea crept up the strand,
And caught the afterglow.

He sang a song, a little song,
No other poet knew,
And she looked up and though him strong,
Looked down and dreamed him true.

The fickle sea crept up the strand,
And laughed a wanton laugh—
Took up the song the poet planned,
And sang the other half.

Times change: The two went divers ways.
One evening shades increase
On him, grown old in fame and praise,
And her in a household peace.

The echo of the false sweet words
He spoke so long ago,
Has passed as passed the summer birds
Before the winter snow.

But as tonight the angel's hand
Loosens the silver chord
And calls her to that other land
Of Love's supreme reward,

She hears but one sound, silent long,
A whisper soft and low—
The echo of the false sweet song
He sang so long ago.

—*Old Poems.*

Cozzens Perplexed.

"What!" cried Mr. Cozzens. "Isn't dinner ready yet?"

And as he strode around the dining room in a tempestuous and aggrieved sort of way he contentedly attuned his ears to catch a spirited reply from Mrs. Cozzens, but as for Mrs. Cozzens, Mrs. Cozzens fooled him, and the only response he heard was a rattle of dishes in the kitchen, where Mrs. C. was preparing the evening meal.

"Isn't ready yet, eh?" he cried. "Isn't ready yet, eh?"

And again he attuned his ears to catch the customary, "No, it isn't, eh!" but again Mrs. Cozzens disappointed him, placing her head through the kitchen doorway (instead of speaking sharply to him through the door), and saying, "Just a minute or two, Henry. I'm sorry I'm so late.

"Oh, you're sorry, eh?" cruelly demanded Mr. Cozzens, flinging himself into his evening chair and rattling the evening paper. "You're sorry, eh?"

"I'll only be a minute now," said Mrs. Cozzens.

"Huh!" cried Mr. Cozzens. "When I come home hungry I like my dinner. I work hard all day, I do, and I need it!"

But Mrs. Cozzens had returned to the kitchen.

"Sorry!" exclaimed Mr. Cozzens, bitterly, raising his voice. "Yes, sorry! But sorrow doesn't feed me! No! Sorrow doesn't butter my parsnips! No! Sorry! Huh! And so you're sorry, eh?" he cried.

And glancing toward the kitchen door he gave a look that said, "There, that'll fetch her out on the run!"

But, on the contrary, Mrs. Cozzens appeared on the walk with a plate of bread in her hand.

"Have you had a hard day, Henry?" she asked.

"I always have a hard day," grumbled Henry, "and I want my dinner."

"Just a minute," said Mrs. Cozzens.

"Just a minute, eh?' demanded Mr. Cozzens, with a look like a griffon.

"Yes, just a minute," said Mr. Cozzens.

"Just a minute, eh?" demanded Mr. Cozzens again, in such a nasty tone of voice that ordinarily it would have brought Mrs. Cozzens around his ears like a swarm of bees.

"Yes, that's all," said Mrs. Cozzens.

And as she hurried back into the kitchen Mr. Cozzens turned his eyes up to Dick, who was filling in with birdseed for the night.

"Huh!" cried Mr. Cozzens (carefully raising his voice so that it could be heard from the kitchen). "And there you are, stuffing away! And what have you been doing all day? Have you been doing nothing, too?"

But only silence greeted him, so that at last Mr. Cozzens gathered his eyebrows together, with an expression that said, "Now that's funny; now, that's very funny!"

"Ready at last," said Mrs. Cozzens, hurrying in with the soup.

"Oh, so you're ready at last, eh?" exclaimed Mr. Cozzens, inexorably laying down the challenge again.

"You must have been tired out waiting," said Mrs. Cozzens.

"Huh!" cried Mr. Cozzens.

"I'll give you plenty of soup," said Mrs. Cozzens, "because you're hungry."

"That's right, too," grumbled Mr. C. "You needn't try to fill me up on soup."

"Well, who's trying to fill you up on soup," cried Mrs. Cozzens (before she could stop herself).

And as for Henry, Henry rejoiced in his heart and was glad.

"You are!" he cried.

But Mrs. Cozzens didn't shout back.

"I say 'You are! " he cried again.

But Mrs. Cozzens only passed him the butter.

"Hasn't this been a beautiful day!" she exclaimed.

'Oh, it's been a beautiful day, has it?" exclaimed Henry.

"So mild and warm," said Mrs. Cozzens.

"So mild and warm, eh?" demanded Mr. Cozzens fiercely.

"Will you have another slice of bread, Henry?"

"Mmmm," grumbled Henry.

And, pining for the excitement of warfare, he cast his eyes around the room and searched his mind for a cause upon which he could insult Mrs. Cozzens grossly.

"It's a wonder," he cried at last, almost surprised at his own daring, "that you wouldn't dust the furniture once a week, anyhow!"

"It is dusty, isn't is?" sighed Mrs. Cozzens.

"Jane," said Mr. Cozzens.

"Yes, Henry?"

"What's the matter?"

"Why, nothing."

"Don't you feel well?

"Why, yes, I feel all right."

"Worried about anything, Janey?"

"Why, no," said Mrs. Cozzens, rounding her eyes. "What makes you think so, Henry?"

"Well you—you don't—don't sass me back like you generally do—and you seem to be so thoughful"——

"Henry," she said, "I love you too much to be irritating you all the time"——

(And as for Mr. Henry Cozzens, Mr. Henry Cozzens looked ashamed of himself.)

"And besides," continued Mrs. Cozzens gently, "I was thinking of something I saw today—the most bea-u-tiful hat, Henry, all covered with lilies-of-the-valley. Henry, do you think I'm getting too old?"

And as for that musical instrument named Henry (in the hands of that virtuoso named Jane) he thrummed away with all the emotions, and the only time he chided Mrs. Cozzens again that evening was when he lovingly reproached her for not hurrying a little more so they could go right out and buy that hat before some one else might happen along and snap it up.—New York Evening Sun.

To keep cheese fresh and free from mould, wrap in a piece of white cheesecloth wet in vinegar, then place in a paper bag, tie securely, and keep in a cool, dry place. Dampen the cloth with vinegar each time when putting away.

Helps and Hints for the Home.

Summer is especially the sandwich season, and for lunches, picnics, etc., this article of diet is unsurpassed in relish and convenience. Since the advent of Fletcherism and health cults the meatless sandwich is to the fore. From the East comes the following:

NEW SANDWICH.—A joy in the sandwich line is the brown bread sandwich, with a cream cheese filling, just tinged with garlic. The garlic must be the young and tender kind that is the bane of the dairyman, and can be found only in country meadows, and it must be sparingly used at that.

EGG AND LETTUCE SANDWICHES.—Between well-buttered slices of bread put crisp lettuce leaves with French mustard and thin slices of hard-boiled eggs; or eggs and sour pickles cut as thin as wafers. Or make a dressing of one-half cup of butter to the yolks of six hard-boiled eggs, one level teaspoon each of prepared mustard, sugar and salt and a tablespoon of vinegar; beat to a smooth paste and spread thickly over crisp lettuce leaves, over which sprinkle the finely sliced whites.

FRUIT SANDWICHES.—Cut small oblong squares of puff paste a fourth of an inch thick; bake and then glaze with the white of eggs and sprinkle with sugar; put back in a hot oven for a few minutes. When cool spread with jam or jelly and stick two together. They make a delicious and ornamental dish.

TOILET VINEGAR.—This may be easily made by soaking the following herbs in one pint of white wine vinegar for some weeks: Half an ounce each of mint, sage, lavender, rosemary, thyme and marjoram. Cover tightly and at the end of the time strain and bottle for use. This is a delightful toilet water to use after bathing, and gives tone to the skin.

WASHING OVERALLS AND KAKI SUITS.—We saw a soldier boy washing his buff-tinted suit, and think his method well worth the attention of the housewife who has childrens' jumpers and kaki suits and overalls. He improvised a table from a wide smooth board and with a cake of soap, a bucket of water and a stiff clean scrub brush began operations. He laid the garment in hand smoothly upon the board, wet and scraped the brush, and, holding his wash tight and smooth with one hand, scrubbed it with the brush in the other hand, dipping the brush into the water and rinsing off the loosened dirt as found necessary. When every soiled spot had disappeared he used plenty of clear water and rinsed the garment with the brush, then shook it out and hung it up to dry. When it was dry it looked like new with no shrinking or pulling out of shape, and no back-breaking rubbing in the operation.

BOIL THE DRINKING WATER.—The air we breathe and the water we drink are the most important elements of our existence, and their purity is a vital matter. Unfortunately, water may be clear and sparkling in appearance, yet carry disease germs. In using city water or that from open wells and streams, it is wise to be on the safe side and boil the drinking water. Lots of trouble? Yes; but not as much as ailing children and typhoid fever. Some object further that boiled water has a flat taste. This fault may be obviated. It is well to keep two large stone jars for holding the water, and they may be used and sunned day about. Boil the water in the evening and strain into the jar; cover the jar with a double piece of white cheesecloth and set outside in the fresh air and wind. In the morning it will be cooler than water from a well, and sparkling with oxygen which it has reabsorbed from the air; and the "flatness" will be gone. By keeping the jar in a shaded place in the wind or a draft, with a wet sack wrapped about it, the water will remain delightfully cool throughout the warmest day.

The Garden.

We noticed an unfamiliar hedge-like growth in the garden of a friend. It presented a mass of rich dark foliage so heavy as to form a complete screen between the front and back yards. The leaves were very dark green and glistened in the light; the branches ended in innumerable spirals and tassel-like plumes of light green and brown with dark red and bright yellow stems showing through the bead-like foliage. We were surprised to learn that this new and ornamental plant was just beets gone to seed. The old roots of both the blood red and the yellow beets are set out in a row a foot or more apart, in rich soil which is kept mellow and moist; this keeps up a luxuriant growth and new seed spirals and leaves are constantly forming, making a very unique and ornamental plant.

Hint for Rock Gardens.

My main objection to rock gardens, which nobody ever seems to get over, is that too much stone is use. If those people who design this sort of work would study how rocks crop up in hilly countries, as they often do in our own, as well as in Switzerland, they would see that the prettiest effects are often got when single rocks come out of the ground. If the ground is suitable, it is by no means essential that the rocks should be everywhere to grow Alpine flowers.

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THE MARKETS.

San Francisco, June 23, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Wheat shows no change in price whatever at any of the coast markets, and trading is very dull in all quarters. The local supply is light, and no stock of much consequence is coming in from the north. Few contracts for the new crop are being made, either here or in the northern States. Buyers in some quarters have made offers, but the growers are inclined to hold for higher figures.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	@2.20

BARLEY.

Prices on both spot and future barley continue to show a downward tendency, all grades of feed having declined about 5 cents. Receipts have been rather large most of the week, as holders of old grain are anxious to dispose of their stocks, while there is a little new grain coming in. So far the only demand has been for feed, as the shippers and brewers have not yet come into the market. Chevalier is unchanged, and remains fairly firm, with little offering.

Brewing	Nominal	
Shipping	Nominal	
Chevalier	$1.70	@1.72½
Good to Choice Feed, per ctl.	1.40	@1.42½
Common Feed	1.37½	@1.38½

OATS.

The market is now about at a standstill, with prices practically nominal, as there is no large stock offering. Practically all the old stock has been disposed of, with the exception of a small amount of white oats, which are offered at considerably lower prices. New reds are now on the market, and are offered at a figure much below that last quoted on old stock.

White, per ctl.	$1.90	@2.15
Red, new	1.55	@1.75

CORN.

There is little change in this market, as the demand is limited, and stocks held here are small. California small yellow is lower, and the prices asked for Western grades also show some decline.

California Small Yellow	$1.80
California Large Yellow	1.87½
Western State Yellow, bulk	1.77
Mixed, in bulk	1.75
White, in bulk	1.79
Egyptian White	1.90

RYE.

There is no market on this grain at present, as no stock is offered and none has been sold for some time.

Rye	Nominal

BEANS.

Prices on white beans remain very strong and a further advance is quoted, the small variety being considerably higher. Pinks are fairly steady, and while the demand is not very large, the supply will be materially reduced by the end of the month. Blackeyes receive little attention, though there have been reports of a poor crop outlook. Limas continue very firm. It is believed here that the acreage planted to beans is about the same as last year, notwithstanding the fact that some of the land has been put to other uses.

Bayos, per ctl.	$5.35	@5.50
Blackeyes	3.40	@3.65
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.75	@7.00
Large Whites	5.25	@5.75
Limas	4.15	@4.25
Pea	6.25	@6.50
Pink	3.15	@3.25
Red	Nominal	
Red Kidneys	3.25	@3.50

SEEDS.

This is the off season in the seed market, and buying is confined to very narrow limits. The quotations are nominal, and will probably be subject to some change when the new crop comes in.

Alfalfa, per lb.	18 c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	3¾@4¼c
Canary	4 c
Flaxseed	4 c
Hemp	4¼c
Millet	2¾c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

Prices are exactly as quoted for some time past, and are unlikely to be any lower until the new wheat comes into the market. With grain prices remaining at the present figure no advance is contemplated. Trading is very slow, being limited to immediate needs.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

The shipments to this market continue to increase, and the local market has declined in proportion. Only the choicest grades show any firmness, and the reduction in other lines is quite marked. Large outside holders having storage facilities are inclined to hold their stock until later in the season, anticipating a better market, as large quantities to be marketed before winter, and prices will probably be rather low for the rest of the summer. Dealers complain of the effect of the reciprocal demurrage law, which went into effect last Saturday, and which necessitates the immediate marketing of railroad shipments. Reports continue to come in of large crops in most of the producing districts, as the high prices during the spring caused a large acreage to be cut for hay.

Choice Wheat, per ton	$18.00	@19.00
Other Grades Wheat	14.00	@17.50
Wheat and Oat	14.00	@17.00
Tame Oat	14.00	@17.00
Barley	11.00	@14.00
Wild Oat	11.50	@14.50
Alfalfa	10.00	@12.50
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 85c

MILLSTUFFS.

The leading millstuffs are now in fairly good demand. Supplies of bran are arriving liberally from the northern States, but there is no great surplus, and the prices are being steadily maintained at former quotations. Rolled barley is lower again, owing to the large receipts and lower price of the raw grain, but other lines remain as last quoted.

Alfalfa Meal, or mealfalfa, per ton	$23.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	33.00	@35.00
Mixed Feeds	25.00	@30.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	30.00	@32.00
Shorts	31.00	@32.00

VEGETABLES.

New onions, both yellow and red, are now coming in plentifully from local points, causing continued weakness and a lower range of prices. Prices on other lines tend downward, as the supplies of practically everything are becoming sufficient for the current demand. The canners are taking up a large surplus of asparagus, green peas and string beans, and the latter are lower. Asparagus, however, is in very good demand, and both it and green peas bring better prices than last week. Rhubarb and several lines of summer vegetables are lower, with heavy arrivals. Green corn is fairly strong. Few of the local tomatoes arriving receive much attention, though the Winters and river stock bring good prices.

Onions, new red, per sack	40	@ 60c
New Yellow, per sack	65	@ 75c
New Green Onions, per box	35	@ 50c
Garlic, per lb.	4	@ 5c
Green Peas, per sack	$ 1.25	@ 1.75
String Beans, per lb.	2	@ 4c
Cabbage, per ctl.		1.25
Tomatoes, per box	40	@ 65c
Green Peppers, per lb.	10	@ 15c
Green Corn, per doz.	35	@ 45c
Asparagus, extra choice, box	1.75	@ 2.00
Asparagus, common to choice	1.25	@ 1.50
Rhubarb, per box	1.00	@ 1.25
Turnips, per sack		1.50
Summer Squash, per box	40	@ 60c
Cucumbers, per box	40	@ 60c
Egg Plant, per lb.	7	@ 8c

POULTRY.

Heavy shipments from local points came in at the close of last week, leaving the market in an overloaded condition. Arrivals of both California and Eastern poultry this week have been in excess of the immediate consumptive demand, and there is a good deal of holdover stock from day to day. The market has weakened considerably, and the immediate outlook is not very encouraging, though so far prices have been fairly well maintained on every thing but hens.

Broilers	$ 3.50	@ 4.50
Small Broilers	2.50	@ 3.00
Fryers	5.50	@ 6.50
Hens, extra	6.00	@ 8.00
Hens, per doz.	4.50	@ 5.50
Small Hens	4.00	@ 4.50
Old Roosters	4.00	@ 5.00
Young Roosters	8.00	@ 9.00
Young Roosters, full grown	9.00	@10.00
Pigeons	1.00	@ 1.50
Squabs	1.50	@ 2.00
Ducks	5.00	@ 8.00
Geese, per pair	1.75	@ 2.00

BUTTER.

Notwithstanding the easy feeling last week, the price of butter has been pretty steadily maintained, and shows little change, extras being only ½ cent lower. Seconds are 1 cent lower than last week. The arrivals are quite large, and most dealers are carrying more than can be moved for the current demand, prices only being maintained by storing a large surplus. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	26 c
Firsts	25½c
Seconds	24 c

EGGS.

Extras show no change whatever this week, the only alteration in quotations being on seconds, which are 1 cent lower. The demand is by no means as good as it was a few weeks ago, and only strictly fancy fresh eggs are selling to any extent. Accumulations of low-grade stock are large, and the prices incline to weakness.

California (extras), per doz.	26 c
Firsts	25 c
Seconds	22 c
Thirds	21 c

CHEESE.

All grades are lower than last week, with liberal supplies on the market. Flats are firm at the present quotation, though Y. A.'s are still weak. Oregon Y. A.'s are also lower, and some Oregon flats are now offered. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	13½c
Firsts	12½c
New Young Americas, fancy	15½c
Oregon Flats	14½c
Oregon Young Americas	15½c

POTATOES.

The downward tendency of old stock continues, with a material decline in both river and Oregon stock. New potatoes are still firm, though arrivals are liberal, and some decline is expected before long.

River Whites, per ctl.	$ 1.50	@ 1.75
Oregon Burbanks, per ctl.	1.50	@ 1.75
Sweet Potatoes, per ctl.		2.00
New Potatoes, per ctl.	1.25	@ 2.00

FRESH FRUITS.

Arrivals of seasonable varieties are now quite heavy, and lower prices are generally quoted. A few watermelons are coming in, selling up to 7 cents per lb. Nutmegs are comparatively cheap, though arrivals so far clean up fairly well. Practically all berries are considerably lower, except raspberries. There is an oversupply of cherries, with ripe stock pressed for sale. Apricots are also plentiful, and much of the stock is unattractive, though choice offerings still bring good prices. Peaches in baskets are moving freely at 65 cents, but crated lots receive little attention. Grapes are beginning to arrive, but are held for high prices and find little sale. Plums show a wide range, some varieties bringing high prices.

Melons, Nutmeg, per standard crate	$ 2.50	@ 3.00
Raspberries, per chest	4.00	@ 6.00
Gooseberries, per lb.	3	@ 7c
Currants, per chest	4.50	@ 7.00
Loganberries, per chest	1.75	@ 4.00
Blackberries, per chest	3.50	@ 4.50
Strawberries—		
Longworths, per chest	6.00	@ 8.00
Large varieties	3.00	@ 4.50
Cherries—		
Black, per lb.	3	@ 5c
Royal Anns	3	@ 5c
White	2	@ 3c
Apples, per box	1.00	@ 1.50
Figs, per drawer	50	@ 75c
Apricots, per box	40	@ 50c
Apples, new green, per box	35	@ 50c
Peaches, per box	40	@ 65c
Plums, per box	40	@ 75c
Pears, per basket	50	@ 75c

CITRUS FRUITS.

Arrivals of navels are small, and the supply is light, bringing higher prices for the small sizes. Valencias are plentiful and unchanged. Limes are rather scarce and show some advance.

Choice Lemons	$1.75	@ 2.25
Fancy Lemons	2.75	@ 3.00
Standard	1.00	@ 1.25
Limes	5.00	@ 6.00
Oranges—		
Navels	1.25	@ 3.00
Valencias		2.50
Grape Fruit	2.50	@ 3.00

DRIED FRUITS.

Spot quotations show very little change, apricots being a little higher, though there is little business in this line. A fair movement is taking place in spot prunes, and the Eastern market is stronger than for some time past, with supplies closely cleaned up. Peaches continue rather quiet, though there is a firmer feeling in regard to prices, and packers are offering new stock at 5 to 6½ cents. The outlook for fall trade in prunes is good, though little buying is being done at present. Futures are offered at 2½ to 3 cents, and some growers have sold new prunes at the latter figure. There is considerable interest in new apricots, and offers of 8 cents or over are quoted on orchard run. Spot stocks are light in the East, and the supply in this State has been materially reduced. Packers are generally offering 2¼ to 2½ cents for old stock in sweatbox, and offers of 3 cents for new crop are reported. Packers are quoting the following prices on spot offerings:

Evaporated Apples	7¾	@ 8¼c
Figs, black		4 c
Figs, white		4 c
Apricots	8	@11½c
Peaches	3½	@ 4 c
Prunes, 4-size basis	2⅛	@ 2½c
Pears	3	@ 5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$1.00

NUTS.

Old almonds are practically nominal, as supplies are about sold out. Some interest is being taken in the new crop, and it is reported that packers have offered Nonpareils at 16 cents, I. X. L.'s at 15 cents, and Ne Plus Ultras at 14½ cents, for shipment. Walnuts remain rather quiet with plenty of stock offering.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

The arrivals are still comparatively light, though supplies are gradually increasing. Trading is very quiet, as buyers show no disposition to pay the prices which are still asked by local receivers. Dealers, however, are holding up their quotations pretty firmly, and little change is expected until the shipments increase considerably.

White Comb, per lb.	12	@15 c
Amber Comb, per lb.	10	@12 c
White, extracted	6	@ 8 c
Old, candied		4 c

HOPS.

Prices show no further change, but are very firm, and considerable new stock is being contracted at the top figure. Old hops are about out of the market, and spot quotations are more or less nominal. The Oregon crop outlook is very poor, the indications being for about half a crop.

Hops, Old, per lb.	6	@10 c
New Crop	10	@14 c

WOOL.

The market is hardly as active as it has been for the last month, as the spring clip has for the most part been bought up, and stocks in growers' hands are comparatively light. Prices, however, remain quite firm at the old quotations.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Meat shows very little change, dressed steers being slightly lower. Prices seem to be fairly well established at the present level, as the current demand is about balanced by the arrivals. Hogs continue very dull, but the supply is not excessive.

Beef: Steers, per lb.	6¼	@ 7 c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal: Large	6½	@ 8½c
Small	8½	@ 9 c
Mutton: Wethers	7	@ 8 c
Ewes	6	@ 7 c
Lambs	8½	@ 9½c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers: No. 1	3¾	@ 4¼c
No. 2	3½	@ 3¾c
Cows and Heifers: No. 1	3¼	@ 3½c
No. 2		3 c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½	@ 4 c
Sheep: Wethers		4½c
Ewes	3¾	@ 4 c
Lambs	4¾	@ 5 c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾	@ 7 c
Common Hogs, lb.	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., June 22.—The shipments of oranges keeps up and so do the markets. It is a situation unparalleled. Twice the number of oranges are going East than were shipped last year, berries, melons and deciduous fruits beginning to arrive in quantities, and yet the orange market is in the best shape that it has been for two months.

This condition is strengthening the faith of the holders of Valencias. They say that orders are coming in quantities for Valencias at $2 a box f. o. b., and one shipper says that he is beginning to turn down such orders and going back after $2.10, with the result that the buyer came through at the increased figure. There is absolutely no precedent for just such a state of affairs as exists today, and each seller and buyer must work on his individual faith as to what the market warrants. A case in point is that of a jobber who wired for cash prices on 25 cars. A broker handled the order and got prices of $1.90 from half a dozen shippers, each for small lots. An ambiguous wire led him to think the price was accepted and he closed with the shippers for 27 cars. A corrected wire came later offering $1.75, and when he went to sound his shippers to find out if he could wriggle out of the deal he found that every last one of them had got cold feet and did not want to fill the order except at an advance over the $1.90.

The lemon demand is advancing and the auctions are showing better prices than for some time. It will only take a few days of hot weather to create a genuine lemon boom. Prices are of wide range, but the very best cured stock is up to $2.65 f. o. b., and from that down to almost any price the shippers can get for the tree-colored and weak fruit. The foreign lemons afloat and in docks at this time and available with the next 30 days are 160,000 boxes, as against 300,000 boxes in 1908 and 327,000 boxes in 1907. The shipments average 150 cars of oranges and 30 cars of lemons daily. The total output for this season has been 26,284 cars of oranges and 3958 cars of lemons. To same time last season the shipments were 22,111 oranges and 3216 cars of lemons.

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Deciduous Market Report.

Sacramento, Cal., June 22.—During the past week the market has declined on peaches, especially the Alexander variety, which is partly due to the heavy arrivals in the auctions. The market at present is 60 to 90 cents on this variety. Triumphs are averaging $1 to $1.30. The varieties of peaches being shipped at the present time are Triumphs and Hales.

The tendency of the market is also downward on 'cots, Royals averaging $1 to $1.65. Prices are not expected to go any lower, as the crop is light and there is also a very fair demand.

Plums are holding up very well, Climax selling at $1.45 to $1.65, Clymans $1 to $1.35 and Burbanks at $1.60. Only a moderate supply is going forward at the present time, the principal varieties being Red Junes, Botans, Abundance and Burbanks. Shipments, however, will increase this week considerably. A good market is anticipated, as there is a fair demand and shippers report plenty of orders on hand. There are some Tragedy being shipped from the Vacaville and Sacramento river districts, and the shipments of this variety will also increase considerably this week and a very good market is anticipated for same.

The shippers established the following prices on June 21, which are net to the grower for packed fruit: Hales Early, 40 cents; Alexanders, 35 cents; Triumphs, 45 cents; Abundance, Botans, 65 cents; Climax, 75 cents; Tragedy, 85 cents; Clymans, 55 cents; Shiro; 60 cents; Burbanks, 75 cents; Royal Hative, 65 cents; Red June, 70 cents.

A few lots of Bartlett pears have been shipped. Prices established by the shippers in the river district are 70 cents per box, unpacked, bank delivery. The price established last year for Bartletts was 55 cents. Shipments up to June 16, 1909, total, 401 cars, as compared with 521 cars same date last year.

PUBLISHER'S DEPARTMENT.

Among our new advertisers this week will be noticed G. H. Hopkins & Son, who have opened a commission fruit house in Los Angeles. These parties are known to many of our readers as growers of strawberries and plants at Burbank, and while the fruit handling business is a new departure, we trust they will be very successful. Readers who have fruit and produce to market should look up their ad and write them.

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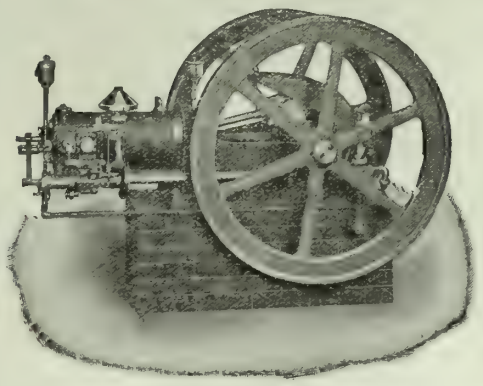
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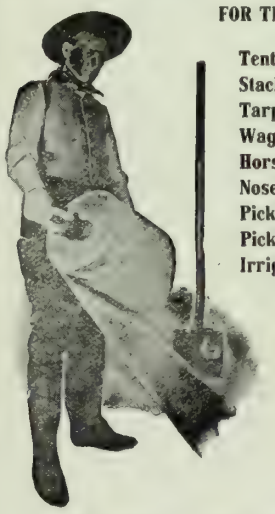
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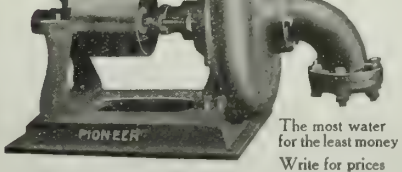
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The Swiss Milch Goat in America.

Written for the PACIFIC RURAL PRESS
By WINTHROP HOWLAND, Redlands, Cal.

Though in almost every line of stock raising the American farmer has taken keen interest in the improvement of his breed of animals, and has spared no expense nor effort to procure from the country where it could be found the best stock obtainable, yet in the breeding of milch goats, until within the past half dozen years practically no effort has been made in the United States to improve the quality of this valuable little milk producer, nor to import from Switzerland, the breeding place of the finest milch goats in the world, specimens of the best types of celebrated milking strains.

Probably the reason for this indifference toward milch goats on the part of our stock raisers is the fact that, owing to the vastness of our country and the cheapness of pasture for cattle, it has not been necessary for us as a people to economize in grazing land, as must be done in Europe, and the great economic value of the "poor man's cow," as the goat is called, and so called, please bear in mind, not because her worth is small, nor that she is "cheap" in the sense of being second class, has not come into competition with her rival, the cow.

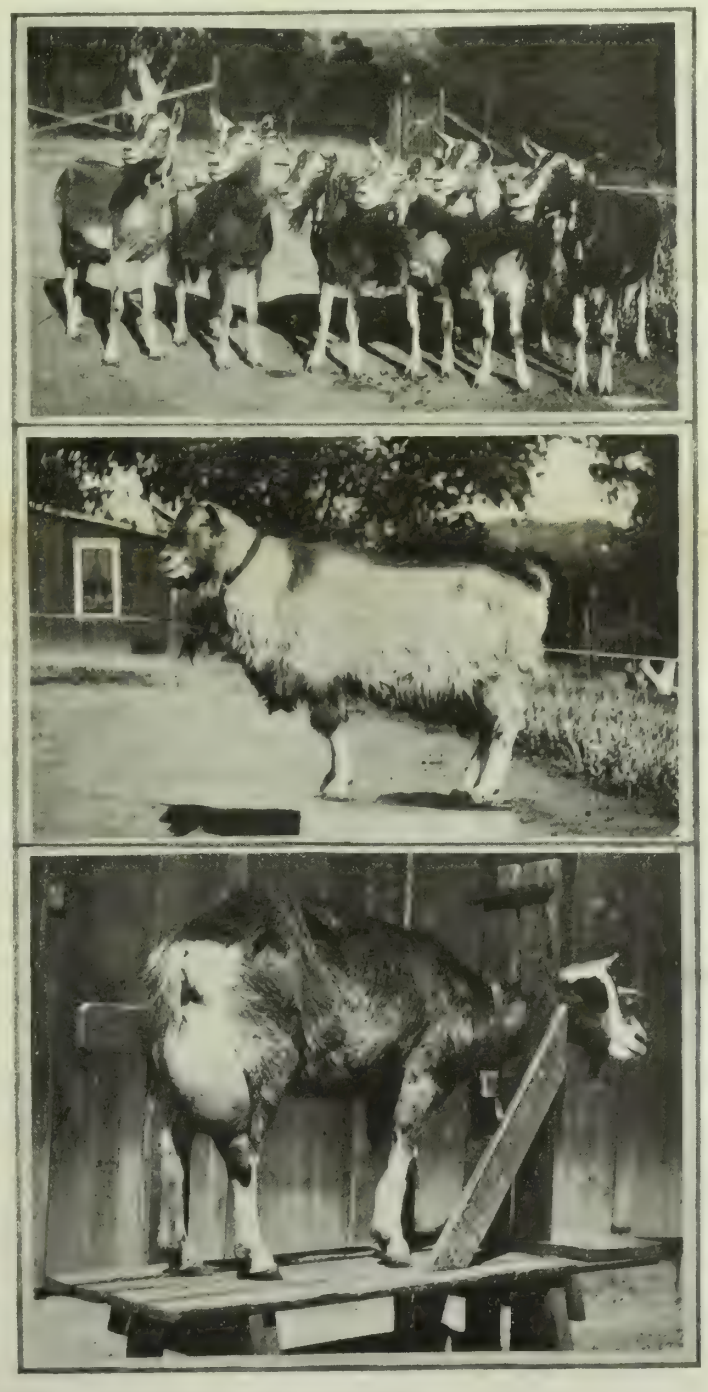
But now comes a time when land steadily increases in value, and slowly but surely we must learn to follow the thrift practiced on the small farms of foreign countries, where every acre must be turned to account.

Herein lies the value of the milch goat: that she thrives on weeds and brush that other stock ignore; that she yields, in proportion to her weight, more milk than the cow; and that her milk is richer and more nutritious than that of the former; and is free from the dreaded bacilli of tuberculosis, so frequently found where cattle are improperly kept.

Up to the present time probably less than 200 head of Swiss goats have ever been imported into the United States, and these few are scattered widely over this country, Canada, and Mexico, so that the sight of a real Toggenburg, Saanen, or Schwartzenburg, as the three best Swiss breeds are known, is of very rare occurrence, and their value, as may be imagined, is high.

Of the three breeds mentioned, the Toggenburg is considered the finest, and is to the goat family what the Jersey cow is to her breed—the aristocrat of the race. In color they vary from light to dark brown on the body, with white bars down each side of the face, and white from the knees and hocks down. The coat also varies in length, some having short and others long coats, but the hair in either case is thick and fine, and the race markings very distinct. The heads of these goats are finely shaped, and their long delicate ears give them much the appearance of deer. They are most attractive creatures, and quite superior to ordinary goats in every respect. The Toggenburg is hornless, though occasionally a kid is born with horns.

For hundreds of years this breed has been improved in the Toggenburg valley, a district forming a considerable portion of the Canton St. Gallen, in the northeast section of Switzerland, and these goats are eagerly sought by breeders in many foreign lands.



1.—Group of Thoroughbred Toggenburg Does.
2.—Imported Toggenburg Buck "Prince Bismarck".
3.—Imported Toggenburg Doe "Fanette": Record 1,000 Lb. Milk in Four Months.

Toggenburg Goats Owned by Howland & Hurd, Redlands, Cal.

According to the U. S. Bulletin on Milch Goats, in 1903 $10,000 worth of Toggenburgs were sold for export from Switzerland, and during the year 1901, 19,000,000 gallons of goats' milk was produced in that country. These figures show to what an extent the industry is there developed.

California has probably the finest herd of Toggenburg's now in the United States, and no expense nor effort has been spared to secure the best goats of this strain ever imported from abroad, and they have thriven especially well in this climate. Owing to the scarcity of thoroughbreds in America, and the great expense and risk incurred in importation, it must be years before these goats become common here, and bearing this in mind, we are as rapidly as possible grading up with our imported bucks from the best native does obtainable. Some of these crosses are most encouraging, and we find that in many instances the offspring bear the strong imprint of the sire, and in four or five generations we hope to evolve a pure breed almost equal to their thoroughbred ancestors from across the sea.

The Toggenburgs, when properly handled, yield from three to five quarts of milk per day, and should give as much as two quarts eight or ten months after kidding. One of our imported does gave at her second kidding 248 pounds 6 ounces of milk in 28 days, and three 2-year-olds raised in California from imported parents at their first kidding gave as follows: Gretchen, a triplet, gave 6 lbs. 5½ oz. per day; Katrina, a twin, gave 7 lbs. 4 oz.; and Griselda, a single kid, gave 7 lbs. 8 oz. These records were made a month after kidding.

In comparing these high-grade goats with ordinary stock we notice the greatest difference in size, quantity and duration of yield, fineness in texture of udder, and intelligence and gentleness of disposition, in each instance the Swiss far excelling the natives.

We receive many inquiries for literature on milch goats, and for the benefit of those wishing the best information, would recommend the U. S. Bureau of Animal Industries Bulletin No. 68; The Book of the Goat, by H. S. Holmes Pegler, published by Chas. Scribner's Sons, New York; and The Case for the Goat, published by E. P. Dutton & Co., New York.

These last two works are by English authorities, and are most interesting and helpful to the goat fancier. In England the greatest interest is taken in thoroughbred Swiss stock, and the British Goat Society registers stock and gives prizes at dairy shows. In the United States the American Milch Goat Record Association has been formed to further the interest here.

One of the strongest arguments in favor of its use is its great benefit to young children. In many instances babies that could not digest any other food have thriven and grown strong on goat's milk. I quote from "The Case for the Goat" as follows:

(*Continued on Page 11.*)

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The Week.

Temperatures have been seasonably high, and harvesting operations have continued in good shape, except where there have been local shortages in the labor supply and unduly high wage rates are beginning to be exacted. Those who desire to work for farmers this year should remember that they should not consider alone the high produce prices and claim what they hold to be their share therein. If they desire to be fair they should also consider the less aggregate of crops which will be gathered, and that high prices are largely based upon this fact—therefore, they are not justified in adding more to the farmers' burdens by making his lessened weights cost him more to secure. If it were a year of great crops there might be more reason for higher wage rates, but if there were great crops there would be lower prices, so even that reason for high claims would disappear. It is not only for the good of the State but for their own good that men who desire to sell their time to farmers this year should not listen to those who suggest immoderate demands upon them.

There is a suggestion from the course of the Feather River fruit growers that the Hindoos may have a way in which they can really help out in the present labor supply in this State. The announcement is that many Hindoos are being employed along the Feather river this season to pick fruit, and that more will be employed as the season advances. They are taking the places of the Japanese to a great extent. Hindoos are not considered desirable as a rule, but the orchardists claim that the demands of the Japanese and the unreliability of such white help as they are able to employ, have forced them to employ Hindoos, who have been in many cases suffering privations since the railroads under construction are nearing completion. Generally the Hindoos are not satisfactory because unable to do hard labor, and it is quite possible that in picking fruit their slim fingers and lightness of motion may find proper place. There is one thing, however, that the Hindoos must learn, if they do not wish to be cast out utterly, and that is to work more faithfully, even in the absence of the task-master. The south Asiatic conscience does not recognize immorality in sitting down on the job when not watched. The Chinese conscience is different in this respect, and is therefore highly esteemed by American employers. If we do find light work for the Hindoo, he must learn to do it honestly. No American employer has time to whip-in his workmen, nor will he hire drivers to do it.

No one can really blame the Japanese for manifesting an American desire to be his own boss and conduct his own enterprise, but we can blame ourselves if we allow them to indulge this disposition too far in this country, because it will certainly transfer this country into a farther-Nippon in which our children cannot live. We confess that we look with great apprehension upon the disposition to lease our fruit properties to the Japanese. We also thoroughly sympathize with wise efforts to prevent foreign ownership of California land, and probably we should have had enactments along that line last winter had it not apparently involved dangerous international complications just at that time. We hope such prohibition may come later; land ownership should be brought as close to citizenship as possible, and Japan ought not to consider such a California policy an affront. They can protect themselves in the same way, and their people have probably even stronger prejudices in that way than we have. Why cannot the nations trade and educate each other without living together, except as such relations are desirable. There is no more reason why the Japanese should own our orchards than that we should become web-footed in order to own their rice fields. It is probably largely our own fault that this question should involve insults to the Japanese because some of our labor organizations have made it do so. This suggestion, of course, involves considerations which we do not desire to discuss at this time, but until matters are arranged so that California shall remain for Californians it is to be hoped that we shall not go too far in conferring rights which may become vested and make later adjustments on right lines more difficult. The movements in Sutter county are unfortunately not confined to that district. The announcement is, however, made from Yuba City that the Japanese are getting hold of the best orchards in that district through long-term leases. Recently Kell's orchard and Cutt's orchard have been leased by the Japanese. A few days ago a party of Japanese called at Charles Wilbur's orchard and made a tempting offer for the place, but Wilbur refused to rent to them. The prevailing local sentiment is cast in these words: "The Sutter county fruit industry has up to this time been conducted exclusively by white people, and the fact that Japanese are now getting hold is distasteful to the white residents."

It is not right to berate individuals too harshly for leasing to Japanese. It should be recognized as the product of an ill-advised movement which took away from the pioneers the trustworthy and quiet labor supply, with the aid of which they planted and brought forward their fruit enterprises, and without which it is very hard to handle the properties profitably. Rather than cast community censure upon them, there ought to be not only community but State effort to secure a labor supply which would relieve them from the strong temptation which now exists.

We hope our fruit growers remember now the declarations of the canners, made some weeks ago at a banquet in this city, that the outlook for canned fruits was good, that Eastern business was picking up, that orders then coming in were devouring the carry-over—and all that joyful talk which we were so glad to hear. We asked growers to remember these declarations, because we were quite sure that fruit buyers for the canneries would forget them when they went out to buy this year's fruit. We know, from long observation, that these buyers' memories are no longer than a lug-box, and we are not surprised that such statements as these are now being used by them in the fruit districts, viz:

"The canners claim their warehouses are filled with hold-over fruit of last year's pack, and that for this reason they will not pay so much for fruit this season as they have been able to do in the past few seasons. The market for tinned fruits east of the Rockies is said to be not so good as usual."

These statements do not agree very well with the banquet declarations which we asked our readers to remember, nor do they agree very well with the canners' plans for this year's campaign, except that they surely will get as much fruit as they can at low prices. They have a right to do that; we are not slamming them at all. The canneries are, however, apparently preparing for a long run this season, taking advantage of the low prices to buy a larger quantity of fruit.

Until we have a sufficiently wide and wise organization of fruit growers in their own interest to tell us what the available amount of fruit will be, and what, under the circumstances, it ought to be worth, we shall be uncertain about values. It does seem clear to us that the prices at which canners are trying to make advance purchases are too low. The report is that one canners' organization has purchased 800 tons of peaches in the Sutter county district at prices which are a disappointment to the growers, as better figures had been expected on account of reported shortages in some districts. The prices paid for the contracts average $15 for freestones, $17.50 for midsummer clings, and $20 for Tuscan and Phillips clings. It strikes us that these prices are 25% too low, at least, and how much worse than that we cannot tell. They are probably 50% too low for strictly drawn canners' selections in the different classes. They may be worse than that, according to what the most popular kinds may bring later. We do not know; without organization and co-operative wisdom no one can know. We do not, therefore, give any advice at all about holding or selling. We only suggest that growers remember what canners said earlier in the season, when things did not look as well as they do now.

One phase of the canners' later statement, as given above, can certainly be blanked out, to-wit, the claim that markets at the East are not as good as usual. Let us settle that by another canner's statement, for we like to speak from authority when indulging in comments on a subject which we do not know very much about. Who is a greater canner than J. Ogden Armour—perhaps not of fruit, but when it comes to trade in things in cans, it does not matter so much what is in the tin, so long as the label looks eatable. Mr. Armour said last week: "The business outlook, both in America and Europe, never was so bright as today. The demand for American goods is growing everywhere, and not in many years has fundamental conditions for industry and trade been so promising as right now. Immigration is also rapidly expanding, arrivals in New York during last month being nearly three times as many as during the same month last year. It is evident that the country is enjoying a very comfortable prosperity." This is probably the general basis upon which our canneries are preparing for a long and large run this year, and we hope they will make millions, for they have not always secured the profits they deserve. But with such an outlook they ought not to be trying to get contract fruit, thinned on the branch, absolutely full size, free from blemish, just the right firmness, and clear in color as a new gold watch, for three-quarters to one cent per pound—rejections returned at growers' cost. Any buyer who is trying to do that ought to go to a garage and have his conscience pumped up, so it will not hurt him so much.

Talking about the advantage of organization so that we shall all know what to do under such circumstances as we have discussed above, we are glad to see that the almond growers are trying again to do something. The recent call for a meeting at Del Monte was ill-advised: few growers can stand such a swell draft before harvest, and if they do not get together it will be the almond buyers, and not the almond growers, who go to Del Monte after harvest. The conditions for a good

crop of almonds were never better than this year, and the prices which we hear talked about are relatively worse than the peach prices we have discussed, and buyers laugh in their sleeves when they can catch a man away off by himself who is foolish enough to sell for them. We hope all almond districts will quickly do what has been done in Contra Costa county, and then get together all districts later. The almond growers of eastern Contra Costa have formed an association for mutual protection, and have elected W. J. O'Hara president, B. L. Norcross vice-president, and L. Kellogg secretary. The association is formed with the object in view of obtaining better prices for the crops in the future, and to fight the pressure that has been put on them in the past to force a sale of the crops at a ridiculously low figure. This year the crop is not large, but is said to be very fine in quality. There is no earthly reason why the almond growers should not do as well for themselves as the walnut growers are doing in southern California.

We are running unconsciously to market topics this week, and might as well go on to the end of the space. If anything we have said will indirectly promote the prune movement in Santa Clara, we shall be very glad of it. It deserves to succeed, and can just as well as not, if the growers will be wise and energetic, and do not allow themselves to be split by distractions. Any such organization to succeed must have leaders who are wise by experience in trade. Experienced men who know business are simply invincible when they have the support of a strong organization. Men who lack experience, even when they have such support, are simply in position to make colossal mistakes. The only way is for all who are convinced that there must be strong and effective co-operation to refuse to refuse to be distracted, and get together in one united effort and get wisdom, and name it what they like afterward. It is certainly a good year to get together, because the demand is likely to be good and the supply moderate of nearly all kinds of produce. We know it is a hard time to get together, because buyers will risk more to break up such undertakings, for it is safer to invest and easier to break up co-operative efforts. It is easy to co-operate when supplies are immense and buyers need not do anything but sit on the verandas at the summer resorts; the organization will break itself up, as did the prune combine of 1900. But because it is hard to get together on such a year as this is all the more reason why the thing should be accomplished, because it is sure to succeed under good management, and then it can be held together afterward. It is a good year to succeed, as we have said, because everything favors bull movements. All that is needed is wisdom to recognize the condition and courage to act upon it. Just take a lesson from Patton, who drew out several millions from his bull movement in wheat. He saw it was a bull year, and so last week he added half a million to his fortune by a gigantic deal in cotton for October delivery. As far back as the very first days of spring he outlined a plan of campaign for the purchase of an enormous quantity of cotton and for the sale of it at an increased price. He chose October cotton for his speculation, and has already wound up half a million ahead. It ought to be a bull year for California co-operative organizations, which are naturally of a taurine type. Get together then, fruit growers, in all reasonable selling and distributing organizations. Be bulls of some force and courage. Milch goats are great things in their way, as is clearly shown in this week's issue of the PACIFIC RURAL PRESS, but don't be a milch goat of a fruit grower any longer; you have jumped up on the milking stand too often already.

Queries and Replies.

Orange Dropping.

To the Editor: I have 20 acres of four-year-old Valencia oranges, with a good crop on. The trees are all in a good healthy condition. When they were in bloom it looked as though the crop for next year would double the one on the trees at present. The oranges for next year's crop have fallen off to such an extent that if I have any crop it will not be one-half of this year's. The trees were irrigated before the hot weather came on, and always have been kept in best condition.—Grower, Orange County.

This is one of the many things which we do not know. We share with others the conviction that whatever may shake the tree (figuratively speaking) may cause the young fruit to drop. Sharp changes in temperature, in atmospheric or soil moisture, or other internal agencies which may cause sharp variations in sap supply or pressure may break the hold of the young fruit upon its perch. But even saying this is merely a confession of ignorance. The subject is being carefully studied; something definite may be known later.

Steam Plowing With Cables.

To the Editor: Can you cite to me any literature describing the German system of plowing by cable and engine? I have been told they have a plow worked by this means, the engine drawing the plow across the field by wire cables. Is it practicable for a vineyard?—Planter, San Francisco.

The system of drawing plows across a field by means of cables from engines at each side is generally considered to be an English and a German system. Such an outfit was imported some time ago, and was used by the Beet Sugar Company at Oxnard, Ventura county. It is a good way to work land deeply for the planting of a vineyard, but it would not be at all practicable for subsequent cultivation, as the cables could not be safely used after the vines were planted.

Canning Chile Peppers.

To the Editor: I want to start in this summer to put up green chilis or peppers in small tin cans, as they are put up in California. Please let me know what kind of a preservative to use, how to use it, and where shall I buy it?—Beginner, New Mexico.

We are not aware that peppers need to be put up with any sort of preservative, but presume they can be hermetically sealed in cans without preservatives, if a satisfactory process for sterilizing is used, just as in the case of other canned vegetables. We have, however, had no experience with this matter. You should, of course, understand that in using any kind of preservative in canned goods, you are liable to encounter prosecution under the pure food laws of the United States.

A Prionus Beetle.

To the Editor: By this mail I send you a bug or beetle that I find on my fruit trees and vines. I do not know if it is this one that is eating the bark and leaves, but there is something working on them where I find the bug or beetle that I am sending you. I desire to know the name of the insect and if it is destructive to fruit trees, vines, or vegetables.—F. A. P., Martinez.

The monster dark reddish-brown bettle which you send is Prionus Californicus. It does not do much that we ever noticed in its beetle stage except move around slowly and look handsome. In its larval stage, however, the Prionus is a formidable white grub, as large as one's little finger, with a great head and a brown biting apparatus, which makes a hole about half an inch in diameter —always working in the inside of the wood and not upon the surface. It sometimes gets into a fruit tree or vine stump and kills it, but generally the grub takes to dead wood. It is a native forest insect.

Mushroom Growing.

To the Editor: Kindly inform me where I can get information regarding what has been done in California in the matter of mushroom culture? Who has had experience in it here, and what literature is available on the subject?—Enquirer, Riverside.

Open air mushroom culture is not considered worth while in California, because the product always comes in competition with the product of wild field growth, which is freely marketed. Cellar culture of mushrooms is practicable here to some extent, but should be undertaken near a large city, where the clubs, hotels, restaurants, etc., afford a market. The method of cellar culture of mushrooms is the same here as elsewhere, and you can get details of the methods and arrangements by sending to the Hon. James Wilson, Secretary of Agriculture, Washington, D. C., for Farmers' Bulletins Nos. 204 and 342, which will be sent free on application. There is no local literature available.

Spineless Cactus With Spines.

To the Editor: I bought in San Francisco a piece of so-called spineless cactus, but when it now begins to grow the young leaves are full of small spines and things. Cattle would not eat it. I want you to tell me if the true Burbank spineless cactus has some of those spines.—Reader, Loomis.

We are not the smooth cactus doctor and cannot undertake to give an authoritative answer. Our recollection is, however, that Mr. Burbank has some kinds which show spines on young leaves and drop them later in the growth. We do not know whether you bought Burbank cactus or not. There are others.

Russian Thistle.

To the Editor: Please state in the next issue of the RURAL PRESS if Russian thistle is valuable for anything. What is the proper course to follow to get rid of it? Is there a State law against it?—Subscriber, Turlock.

We never heard of anything it is good for. The best way to treat it is to cut everlastingly before seeding. There is a law against it, and you will find the law on page 250 of the PACIFIC RURAL PRESS of March 27.

Vine Treatments.

To the Editor: Why are vines sulphured? Is summer pruning beneficial, and when should it be done?—Reader, Turlock.

Vines are sulphured to protect them against mildew. Summer pruning is desirable, if properly done. Both these subjects have been discussed in detail in our viticultural department during the last year.

Common Sorrel.

To the Editor: Please find inclosed a sample of sorrel that is getting quite a start in Lake county, but in small patches here and there, mostly in pastures and alfalfa fields. Is there a chemical that will destroy it, as it is difficult to handle it otherwise, it being scattered so.—C. M. H., Lake County.

Lime is the traditional dressing for sorrel, and will bring the land into better shape to resist it; or, in other words, lime will help better plants, like alfalfa, to outgrow and smother it. We do not know any chemical killer which would not also kill alfalfa.

No Peach Yellows, Thank You.

To the Editor: Will you kindly inform me whether your experiment station is making any investigation of peach yellows, especially with a view to the discovery of the couse of the disease, or a remedy for it.—Peach Grower, Delaware.

We are exceedingly glad to inform you that there has never been a case of peach yellows found in California, and we all earnestly pray that there never will be.

Horticulture.

THE STATUS OF THE SULPHUR QUESTION.

In answer to a personal inquiry, Mr. Arthur R. Briggs, president of the State Board of Trade, writes the following informal statement of his belief:

"As to the status of the pure food law concerning sulphur dried fruit, the order of the Federal Pure Food Commission which was made nearly two years ago was temporarily suspended pending further investigation of the subject; the law, however, is still in force. That is to say, fruit dried under the 'sulphur process,' as it is called, during the last two years has been permitted to go into consumption without interference from the Federal authorities. That is the status up to the present time. The referee board created by President Roosevelt for determining the wholesomeness or unwholesomeness of fruit cured by the use of sulphur has not as yet made its finding. Much inquiry has been made, and the question has been and is being most carefully considered. It is presumed that the referee board will come to California this year and make investigation in the orchards during the season when most fruit is being cured. This, however, is a matter about which I am not prepared to speak definitely, though it is believed that the board will come here during the month of July this year. My opinion, though it is merely a personal one, is that fruit cured by the original process in this State this year will be permitted to go into consumption without interference, precisely as it has during the last two years."

AMERICAN FRUIT IN EUROPE.

Last fall we noted, as a result of thousands of miles of railway travel at the East, how small relatively the fruit acreage is away from the Pacific Coast. Recently at a horticultural meeting at Spokane Prof. John Craig of Cornell University said this:

"I was in Europe for about eight months not long ago, and while there was able to make observations relative to market conditions. Now it is often said that the apple crop is likely to be overdone in this country. Looking at it merely from the standpoint of the ratio of increase in product, I do not think there is any cause for fear whatever. We should take into consideration the ratio of increase in the consuming population.

"In considering the European market for American fruits we must bear in mind that there are no commercial orchards in Europe. This is a broad statement, but, as a matter of fact, there are no commercial orchards in Europe such as we know of in the West and East. Orchards may be cultivated there, but it is as an exclusive crop. Small numbers of trees are grown, but not for commercial purposes. The 'amateur' system is thoroughly imbued in the European mind, and it is going to prevail there for a long time, for the old country people are slow-moving."

Probably Professor Craig did not give attention enough to France, Spain and Italy, but for the great commercial countries which buy fruit, chiefly northward in Europe, he is doubtless correct.

Citrus Fruits.

CULTURAL GOSSIP.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

Exchanging ideas on different subjects is of the greatest value to future betterment of existing conditions. This is true of every business under the sun, but our interest at this time is with the farmer, or rather, the orchardist, the grower of citrus fruits. From the meeting of two citrus fruit growers on the road, and the consequent cultural topics that are brought up, to the largely attended conventions held each year, with the minor meeting held every week in the year by clubs and cultural societies, spring much good, and we are advancing every year toward the end we seek.

Perfect Conditions.—I heard an intelligent grower say recently that in 100 years from now we would have perfect conditions—that we would know to a certainty just what kind of fertilizers to use on a given soil and know to an ounce just how much to give each orchard under different existing conditions. That we would know just how to treat each disease and how to control each pest, and so grow perfect fruit. How he knew just when this was to be brought about was not told, and his idea may have no value or special interest, save to bring to mind the fact that we have been advancing, and that some folks think that some day we shall reach perfect conditions. It is true that we, as a people, have advanced more in the past fifty years than in all the other years of history, and there is no reason to doubt that we shall advance faster in proportion as time goes on.

A Mutual Aid.—The idea of this column is to give mutual aid and to help attain ideal conditions as rapidly as possible, and to make it a clearing house of cultural information: to bring together the different ideas on different cultural subjects.

Fruit Drop.—Just at this time the live topic among growers is the excessive drop of young fruit in the orange orchards. No locality seems to have wholly escaped, though some orchards suffered worse than others. That the drop has been very heavy is true, and there is more to it than the usual talk every year at this time. I have personally visited a wide territory this week, and have inspected a great many orchards and a great many trees. While I have not had the advantage of being able to compare the fruit on each tree with what it held last year, as the grower has had, I am willing to take his word for it that the drop has been heavy and the remaining fruit away short of what it was a year ago. The ground is covered with the fallen buttons, and it takes a search to find any fruit at all on some trees.

Estimates.—I have heard the drop estimated at from 50 to 75% of the total, or, to put it differently, they tell me that the coming crop will not be over 25 to 50% of what it was for the present season. I have been reading in some of the local papers that there was not much drop outside of that from the Navel trees, but growers tell me that the drop from the Valencias was even worse, and that all varieties are affected.

Even Grapefruit Short.—I was in the splendid grapefruit orchard of A. P. Griffith of Azusa on Friday last, and he says that his grapefruit will be very short for the coming season. Not from drop, but simply because there was so little bloom. Mr. Griffith told me that he did not see a particle of bloom on any of his trees, and that he had written one of his customers that he did not have a button to show for next year. He now says that he unwittingly told a fib, for he has found a few setting a little less than the size of a walnut, but that they are so few it is hardly worth while correcting his statement. I have since asked other grapefruit growers about their possible production, and find that this condition is not universal. I can say, however, that a grapefruit tree in my yard at Los Angeles never put forth a single blossom this year.

Cause of Drop.—To come back to the drop. What is the cause? All will say that it was the hot weather, and as the drop followed immediately it must be conceded that it was the cause, but why? Why should hot weather affect the trees in that way, and can it be avoided in the future? Are all soils in their different stages of cultural conditions susceptible; are lands, high and low, equally affected, and does climate have anything to do with it? The answer at this time seems to be that it makes almost no difference, for every locality is affected more or less, some orchards in each locality more than others. This brings us down to the basic question of, why should one orchard be affected more than another one, soil, climate and other natural conditions being equal? It would seem that we should be able to find the answer here, and many growers do claim to answer it by stating that the orchards which were least affected had been irrigated just prior to the hot spell. There are so many exceptions to this rule that it does not seem as though this was the right answer. One grower said to me this week that one half of his orchard had been irrigated when the hot wave came, and that his orchard as a whole was equally affected. Another said that he owned two orchards, near together, and one had been irrigated a few days prior to May 30, and that the other was dry. One dropped just as much as the other.

Prevention.—An authority presented his theory a few years ago at a fruit growers' convention. He said that when the hot weather comes early it usually finds the trees partly dormant, and that the damage is wrought on the young and tender oranges before sap could start to flowing freely. The universal remedy, he said, was water, and should be applied at from two to three weeks before the hot weather arrives, and thus enable the tree to be in a good healthy growing condition when called upon to stand the strain. Following each irrigation this man cultivates very deeply, to destroy the surface roots, so that the roots left will be forced to go deeper and the supply of water thus be made more permanent, and so the tree is not so liable to be affected by any sudden change. He concluded by acknowledging that his theory would not be accepted by all, and noted one grower as telling him that he had irrigated thoroughly three different plots, respectively four weeks, three weeks, and two weeks prior to a hot wave, and yet a large percentage of his crop went to the ground.

Why It Is.—What causes it? Has any grower found out? In one of the year-books issued by the horticultural commissioners it says: "Generally during the month of June, and as early as May in some years, growers experience a continuous dropping of young fruit, due to various unknown causes." So apparently the experts do not know what the cause is, and the man who can point to a sure preventative for excessive drop will win fame. I presume that a certain percentage of drop is necessary, as the trees could not possibly bring to perfection the total setting, but this year it looks like very near a calamity.

Increased Acreage.—During my travels around the citrus country I have been forced to the conclusion that many growers intend to set out new acreage, or are going into the nursery business themselves. The demand for young nursery stock during the past year has been excessive, and the nurseries could not furnish nearly what was wanted. So, many growers are setting out small nurseries of their own, and in every case where I have talked with the owner he intends to or already has budded to Valencias.

Puffy Oranges.—I met a lawyer, who is also an orange grower, at Orange this week. I presume he is an honest lawyer, though his name was not Strange. Ever hear the story? A lawyer named Strange died, and when his will was read it was found that he wished a simple headstone over his grave, and the only inscription on it was to be, "Here Lies an Honest Lawyer." He wrote that there was no need of putting his name there, for when the people read it they would say, "That's strange." This lawyer-grower of Orange said that he was having lots of puff in his fruit this year. He thinks it is caused by an excess of moisture and fertilizer, though he says that even if no fertilizer is used, and the soil be very rich, the conditions will be the same. I want to say that before I mentioned my mission to this man he stated that he believed that it would be one grand thing for all concerned if some writer would go out into the different sections and interview the growers about their troubles, and set it down for all to read—that it would result in much good. He was delighted when I told him that was what I intended to do, to the best of my ability.

Does Not Agree.—Another grower, who was listening to the conversation, said that he had seen just as much puff on scant soil where very little fertilizer was used as on the rich soil. He believed that puff was more prevalent in orchards that were allowed to become very dry before each irrigation; that in that case the tree takes in lots of moisture at one time, and that this caused the skin to grow faster than the orange. I heard much the same theory advanced to account for "splits" at one time, only in this case it was said that the orange grew too fast for the skin.

Remember, I am not an expert, but just a reporter. I do not pretend to answer questions. I am here to ask them. If you have a possible solution for any problem, write to the PACIFIC RURAL PRESS about it, and I will do my best to make your experience widely useful.

The Vineyard.

PHYSIOLOGICAL DISEASES OF THE VINE.

Written for the PACIFIC RURAL PRESS
By Prof. F. T. BIOLETTI.

The vine is subject to certain diseases or pathological conditions which are not due to the attacks of any animal or vegetable parasite, or of which the parasite is not known. These are usually called phyisiological or non-parasitic diseases. Some of these are probably due to parasites which have not yet been discovered; others are due to unfavorable soil or climatic conditions, and others are merely symptoms whose dependence on known causes or parasites has not yet been demonstrated. There are a large number of these diseases, some of which are of a serious nature.

In the PACIFIC RURAL PRESS of May 29 full discussion was given to the trouble known as "coulure." Other maladies will now be considered.

Diseases Due to Defective Nutrition.—Most diseases of the vine can be considered to some extent as causing injury by interfering with nutrition. A defoliating fungus injures the vine by diminishing its supply of organic food; root rot, by preventing the absorption of water and soil nutrients. There is, however, a class of diseases which seem peculiarly due to defective nutrition, because nearly all observers agree in considering them as the effect of a failure of the vine to obtain sufficient water or food to compensate for that used.

With regard to the cause or causes of this failure, there are numerous theories, but none supported by undisputed facts. Whether these diseases are simply different types or degrees of the same disease, or differ essentially in their nature and origin, is equally obscure. They differ in intensity from a slight, harmless discoloration of the leaves to the sudden or gradual death of whole vineyards. The symptoms are varied and apparently variable, and none of the diseases has been sufficiently well characterized to enable the observer to be sure in his diagnosis.

Equally uncertain are the remedial measures. If the general theory that the troubles are due to a lack of balance between outgo and income, all that can be done is by general good cultivation and careful attention to the general well-being and health of the vine to attempt to diminish their severity and frequency.

The following descriptions are those most generally accepted of the forms most generally recognized:

Folletage and Apoplexy.—These diseases are characterized by the sudden wilting of the leaves and shoots. A vine, perfectly healthy in appearance, will become completely wilted in two or three hours on a hot afternoon. It may recover during the night or die within a day or two.

The whole vine may be affected, or only one branch. Usually only a vine here and there is attacked, but sometimes most of the vines in a vineyard are killed.

It occurs most frequently in rich, moist soils and in hothouses, where the vines make a vigorous growth. The immediate cause, apparently, is the evaporation of more water from the leaves than is supplied from the roots.

The same symptoms occur when a vineyard is flooded in midsummer. Though there is abundant water in the soil, the vine cannot get it because the excess of water has destroyed the rootlets and root hairs. Similar results happen in sub-irrigated districts where the water-level rises continually during summer. This results in the available root surface, which supplies water, being gradually diminished, and the leaf surface, which evaporates water, being gradually increased. A time comes when the outgo is greater than the intake. If the rise of water is slow, the vine has time to accommodate itself to the conditions, and is simply weakened, but not killed, this resembling apoplexy. If the rise is rapid the vine may die suddenly. This is similar to folletage.

Both these diseases may occur, however, under other conditions, when the rootlets appear normal and healthy.

The interference with the water supply of the plant must then be sought elsewhere. Some observers claim to have found it in a superabundant production of thyloses, others in gummy substances of bacterial origin which obstruct the conduction vessels.

If only one arm of the vine is affected, it may be cut off and the vine saved. When the whole vine is affected it usually dies to the root and cannot be saved.

Rougeot and Red Leaf.—The rougeot is characterized by a more or less sudden reddening of the leaves of a branch or of the whole vine. The symptoms may be induced artificially by fastening a wire tightly around the stem of a vine in early spring. It occurs earlier in the season than folletage, and is not so serious in its effects.

Apparently typical cases of rougeot occur in California, but a similar disease, called red leaf, is more common. These diseases seem in some ways intermediate in character between the two described above and the two which follow. They may affect a vine one year and not the next. The cases appear sporadically in the vineyard and are more numerous some years than others. The use of fertilizers has been found of use in some cases.

Brunissure and Anaheim.—These diseases resemble each other to some extent. The former is common in the south of France and has been observed in California. The latter is apparently confined to California, and is credited with having destroyed tens of thousands of acres of vines.

They are characterized by a reddening or spotting of the leaves, the drying up of the canes from the tip, and the shriveling of the berries before maturity. When severe, the disease becomes worse each year, especially in the second form, and usually the vine dies the second or third year.

Several theories have been advanced regarding the causes of these diseases, but none of them have found general acceptance. Perhaps the most satisfactory is that of Prof. L. Ravaz, who considers them as due to over-bearing, that is, as the failure of the vine to obtain sufficient nutriment to produce its crop and at the same time to nourish its various organs. If this is correct, short pruning and fertilization, if practiced in time, should cure or prevent the disease.

Vines will sometimes make a weak growth, or fail to grow at all, without any easily assignable cause, and with symptoms differing from those of the above described disease. The cause in many cases seems to be some injury to the vines during the growing season of the previous year. This cause is in many cases the attacks of vine-hoppers. Black Prince vines growing in Tokay vineyards have very often been killed. This seems to be because the vine-hoppers, having a special fondness for this variety, congregate in large numbers on such isolated vines. Whenever the hoppers are sufficiently abundant to cause the dropping of the leaves in summer, the vine fails to ripen its wood properly. Without mature green leaves, the buds and canes do not receive the stores of starch which they need for the new growth in spring, and will either grow poorly the following year or fail to start at all.

When a new growth of leaves in autumn follows summer defoliation by hoppers, mildew or other causes, the effect is even worse. The new shoots which start exhaust what food reserves the vine possesses, and the leaves are killed by the early winter frosts before they have been able to return the supplies they have taken from the canes. Similar, but less severe, effects have been observed following a bad attack of oidium.

Sunburn.—This is supposed to be due to the heat and drying action of the direct or reflected rays of the sun. It is characterized by the blotching, shrivelling or complete drying up of the grapes. It is, however, doubtful whether these injuries occur unless there is some weakness in the vine, due to other causes. Sunburn, therefore, should be looked upon as a symptom common to many diseases, rather than a specific disease in itself.

Some varieties of vines are more susceptible to sunburn than others, owing probably to some peculiarity of the structure of the fruit.

Sunburn is very common on the Flame Tokay, and is in many cases due to or intensified by the attacks of the root form of Adoxus vitis. Any injury to the roots of the vine is very commonly followed by sunburn of the fruit. Phylloxera, gophers, root rot, rise of water and alkali, are some of the predisposing causes. Defoliating insects, army worms, vine hoppers and grass hoppers have the same effect.

Fruit Marketing.

THE PRUNE SITUATION.

To the Editor: Pleasing accounts are to hand this week of the prune situation in the Santa Clara valley, both as regards an improved prospect for the season's crop and an encouraging practical outlook for marketing it to better advantage than hitherto in the history of this leading California industry.

As late as the last week in May the crop for this coming season was estimated at no more than 50,000,000 pounds, but the same growers who joined in this consensus of opinion as to the season's outlook are now hopeful that it will greatly exceed the figure named, there being few now who estimate the probable yield at less than 60,000,000 pounds.

A month ago the work of organization for a more systematic marketing was meeting with delays, not so much from any lack of enthusiastic effort as from minor difficulties naturally arising in the adjustment and uniting of the various local associations. These frictions, which were inevitable in the placing together of the working parts in one harmonious mechanism are being overcome, and the strength and beauty of true unity will doubtless make themselves apparent in the handling of this coming crop. The very lack of a single large central organization in former years has compelled the fruit growers to stand together as best they could in various local associations. These are now combined and incorporated, with every prospect of successful co-operation.

The plan is along the lines of those adopted by the orange growers and the walnut growers of the State, and under the provisions of the act passed by the last legislature to meet and regulate such requirements. The incorporation is named The Santa Clara Valley Fruit Growers' Association, and is formed on the conception of a committee of fifty representing the locals, as previously related.

The directors held a meeting in the Chamber of Commerce in San Jose on the 19th ult., when a general discussion was held and plans formulated for the marketing of this year's crop. The meeting was unanimous in its selection of a well known fruit man as manager and selling agent, and a committee, consisting of Vice-President L. P. Van Orden of Mountain View and Secretary J. T. Dunn of Los Altos, was appointed to confer with him, and also for the purpose of drafting the necessary contracts, both between the central organization and the different locals, for the control of the fruit, as well as with the agent to be selected by the committee. These contracts are to be further discussed and confirmed at a meeting to be held on the 26th inst. The contracts will then be signed and a manager engaged.

The subject of a distinctive brand for all fruit to be handled was also discussed, and designs will be presented and one selected at the next meeting.

It is proposed that the central organization meet weekly throughout the harvesting, handling, and marketing of the season's crop, for the discussion and regulation of any questions that may present themselves. They will, in fact, act, as it were, in the capacity of a bureau of information to the body of fruit growers, and with their corporate powers will be ready for immediate and concerted action whenever required.

The associations already in existence for several years are ready to co-operate with the central organization for the purpose of concentrating and selling their fruit products. We are informed that those that have expressed their willingness to thus come together with a common understanding are the Campbell Fruit Growers' Association, the West Side Association, the East Side Association, the Santa Clara Valley Fruit Exchange, together with the various pools that were formed at Berryessa, Los Altos, Mountain View, Morgan Hill, San Martin, and Coyote.

It may be said, in brief, that the main organization is formed on the general principle of utilizing as far as possible the working means already at hand in the various local associations, and the channels of intercourse already established with Eastern and European markets.

A. J. L.

AGRICULTURAL REVIEW.

Horticultural Notes.

The shipments of grapes from the Imperial valley this season are estimated to reach 20 carloads, being mostly of the Persian varieties.

C. M. Seavy of Highlands has just commenced to pick his navel crop, which is the latest in the State. The fruit is said to be in good condition.

The two packing houses at Anderson have commenced shipping fruit to the markets. The crop around there is reported as being very good.

From Biggs it is reported that a large number of Hindoos are being employed in gathering this season's fruit crop, in place of Japanese usually doing the work.

The Warren Tucker orange grove of 29 acres near Redlands was sold last week to A. B. Stickney, a railroad man of St. Paul, for $40,000. Mr. Stickney purchased the grove for his daughter.

H. A. Scott will deal extensively in nursery stock at his ranch, one mile from Poplar, Tulare county, the coming season. Last week he purchased the nursery stocks of Wright & Allen and George D. Avery.

Beaumont promises to become the center of the apple industry of southern California. It is stated that already nursery trees have been ordered sufficient to set out 800 acres to apples there the coming season.

Cantaloupes are being shipped from the Imperial valley at the rate of several cars per day, and last week's shipments brought good prices in the Eastern markets. So far the season promises to be very successful.

Instead of drying most of the fruit raised around Chico this year, as is the usual custom, about 100 cars will be shipped East. Packing will be commenced about the 15th of July and work continued till September 1.

The big Golden State cannery at Ontario commenced operations for the season this week. Extensive improvements have been made in the plant this season and about 500 hands will be employed to keep it going when in full blast.

Mrs. G. W. Wilson of Philadelphia is said to be increasing her collection of orchids. She began by buying the A. R. Smith and Erastus Corning collection, the latter having been gathered at an expense of $500,000 for 4000 plants.

The cannery at Selma has been placed in readiness for a long season's run. It is thought that owing to considerable of last year's crop of dried peaches being on hand that a large part of this year's crop will go to the cannery.

The Porterville and Zante Citrus Associations held their annual meetings last week to elect officers and receive reports. The Zante Association reported the same acreage as last year and the fruit will be marketed through the County Exchange.

The almond growers of eastern Contra Costa county have formed an association for the marketing of their crop this season. The almond crop in that district will not be as large as previous years, but the quality is reported to be excellent.

The section near Bakersfield known as the "weed patch" is being purchased in small tracts and will be set out to oranges. This section is said to raise the earliest apricots, and now that water can be had by pumping, the growing of citrus trees will be attempted.

The Farmers' Union having headquarters at Fresno states that a pool of melon growers embracing the principal points in the San Joaquin valley has been formed. Covering the main melon sections in the central part of the State this pool ought to be able to handle the crop in a manner satisfactory to the growers.

Prof. Frank Bush, a Harvard botanist, recently found a new variety of persimmon while on a tree hunt near Independence, Mo. The fruit of the new variety is somewhat flattened in shape and has only one or two seeds. The finder says it is very large and luscious.

The apricot season in the Redlands district is in full swing, the crop will be about an average one and is estimated at 1000 tons. The Young drier at Redlands Junction will handle about 500 tons, the Gregory drier at Redlands 250 tons and the balance will be divided among smaller driers.

The California Fruit Canners' Association plant and contents at Milpitas was entirely destroyed by fire last week. The loss is stated to be nearly $300,000. As the season's run on vegetables had been about completed there was a very heavy stock of goods on hand, estimated at $150,000.

At the annual meeting of the Butte County Citrus Association, held at Oroville last week, the report of business done the past season showed the average price received for all grades of navel oranges was $1.35 per box, net to the growers. This is the highest price received in the history of the association.

Cherry shipments from around Gilroy are now being made, the crop being very good. F. F. Britton is sending to southern markets about four tons daily, mostly of the Royal Anne variety. H. M. Wolfe of that section has also a fine crop af Bings and Lamberts, both varieties gaining in popularity in that section. The prune crop promises a large yield in that section.

A dispatch from Yuba City states that the Central cannery there has bought 800 tons of peaches in that vicinity, paying for the frees $15, midsummer clings $17.50 and $20 per ton for the Tuscan and Phillips varieties. This sale seems to be about what the other canners there expect to pay this season. Preparations have been made for a long run.

A dispatch from Stockton says that table grape growers have been offered $25 per ton for Tokay grapes and that wine grapes will bring $9 per ton. We do not vouch for this story, but if true the grape growers of that valley have a prosperous season. By reason of organization the grape growers have been able to make contracts for supplies that will save them at least $35,000 this year.

A large meeting of fruit men was held at Ashland, Ore., last Saturday, when a report of the work done by Prof. O'Gara in their orchards during the past year was submitted. It was learned that instead of the frost being responsible for much of the loss to the peach crops each year in the Rogue river valley that the peach blight was the cause, and a concerted action will be made by growers to minimize its depredations.

The first carload of fruit sent East from the new plant pre-cooling at Newcastle arrived at Minneapolis last week in good condition without icing on the way. The car was first cooled to 42 degrees, then iced and sent forward on its journey, arriving at its destination in nine days. This test indicates that fruit being sent from this part of the State will arrive in better condition than formerly and at less expense for icing.

General Agriculture.

The third alfalfa cutting is now being made in the southern part of the State for this season.

Early potatoes are now being harvested around Chino, for which the growers are receiving $1.75 per hundred pounds.

A farmers' institute is being arranged to be held at Napa sometime during the

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It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

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Almond Hullers

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A. O. RIX, Irvington, Alameda Co., Cal.

latter part of October, at which time an exhibit of agricultural and horticultural products will be held.

The second open-air picnic of the Geyserville Grange was held at the grounds of State Master Griffith last Friday, June 25.

The Dolano Record reports the sale of 1200 sacks of wheat by Dave Williams of Deer Creek, at Porterville, for $1.87½ per hundred. This is the record price for grain in Tulare county.

Frank A. Sanders has just completed harvesting his crop on 450 acres of land in Riverside county, near Auld, which amounted to 700 tons of oat and barley hay, worth about $10,000.

Over 1500 acres of cotton is now growing in the Imperial valley, and more land is being seeded every day. The plants that are above ground are making a vigorous and healthy growth.

The general crop average of San Diego county will be 10 per cent larger than that of last year, the total wheat crop of the county being placed at 1350 tons, barley 6020 tons, oats 13,625 tons. Hay will be a good crop.

The Hanford Sentinel says that B. B. Price, living north of that town, has two acres of Russian Speltz, which he is now harvesting and getting about three tons of hay per acre. The crop was sown about March 15 and has had only one light shower of rain and no irrigation.

Business at the land office at Los Angeles was larger during May than any previous month. This was caused by the restoration to entry of seven townships in the Imperial valley. About 9000 acres were involved in the business, for which Uncle San received in the neighborhood of $51,000.

Los Angeles parties have been in the vicinity of Stockton recently asking the farmers to sign an agreement to raise a certain acreage of sugar beets, that a new factory may be built there and be sure of plenty of beets to make the factory a success. It is thought that a sufficient acreage will be secured.

Prices of hops are still rising, said to be due to short crops in Oregon and England. In the Sacramento valley and Sonoma and Mendocino counties the crop will be good, and the rising price means prosperity for California hop growers. Farmers now believe 15 cents, and some predict 20 cents, will be the price for the coming crop.

The Hyman tract of 6000 acres of land near Arbuckle, Colusa county, has been sold to San Francisc parties who expect to cut it up into small tracts and sell to homeseekers. The land will first be graded, planted to fruit or alfalfa, pumping plants erected and houses built, making the places ready for occupancy of the new purchasers.

The announcement of the opening of the School of Agriculture on the State Farm at Davis was made by Prof. Wickson this week. The entrance examinations will be held September 20, registrations the next day. Instruction begins September 22 and term closes May 6. Prof. Leroy Anderson, who has had charge of the farm; has been transferred to Berkeley, and Prof. E. W. Major is placed in charge of the farm as superintendent and manager. A. M. Cleghorn, principal of the Agricultural School, is to be given a professorship.

Stock and Dairy Notes.

A large alfalfa meal mill is to be erected at once at El Centra, Imperial valley.

The Farmers' Cattle Co., of Corcoran is building a silo 169 feet wide and 300 feet long, with a depth of 14 feet, which will be filled with sugar beet pulp and straw.

The factory at Merrill, Ore., is now making 100 pounds of Swiss cheese daily, and the management state that the capacity of the plant will soon be enlarged to three times that of the present.

F. A. Abshire of Cloverdale last week sold his herd of fifty dairy cows to Walter Crigler of Modesto. The stock will be moved to Stanislaus county. Mr. Abshire will devote his attention to raising alfalfa.

According to H. J. Mercer, the honey buyer of Los Angeles, the crop of honey for southern California will be about 200 cars, which is only about a half crop, but is considered good, considering the unfavorable season. Prices are predicted to be about the same as last season.

The machinery and outfit for a cheese factory has been received at Biggs by D. Damascus of San Francisco, who will operate a sheep's milk cheese factory there. It is stated that arrangements have been made to start the plant, using the milk from 300 head of sheep to start with and gradually increase till the product of several thousand sheep is used.

At a meeting of the Fresno county poultry people last week it was decided to abandon their regular annual exhibition, which was scheduled to take place in December, and to join with the County Fair Association which will hold its exhibition October 18 to 21. The Poultry Association will have full charge of the poultry department of the fair and will conduct it on the same lines as the regular winter shows. Exhibitors are invited from all parts of the State and coast.

The following account of the result of a suit brought to collect rent for the use of unfenced range land, as published in the Fresno Republican, will be of interest to all stock men: "A suit which was brought by cattle owners as a test and which affected land holdings in the Deep Creek country has been decided adversely to rulings of the government, and an opinion favorable to the contentions of the owners was handed down last week by Judge Wallace. The government holds that owners of land in the mountain range have no right to collect damages for trespass of cattle when such land is not fenced. W. A. Dean was the owner of a large tract in the Deep Creek country, which tract adjoined some of the forest range. In accordance with the ruling of the government the forest ranger issued a grazing permit covering the range wherein Dean's land was situated. This permit was issued to Walter Braddock and W. A. Hengst, and at the end of the season Dean brought suit in the court for $50 rental on the range in question. The case was hotly contested, with the result that the court found for the plaintiff in the amount claimed. It is not known as yet whether the rangers will take the matter up to the forestry officers with a view to having the case appealed. Under the present status of the decision, it was a distinct victory for the small land owners, and will absolve them from the necessity of fencing their land if the decision is further upheld."

MR. PINCHOT HITS GUM BOOM.

F. E. Olmsted, in charge of the San Francisco office of tne Forest Service, has received a letter from Mr. Gifford Pinchot, in which he asks that the public be informed that the use of his photograph in the literature issued by any eucalyptus company is entirely unauthorized, as well as any statements which purport to show that official sanction by the Forest Service had been given the methods or operations of any particular eucalyptus company. Mr. Olmsted, in speaking of the matter, said:

"The Forest Service is always ready to assist in the development of the eucalyptus industry in this State through the publication of authentic statements of the characteristics and growth of this species, but under no circumstances will it lend its aid to advertise particular eucalyptus companies, and any literature which contains statements to that effect is unauthorized.

"Under proper conditions the growing of eucalyptus in California promises to be a profitable industry, but in some cases this fact is being taken advantage of by individuals and companies who desire to sell stock or land through the medium of greatly exaggerated statements of profits to be derived."

The Sacramento people and congressmen from this State are to be congratulated upon the good work done in Congress in having the resolution passed recently which provided that the balance of the appropriation, amounting to $228,000, for the work on Yuba river, be continued and the work carried out instead of having it revert to the national treasury.

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Forestry.

REORGANIZATION OF THE FORESTRY SERVICE.

Following the movement of the larger part of the executive force of the Forest Service from Washington into the field, and the division of the Western country into six forest districts, each in charge of a district forester, the practical management of Uncle Sam's forests on a business basis is being pushed forward even more effectively than heretofore. Only the general administrative heads of the service and the men engaged in government forestry work in the eastern part of the country retain their headquarters in Washington.

For the better administration of the 194,500,000 acres of National Forest land, this vast territory is divided into 149 National Forests, each in charge of a Forest Supervisor. In all cases, the supervisor is selected for his wide practical knowledge of the West, and of lumbering and grazing particularly. He may or may not be a trained forester. If not a trained forester himself he has such a man to assist him. It is the business of the Forest Supervisor and his technical aids to bring their forest gradually to a condition of maximum productiveness. To do this requires a great deal of detailed study and skillful planning. Each step, from the care and protection of the young growth to the lumbering of the mature forest must be carefully considered and as carefully executed if the forest is to go on producing trees indefinitely.

For each of the many lines of work to be carried on in the forest, men with special experience are required. Those who prepare and tend the nurseries must be experienced in raising and caring for young trees. The lumberman, who cruises and estimates timber, helps to plan logging operations and sees that the scaling is correctly done and that the rules for logging are properly observed, must be an experienced and capable woodsman. The Forest Ranger patrols his district of the forest to see that fires and trespass are prevented, that the range is not overgrazed, that logging regulations are enforced, and that the privileges granted by permit for the use of the various forest resources are not abused; he also must be hard-headed, practical, and a thoroughly honest and able-bodied citizen of the West, with plenty of experience in all the problems with which he may have to deal. The trained foresters are usually Forest School graduates. Their training is somewhat parallel to that of the civil engineer, but particular attention is paid to the study of botany, to the life and growth of forests, and to all that affects their development and usefulness. In addition to his scientific training, the American trained forester must have abundant practical experience in the woods, on the range and in the mills, for he must have a thorough understanding of all conditions before attempting to work out a system of good business management of any forest.

For the general administration of the National Forests, the western half of the United States is divided into six distracts with headquarters at Missoula, Montana; Denver, Colorado; Albuquerque, New Mexico; Ogden, Utah; San Francisco, California, and Portland, Oregon.

The object of the Forest Service is to foster proper use of the forest resources of the country, including private and State, as well as National Forests. Upon the latter every resource is for use in the best interests of all citizens of the United States. Every water power site, every piece of mineral land, every bit of grazing land or of good agricultural land is for use, provided it is not required for public purposes. The remainder of the land which is forest is of course put to the best use by the practice of forestry, when it is made to produce as much timber as possible. In order that the administration may be most effective the various offices have been established at Washington and at the district headquarters, each in charge of trained and experienced men directing specialized lines of work.

The office of operation attends in each district to the protection and administration of the National Forests and employs engineers, expert miners and foresters to investigate claims, make surveys and maps and supervise the building of telephone lines, trails, roads, bridges, ranger stations and other permanent improvements.

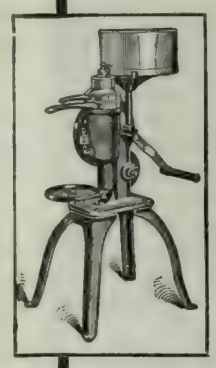
The office of grazing looks after the range, co-operates in the enforcement of quarantine regulations and issues permits by which the grazing of stock within each National Forest is so regulated as to improve rather than destroy its grazing capacity. It studies the best means of reseeding the range and conducts investigations and devises means of checking the growth of poisonous plants which are injurious to live stock.

The office of silviculture makes a special study of the management of timbered lands in order to make them yield the largest permanent returns. It makes timber sales on the National Forests, plants trees on bare National Forest land, makes estimates and forest working plans, investigates forest conditions and all problems connected with the life and growth of trees and gives advice where possible to private parties who are interested in similar lines of work.

The work of the office of products is the determination of all ways and means possible for utilizing wood and timber in order to make the business of forestry both economical and profitable. Markets and wood-using industries everywhere are being investigated, statistics of forest products are being collected, and the comparative strength of building timbers with reference to their use for various purposes is being determined by accurate scientific tests. The office of products also makes a study of the best ways of preserving timbers, and co-operates with private telephone companies, railroads and other timber using interests in determining the best methods applicable in each case. Experimental treating plants for this purpose are being established throughout the country.

In short, the Forest Service is endeavoring to bring about the practice of true forestry—"the preservation of forests by wise use." And the keynote of the entire sirvice, the watchword of each member, from the chief down to the forest guard, is conservation—the devotion of every resource to the best possible use, and the preservation of all renewable resources for the use of future generations.

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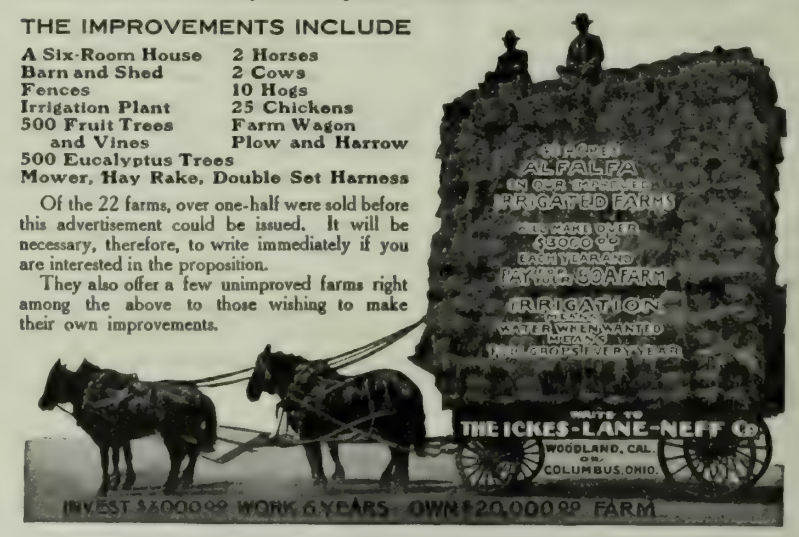
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Mower, Hay Rake, Double Set Harness

Of the 22 farms, over one-half were sold before this advertisement could be issued. It will be necessary, therefore, to write immediately if you are interested in the proposition.

They also offer a few unimproved farms right among the above to those wishing to make their own improvements.

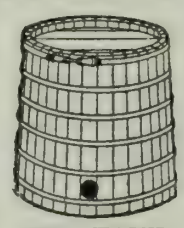


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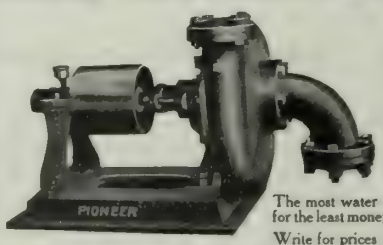
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Live Stock and Dairy.

THE GROWTH OF THE BUTTER BUSINESS.

Concerning the remarkable development of butter production in the State, Mr. W. H. Saylor, secretary of the State Dairy Bureau makes the following statement:

With the month of June at hand, and with no indications of a serious decline in butter production in the immediate future, it begins to look as though the year 1909 is to be a bumper year for the producers in California. The five months of the year that have passed show that one can not state the favorable conditions presented to the producers this year too strongly. We have had high prices and heavy production before, but never have we had a year when both traveled together as they have so far during the year 1909, and that is what the producer wants. High markets are of little value when you don't have the product.

That production of butter throughout California has been heavy this year is shawn by the receipts in both San Francisco and Los Angeles, to say nothing of the fact that the use of butter has gained all over the State in places that do not draw their supplies from these markets. In San Francisco the heavy receipts of butter since the first of the year to June are presented forcibly in the following figures comparing the past three years and also the average price on creamery extras for the same period:

	Average Price.	Receipts.
1907	26.8c	6,401,028 lbs.
1908	26c	5,887,200 lbs.
1909	30.6c	7,386,700 lbs.

According to these figures, which are those given out by the San Francisco Dairy Exchange, receipts have gained on account of increased production over 20% over last year, and 15% over the year 1907. Whether increased production throughout the State is on a par with the showing made by receipts in San Francisco, only the actual figures of production that will be compiled at the end of the season will show, although a heavy increase in receipts reported in the Los Angeles market indicate plainly that the increase has been heavy. It would not surprise most observers if the production for the State would crawl well up to sixty million for the season.

Just what has become of all this extra butter, and what has created the extraordinary demand that has been paying a price 4 cents in excess of last year, for the past five months, is a question that is much discussed in local trade circles. A great deal of that arriving in San Francisco—about one-fifth—has gone into storage. It is currently reported on the street that there is more butter in storage at the present time than in any other year. The shipping demand to outside markets has taken more butter out of San Francisco than ever before in the history of the market, and it is this that accounts more for the good prices than any other factor. San Francisco has been drawn upon for butter this year by the markets of Utah, Montana, Idaho, Oregon, and Washington, while Arizona, to a great extent a non-producing territory, drew heavily on Los Angeles. More recently Alaska has been a heavy local buyer. The result of this shipping demand, which had to come to California for her early spring butter, was to keep stocks cleaned up way into the time when dealers either had to put away their storage requirements or stand a chance of being short, and in order to get this, the demand, coupled with shipping demands, held prices up to figures that account for the high average. In the local market butter has been stored on a basis of quotation ruling from 23½ to 26 cents. While there seems to be some apprehension in regard to the safety of butter stored at these prices, in view of the big lot that has already been put away, many dealers stand ready to take on more, while a few are inclined to think they may even get some cheaper butter before the surplus make lets up. But, whatever the problems may be that confront the dealer and the storage operator in regard to the surplus, the dairymen have been having a harvest of cash that will mark the year 1909 as one hard to beat.

LIVE STOCK AND THE FOREST PASTURES.

There is probably no policy connected with the administration of matters upon the National Forests that comes closer home to the stockmen than the system under which the number of stock each man may graze is determined by the Supervisors.

With the rapid increase in population of most of the Western States, the demands for grazing privileges upon the National Forests, especially from the men interested in sheep raising, increase every year. The new settlers locating the country adjacent to the National Forests are nearly all desirous of entering the stock business, either as cattle raisers or sheep growers.

In order that they may more successfully handle their stock, they apply to the Forest Service for a permit to enter the nearest Forest, which, very likely, is already stocked to its fullest capacity. The question then before the supervisor with whom the application is filed is, how to accommodate these new settlers without injury to those already occupying the ranges.

It has been the consistent policy of the Service to take care of the new men just as far as possible without too greatly restricting those already using the ranges, and in order to do this it has been necessary to reduce the number allowed the larger men on a pro rata basis, in order to give the new men an opportunity. These reductions are only made after a full consideration of the conditions surrounding each permit, and every effort is made to carry out the system with as little injury to the individual stockman as is possible.

The result of this system of reducing the larger owners in order to admit the new settler is, that many of the owners of large numbers of stock are continually appealing to the Forester against the cutting down process, claiming they are being injured in their business and deprived of their rights as citizens to increase and build up a legitimate industry. On the other hand, some of the little men are equally persistent in their appeals for further recognition than that already allowed them. In handling this matter the Forest officers must act as fair and impartial judges for both classes.

There is one fixed and immutable point in this entire proposition which can not be changed, except through improvement of the ranges, and that is the number of stock which a given area will ordinarily support. When the forest ranges are carrying the full number of stock which they safely can, the only thing that can be done to meet the demand from new settlers is to reduce the number which any one man can range and give the new settler the benefit of this reduction.

On one of the National Forests in the State of Wyoming at the time it was created six years ago, the area was supporting a large number of sheep which were owned by a few large companies and individuals. The little man was almost an unknown factor in that region. The largest owner was grazing some 60,000 head of sheep, which was 47% of the total number on the Forest. The next year there were a number of settlers who desired to enter the forest, whose claims were legitimate, and in order to admit them, a sliding scale reduction was made upon all owners over and above a certain number, the surplus being used to allow the new men to enter the Forest.

Each succeeding year more new settlers desired to graze their sheep and cattle on the Forest, and the same system was followed to obtain the necessary room for these new men, until at the beginning of the present grazing season the man who six years ago owned 47% of the stock had been reduced in numbers until he was grazing but 10,000 head of sheep, which was about 4% of the total number on the Forest. In the meantime the number of individuals and firms grazing stock in

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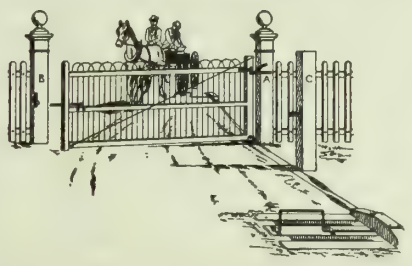
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that Forest had greatly increased, until there are almost three times as many men using the range as were at the time of its creation as a National Forest. This certainly proves that the Government is not maintaining the National Forest ranges solely for the big companies, to the exclusion of the small owners and new settlers.

In order that the larger holders may not be too seriously reduced from year to year, they are guaranteed that they will not be reduced below a certain point, and the new owners are restricted to a certain established number to begin with, and allowed to gradually increase their number from year to year until they have reached the limit which is set for any one man or company. In this manner the reduction is spread over several years, and the larger owners are given time to meet it. But the small men are quite as insistent that they are being discriminated against as are the larger men, because many of them claim that, instead of starting at the low figure, they should be allowed to enter the Forest if they wish with a number equal to the full limit, which would result in making the annual reductions on the large holders several times heavier than they are under the present system.

For the year 1909 there were 32 new settlers who desired to enter a particular Forest with their stock, but with the reductions made upon the older users it was impossible to take care of but five of them; and while the older users complain of the reductions necessary to meet this demand from the new men, the new men also complain because they are not allowed a larger number at the beginning. One of the basic principles in handling grazing matters on the National Forests is that it is better to help a small man make a living than a big man a profit.

The policy of the Forest Service in making these reductions and restrictions is not to injure any person nor to allow the new men to enter the Forest with such a large number as will necessitate unnecessarily large reductions to meet them. The number allowed each individual is believed to be that which will furnish a modest income to a man, sufficient to enable him to establish his home, support and educate his family, and advance his own interests as well as the interest of the community and State.

KALE AS DAIRY FEED.

To the Editor: A neighbor spoke to me some time since about common kale for a forage plant. He said he had read something about it in some agricultural journal and he wanted to try it. I told him I did not think common kale would be much of a success as a forage plant, either cured or green. It has occurred to me since that the kale that he read about must have been the Jersey or cow kale. I have seen it growing in Paso Robles, and it did well on that dry soil. I have also grown it here at home, and it makes a splendid growth, and growing two years as it does without seeding, it makes a lot of green feed from the long leaves. However, its limits as a forage plant struck me as coming within a very small range, and I do not believe it would be profitable except as a green food for two or three family cows, or for chickens. Of course, for a chicken ranch where chickens were yarded it would be a fine food to feed out of hand, no matter how large the ranch or number of chickens might me. But I think my neighbor's idea was for a forage plant to feed cows on a dairy ranch. It appeals to my mind, if this is the plant referred to, as the only forage plant of a kale nature, that the labor of pulling the leaves for dairy cows would be too slow and laborious. However, an armful to a cow, in conjunction with dry feed or hay, might prove profitable. I referred my neighbor to you, and also said to him that I would write you about it. READER.

Alameda County.

[It seems to us there is a good chance for kale as a winter-grown forage plant in California, and we have had several articles in the PACIFIC RURAL PRESS during the last year, in which Oregon experience in this line is given in detail. The kale which they grow belongs to the same class as the Jersey kale, but is less stemmy and therefore more capable of handling with a mower or some form of corn-cutting machinery. Seed can be had of our seedsmen under the name of Oregon kale, and we hope trial will be made of it by sowing as soon as the ground is moist enough for working after the fall rains. Winter growth will be far easier than summer growth, because the cabbage family takes kindly to our winter temperatures, at least in the valleys and foothills, and is far less likely to lice invasion, which is incapable of profitable fighting for such low value as a forage crop can claim.—EDITOR.]

ANOTHER CALIFORNIAN BUILDING UP VIRGINIA.

Recently we gave a paragraph about what an ex-Californian, Capt. Taylor, is doing in Virginia to give the "old dominion," "mother of presidents" and that sort of thing, a chance to regain something of her old relative prominence in the United States. Now we find that other Californinans are in the same work, for Mr. Joseph E. Wing has told the Breeders' Gazette of the operations of Mr. J. F. Jack, whom some of our readers will remember. According to Mr. Wing's account, Mr. Jack went from California to Virginia to grow alfalfa as a business proposition, just as he would have opened a mine in Arizona or developed a ranch in the Imperial valley of his own State. He had never farmed in the East. So when he got a 1700-acre farm, he asked for expert advice, and got it. J. M. Westgate, Mr. Piper and Mr. Schmitz of the Department of Agriculture told him that before he could grow alfalfa there he must have lime. So he bought lime, 400 tons in the beginning, 80 tons last year, and now he has contracted for 600 tons of ground limestone for this year. Nature had left out the lime, but man could put it on. Then phosphorus was needed, and Mr. Jack bought that, usually in the form of raw bonemeal. He put it on abundantly, too, 400 pounds per acre, for his alfalfa. And humus was needed, vegetable matter to furnish nitrogen and to promote bacterial life in the soil. So he sowed crimson clover and cowpeas. These he turned under. They gave as much nitrogen as would cost $15 per acre. Then alfalfa was sown, and with it inoculated earth to furnish the bacteria. How do they sow earth? The soil is taken afield in a wagon with cover over it to shield it from sun. Men sow the soil by hand, walking straight across the field, the outermost men tied together by strings so that they will cover accurately the strip. Immediately behind them come men with wheelbarrow seeders and alfalfa seed. Right at their heels come men with harrows and the seed is covered from the sun and with it the inoculated earth. The earth is taken from the part of his fields growing the most luxuriant alfalfa.

And the result? I find acre after acre of alfalfa on Mr. Jack's farm as good as our best. I find it as good as the best that I ever saw in California. Is it all good? No. There are acres that are thin, stunted. What cause? He is seeking that now. Doubtless there are areas too poorly drained, there are places yet sour, and some land needs more feeding. No doubt at all of that.

Mr. Jack has not limed liberally at all times. Last year, for example, some men told him that they had a prepared lime that was two times as effective as ordinary lime. He had been using a ton to the acre; he bought this lime, at a higher price, and used but 1000 pounds. Then he learned to his sorrow that the lime was simply slaked at the kilns, was so-called "agricultural lime" and had only about half the strength of fresh burned lime. So it seems sure that much of his land has had to little lime. He finds that lime carbonate, that is, simple ground limestone, gives him as good results as anything, and that fortunately is cheap. So he is looking for a barge with 600 tons of it aboard to come up the Rappanhannock some day soon, this for next year's alfalfa, to be sown this coming August. And a lot of this lime will be put on places that now are feeble in growth, that and more phosphorus, too, will be given.

Let us figure a little. It is too early yet to know how much fertilizing the land will need. Thus far Mr. Jack has proceeded on the supposition that the land was absolutely barren except in potassium. He has supplied all that the crop would need, and more. But suppose he merely maintains his alfalfa after this. A thousand pounds of alfalfa hay contains about five pounds of phosphoric acid; 8000 pounds, then, or four tons, about what he will get per acre, will contain 40 pounds. This will be supplied by about 250 pounds of 16 per cent basic slag, or 200 pounds of 20 per cent bonemeal. And the cost would be about $2.50 per acre. That is less than the water rent in most of California! That is, since God irrigates here, man can afford very well to fertilize. Then the lime; say you use 500 or 1000 pounds a year; still your cost is below a water rent.

What an interesting thing it is to find this old Eastern land being newly discovered, and from the extreme West. You know there have been speculations concerning what the New Zealanders would think some time when they stood on the crumbling ruins of what once was ancient London, stood there and reflected that there once lived a great civilization, now utterly vanished from the earth. Well, the keen Easterner discovered California, hustled around, raising a great dust and dismay, made himself odious to the old Californians of brown skins, the real Californians of Indian and Spanish blood, discovered what lay in the possibilities of California, all unthought of by the first citizens thereof. Doubtless the old Picos and Don Gonzales and all their kin would have explained to you what a slow country California was, how discouraging a land in which to do much, and how about all a man could expect to do was to grow a little wool and some hides and enough wheat for home use.

And now the Californians have found the East. I have long wondered what would have been the fate of this Eastern land had it been discovered anew from the West.

The farmers of the west side of Stanislaus county from Grayson to Crow's Landing are harvesting a bumper crop of grain. Almost all the grain is barley; it is nice and clean and will average nearly 20 sacks to the acre. The grain is being hauled to Stockton by barges on the San Joaquin river, where a good market awaits it. On the east side of the county the crop is very good also and is divided between oats and barley.

H. H. H. LINIMENT

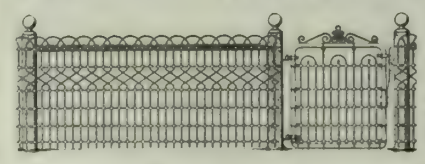
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100 Holstein cows
and complete dairy equipment.
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THE SWISS MILCH GOAT IN AMERICA.

(*Continued From Page 1.*)

"As a further argument in favor of goat's milk, reference may be made to the researches of Dr. Barbellion of Paris, on the digestibility of different kinds of milk, as reported at the International Congress of Medicine. According to the reports which he has made, it was ascertained that (1) the curd of cow's milk forms a dense, adhering mass, which by agitation separates into clots that are but slightly soluble. The curd of goat's milk, on the other hand, forms into very small, light flakes which are soft, very friable and very soluble, like those in human milk; (2) the curd in both human milk and that of the goat, after agitation, is precipitated very slowly and incompletely, while the curd of cow's milk is precipitated very rapidly and very completely; (3) submitted to the action of digestive ferments, human milk and the milk of the goat were digested completely in 20 hours, while the same process applied to cow's milk showed only a very slight advance after 60 hours; (4) the milk of the goat approximates more in its composition and digestibility to human milk than that of any other animal."

Considering that goat's milk is very palatable, is richer, more nutritious and keeps longer before souring than that of the cow, we may in time expect to see the latter to a great extent superseded by her little rival, the hardy goat.

Following is an analysis of goat's and cow's milk taken from "The Case for the Goat."

	Goat's milk.	Cow's milk.
Water	83.21	87.56
Butter-fat	7.30	3.63
Casein	4.18	....
Milk-sugar	4.10	8.81
Ash	1.21	....

IS SILAGE GOOD FOR HORSES?

To the Editor: We see an article in the PACIFIC RURAL PRESS on silage, and we are considerably interested in this method of curing stock feed. We note in this article that the odor of "silage is not of Araby the Blest, but it does not offend bovine olfactories, or they pardon it as we do Limburger cheese or sauerkraut." We have known for a long time that this was desirable for feeding cows, but did not know whether it is desirable as a feed for work horses. If it could be used, and be nourishing for horses, we believe it would warrant our going to the expense of installing a plant. It is possible for us to grow a good crop of barley or oats in the winter time, while our deciduous fruit trees are dormant. Of course, it is impossible to cure it into hay at the season of the year it would be ready for cutting. If, however, it could be used for the purpose of ensilage, we could gather an extra crop each year from our ground, and do not believe it would damage the trees in any way. We have acreage enough, however, so that it would be necessary to sow a portion of it each year, giving the balance a rest of from two to three years.

FRUIT GROWER.

Santa Clara County.

[As we understand it, silage is not recommended for horses. They do not take kindly to it, or else they take too kindly and serious stomach disorders are apt to result. Grass and young grain with hollow stems are not generally commended for silage. They are apt to contain too much air in the hollow stems, in spite of all the packing that can be done in filling the silo. They can be successfully siloed if cut small, but are not generally approved for that purpose. You can, however, silo green pea forage and other leguminous material successfully, and it would be a great deal better for your land to get that sort of a winter growth than to undertake to get a winter grain crop. But still we doubt the suitability of silage for horses, unless fed in very small quantities. What can other readers tell us of their experience?—EDITOR.]

CARE OF MULES IN HOT WEATHER.

The following suggestions, says a writer for the Pacific Homestead, apply strictly to mules, and will be of special value during the hot months of June, July, and August, during which period hundreds of them die every year for want of a little care in the way of preventing colic, the bane of the mule-breeding business. Instead of feeding several mules together, giving them grain in large quantities and allowing them to drink foul water, and that only when convenient, as is often the practice, it is best to be a little more systematic and considerate of the welfare of the animals.

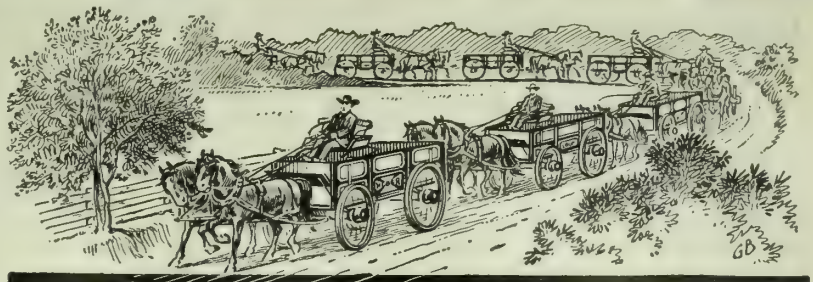
I always water and feed my working mules at least an hour before going to work in the morning, and in the middle of the forenoon they are again given water. At noon they are first watered, and then allowed to eat hay for a short time before they are given their grain, which is given them at least one hour before they are again put to work. In the middle of the afternoon they are watered again, and in the evening their grain is not given them until they have first been watered and allowed to eat hay for at least an hour. The trouble and loss of time required to water working animals in the middle of the forenoon and afternoon may in some cases render it impracticable, but frequent watering will be found advantageous to the stock in all cases, and a powerful factor in the prevention of colic.

It should be remembered that sudden changes of temperature, unduly severe exertion, parasite worms, etc., in the intestines, and feeding on green grass when the animals are not accustomed to it, are frequent causes of colic. Many people imagine that a plentiful supply of green grass is good for working mules, and many are allowed to partake of all they will consume; but I wish to state that no greater mistake was ever made, as it is almost sure to derange digestion and induce purging, scouring, and colic, which sometimes causes severe inflammation of the bowels. A mule from which hard work is expected should be allowed to eat only a very small quantity—and it would be better if they were not allowed to eat any—green grass while in service.

The water supply for mules during the hot summer months is a factor of very great importance. As a general thing, any water, no matter how foul, is considered good enough for the animals to drink. As they are unable to speak for themselves, they are obliged to partake of what they can get. But because a mule will drink foul water is no reason why it does not do so with an inward shuddering and disgust. Water from good cisterns or wells, running streams and pools properly constructed, is usually good; but too much care can not be taken even in this matter. Pools formed from surface drainage, into which large quantities of organic matter are carried, and wells or pools contiguous to barnyards or manure heaps, are especially to be avoided.

In feeding mules, regularity, common sense and a knowledge of what they need must be used in the amount and kind of food given. No iron-bound set of rules will answer for all cases. The principal element, however, is to feed to supply muscle and health. The secret of proper feeding consists in giving a mixed diet that combines nutriment with a sufficient quantity of bulk to make it digestible. Oats is the best grain food, and barley is good, but should be ground. As a general thing, corn is fed more than any other grain, and both oats and corn are improved if fed crushed or bruised. Bran, chaff and bruised corn given the animals occasionally make cheap and satisfactory food. As I have mentioned above, green food must be fed with care, where the animals are not accustomed to it. Good clean hay, never dusty or badly cured, should be given. The amount of hay to be fed daily must depend upon the size of the mule and the amount and kind of work done. It is never good to feed a tired or heated mule until he has cooled off.

W. M. Corruthers, late manager for the Glide herd of Sacramento, is now the manager for the Howard Cattle Co. of this city. Mr. Corruthers will soon go East to buy more stock.



WAGONS

The farmer is particular about the kind of wagon he buys—and rightly so—because a wagon is used nearly every day in the year. Note the following special features of the Weber and New Bettendorf wagons each one of which is built to give satisfactory service.

WEBER

For sixty-three years the name "Weber" has been the best guarantee as to the quality of a farm wagon. No other wagon is made better than the Weber—no other wagon is made with so much care. The Weber, king of all farm wagons, is the I. H. C. standard of excellence in wagon construction. Everything used in building Weber wagons is the best that the market affords—ironed on the made-to-order principle—painted as good as the average buggy.

NEW BETTENDORF

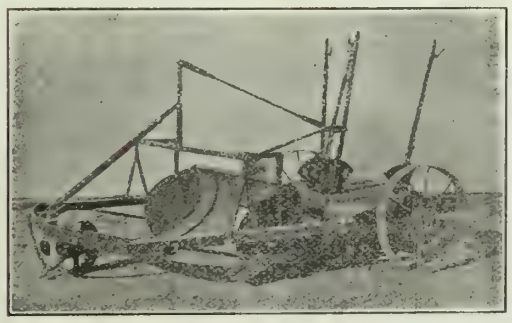
The New Bettendorf farm wagon is exceptionally strong, durable and light running. The gears are made entirely of steel, have greater carrying capacity than wood and weigh no more. There is never any trouble with loose skeins, season checks, improper seasoning or inferior quality of materials, such as is common on the ordinary wagon. The tubular axle is made in one piece. There are no joints at the collar and the removable malleable iron sleeve which protects the axle from wear is not found on any axle except the New Bettendorf.

The New Bettendorf farm truck is used extensively on fruit farms in the western states. With wheels 30 inches, front and rear, and platform, it makes an excellent truck for spraying outfits, as the platform is wide and roomy and the front wheels cut under.

Call on the nearest International agent who will be pleased to show you the meritorious features in the construction of the wagon he handles. Ask him for illustrated booklet and lithographed hanger, or if you prefer, write nearest branch house.

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The Poultry Yard.

A CHAPTER ON EGGS.

Written for the PACIFIC RURAL PRESS
By M. R. JAMES.

Egg production is the surest and most profitable branch of the poultry industry. It represents the one branch of trade with an unlimited demand for its first-class product. The magnitude of the egg business and the importance of the barnyard hen in the commercial world have come to the recognition of the nation. Our government, through its Agricultural Department, has just completed a study of the egg trade of the United States which is reported in Circular 140 of that department.

From this we learn that the annual loss to the egg trade from various causes, the most of which are preventable, amounts to 17 per cent of the total production. When it is considered that this per cent of loss runs up into millions of dollars each year, and that the fault lies chiefly with the producer—and incidently the loss falls chiefly upon him—better methods in the care and marketing of the egg crop would seem a matter of duty as well as interest. In addition to this very palpable loss, the circular points out that there is a loss "less tangible but none the less real, due to curtailed consumption." Sure, when one finds his breakfast egg spoiled or ill-flavored his appetite for "fresh" eggs is gone for the season; and this may represent a matter of several dozen eggs in this individual case.

Though egg farms and poultry plants are many and continue to multiply, the general farmer is still the great egg producer of the country; therefore it is this same farmer who is the greatest sinner against the fresh egg, and the one who most needs his methods overhauled and repaired. He is the person who has little respect for the hen, who lets her rustle for herself, who fishes her eggs out from under barns or from haystacks and brush piles and tumbles them pell-mell into a basket to barter for what they will bring at the village store. They don't bring much—not enough to make it worth while bothering with the hen, from his viewpoint; while the storekeeper is equally sure he pays more than the eggs are worth. And probably both the farmer and the storekeeper are right. On this coast, however, the farmer as well as the poultryman proper has more respect for the hen because of a better egg market, and each tries to work for more and better eggs. One of the greatest difficulties in the egg itself with which this class has to contend is thin-shelled eggs. The circular estimates that 2 per cent of the general loss comes from this cause. But this does not represent the whole loss from defective shells. Eggs without shells or with shells so thin that they are broken in the nest or gathering, will foot up a much larger per cent than that. These eggs are worse than lost, for they muss up the poultry quarters and teach egg-eating among the fowls. How to assure firm-shelled normal eggs is an important point for farmer and poultryman.

That fowls should be well supplied with shells and grit is important; but the lack of these is not the only cause of defective shells. In fact in the many cases brought to our attention by inquirers the fowls have been supplied with such material. We must look elsewhere for the cause or causes. Through a good many years of poultry keeping as well as a careful study of the subject in general, the writer considers defective shells due to the condition of the hen from the following causes:

1. Constitutional defect or disease condition of the egg organs. Thus one or more hens in a flock will begin as pullets laying double eggs or eggs with defective shells. In some cases this will be outgrown or occur only occasionally; in others it will continue.

2. Condition brought about by wrong feeding and care or by harsh treatment.

Shell-less eggs usually come from over-fat hens; thin-shelled and shell-less eggs as well, together with mottled eggs and others of abnormal appearance may come from so-called "egg foods" or other egg stimulants, too much commercial meat products, too much glutinous foods, lack of fresh green feed and vegetables, lack of exercise and pure cool water, and of a general condition of comfort.

Bloodshot eggs come from rough or harsh treatment, usually caused by vicious male birds or too many males or those too heavy. In crossing breeds the hens should be of the larger and the cock of the smaller breed. The hen is a very nervous creature, and the better the layer the more nervous. In harsh treatment or fright there is likely to be a rupture of some of the minute blood vessels in the oviduct which causes blood clots in the eggs. Be gentle in your treatment of the hens and in your movements among them; do not let them be frightened by children and dogs dashing through the yards.

Poultry Notes.

"Money talks." Since the hen got into the multimillionaire class her cackle is heard in legislative halls and through the press of the entire country.

Notes from the United States Egg Trade Circular:

Although the poultry plant is steadily gaining ground in the Eastern States and the far West, the great bulk of the poultry wealth of the country is produced by the general farms of the Mississippi valley (the corn belt), and it is also in this region that the most rapid increase in production is shown.

In spite of the rapid increase in the production of poultry products, the supply has not kept pace with the demand. The proof of this statement is that the price of eggs for the last ten or twelve years has shown not only an absolute rise, but also a relative rise when compared with the general average of values of either farm crops or food products.

The best estimates available indicate that the income from poultry products is one of the four or five important sources of the agricultural wealth of the Nation. The egg crop constitutes about 60 per cent of the total value of poultry products.

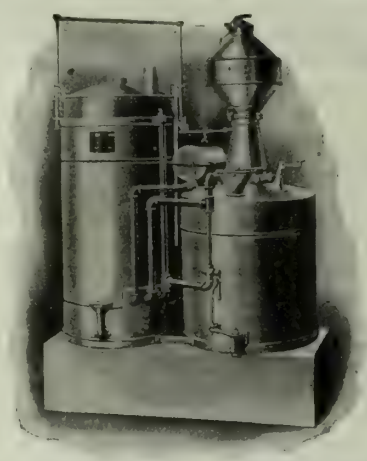
Eggs are among the most difficult of food products to grade. This is because each egg must be considered separately, and because the actual substance of the egg cannot be examined without destroying the egg. From external appearance eggs can be selected for size, color, cleanliness of shell and freedom from cracks. This is the common method of grading early in the spring, when the eggs are uniformly of good quality. Later in the season the egg candle is used.

Egg when laid differ considerably in size, but otherwise are a very uniform product. The purpose of the egg in nature requires that this be the case, because the contents of the egg must be so proportion as to form the chick without surplus or waste, and this requires a chemical composition that varies but slightly. For food purposes all fresh eggs are practically equal. The tint of the yolk varies somewhat, being more yellow when green food is supplied the hens. An opinion exists among egg men that the white of the spring egg is of purer quality and will "stand up" better than that of the summer egg. This is true enough of commercial eggs, but the difference is chiefly, if not entirely, due to external factors that act upon the egg after it is laid. The flavor or odor of the egg may be materially influenced by the feed of the hen.

There are some other peculiarities that may exist in eggs at the time of laying, such as blood clots, a broken yolk, or perhaps bacterial contamination. The so-called "tape worms" of eggs are detached portions of the lining membrane. "Liver spots" are detached folds from the oviduct.

Shells of eggs vary in shape, color and firmness. These variations are more a matter of breed, and the individuality of the hen, than of care or feed. The strength of egg shells is important because breakage is a source of considerable loss to the trade. However, the difficulty of weak shells is not one which can easily be remedied. Nothing more can be advised than to feed a ration containing plenty of mineral matter, and to discard hens that lay noticeably weak-shelled or irregularly-shaped eggs. The color of egg shells is a matter in regard to which more has perhaps been said that the trade facts warrant. Only the select trade considers the color in buying. Uniformity of appearance in color as well as in other points, pleases the eye, and for that reason and no other, should distinctions be made. Eggs of all Mediterranean breeds are white; those of Asiatics are brown; those of American breeds are usually brown, but not of so uniform a tint.

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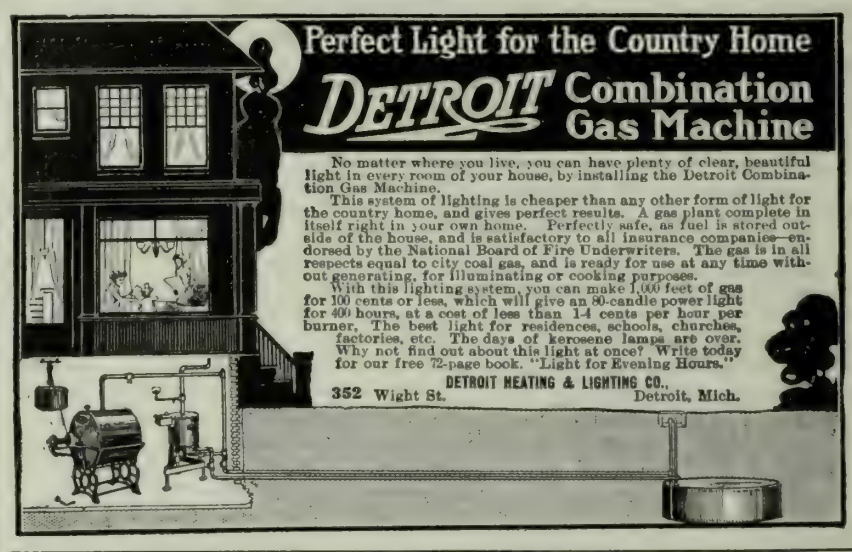
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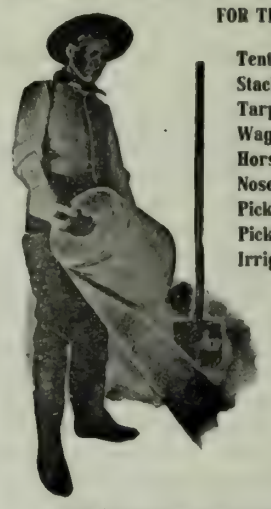
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The Home Circle.

Opportunity.

They do me wrong who say I come no more
When once I knock and fail to find you in;
For every day I stand outside your door
And bid you wake and rise to fight and win.
Wail not for precious chances passed away,
Weep not for golden ages on the wane;
Each night I burn the records of the day,
At sunrise every soul is born again.
Laugh like a boy at splendors that have sped,
To vanished joys be blind and deaf and dumb;
My judgments seal the dead past with its dead,
But never bind a moment yet to come.
Though deep in mire, wring not your hands and weep,
I lend my arm to all who say: "I can."
No shamefaced outcast ever sank so deep
But he might rise and be again a man.

—*Walter Malone.*

Bedding Time.

The passing shower has cleared away,
The clouds are edged with red,
The lake has mirrored, ray for ray,
The glories overhead;
The sagebrush glistens with the damp,
The plains are vast, sublime,
When the sheep are turning back to camp
At bedding time.

The fire is glistening on the range,
One hears the collie's bark;
The wolf call, distant, wierd and strange,
Comes shrilling through the dark;
Upon yon distant sun-touched mound
The purpling shadows climb,
When the sheep turn to the camping ground
At bedding time.

—*Arthur Chapman in Denver Republican.*

Carl Dunderman's Calf.

"If you will drop in tomorrow night, when Carl Dunderman will be sure to come for a smoke and a drink of ale, we may get him to tell how he was taken in by the Yankee peddler," said my host of the village tavern.

Sure enough the worthy Dutchman appeared on time, and at the landlord's request, after partaking of a couple of glasses of foaming ale at my expense, he seated himself by the fire and related the following experience with a Yankee peddler:

After I was marrit mit my Katarina about dree years, the peoples of de town where I lift made a big fair, and I went ofer to see de fun and mapy buy somedings for my frow who staid to home mit the haus. Afder I get there I see some varmers by a peddler's cart. Und day askt de peddler vat de matter mit de calf in de cart vot was groanin' like de duyvel.

"Oh," said de peddler, "dat is a calf I imported vrom Englant; it is de best breed efer vas, und cost mine agent more'n fifty tollars. It is pooty seasick now mit comin' ofer de water, but it vill pe all right in a few days."

"True," said one old varmer, "I can see dat he is a vonderful calf by de vay he hangs his tail and looks so funny mit his eyes."

De old varmers talk like dis vor more dan half an hour. Den day askt what he takes for dat calf.

"Vell, shentlemens," said de Shankee, "I don't care fery mooch about sellin' dat calf, but ven I do I von't take on cent less den seventy-five tollars."

"Dat is mooch, do mooch for dat liddle sick calf!" said all de varmers togedder mit one voice.

"Py de shumping pipes dat played pefore Moses, didn't I tell you dat calf vas seasick? You needn't buy him ven you don't vant to! I didn't askt you to, you pigheaded sourkrout peepsers," yelled de Shankee, mad as de duyvel.

By dis time I got by de crown, und stood lookin' at dat calf mit all de eyes in mine head.

"Mine Got in himmel! ver did you get dat calf?" I askt in great vondery. "I got one at mine haus shust as like dis von as von cabbage is like anodder."

"Pe you crazy, man?" askt all mine neighbors. "Can't you see how he holts his tail and looks mit his eyes! Ven you knows somedings about cattle you could see in a minute dat his is a superior breed."

"Yaw," said de Shankee, "de shentleman is right, his calf looks like dis—out of his eyes! But I dinks mine looks a liddle sharper, dat's all."

Mine neighbors all laught at dis liddle shoke of de Shankee.

"Maype you tink you got some seed like dis, too?" he continued, pointing at a keg in de cart. De varmers laught at dis und ask him vat kint of seed it vas.

"Dis is vonderful flaxseed dat vas found along mit some mummumies in de gatacombs of Egypt. Vrom dis seed you can raise ropes reaty made!"

De varmers were crazy to buy some and he sold it for one tollar a pound.

"Now, shentlemens, here is dis vonderful calf. Who buys him? You will nefer haf annodder such a change," he said ven he had solt most all de seed.

"I vill gif fifty-five tollars!" shouted one varmer. "Sixty!" hollert anodder. Und ven I heard dem goin' on so, I got crazy mineself und pellert, "Sixty-five!"

"Seventy-five tollars, und not von dam cent less," cried de peddler, making pelief he vas goin' to drive avay.

Ven de varmers seed dat, one of dem hollert, "I kefs you seventy tollars!"

Dis vas more den I could stand, so I stepped up to de peddler und said:

"Look here, mine vrient, I'll kef you seventy-five tollars vor de calf if you drow in de seed dat is left."

"Vell," he replied, "I von't pe hard on you, but vill drow in pesides de seed a big tin pan for de milk—you will need it mit dis calf.

Ven de varmers see dat de calf vas mine dey lookt mad, and von offered me five tollars vor mine bargain, but I dolt him to go to de duyvel. "I visht I could keep him myself," said de peddler,"but I'm hart up for monish shust now." Und he drove avay mit tears in his eyes.

It vas almost dark ven I got hom, for I vent so slow dat I did not go very fast, so as not to shake de liddle calf. Vell, I goes in de haus und tells my frow to varm a blanket for de calf to sleep on.

Shust den I heard a clock strike. "Mine Got in himmel, Katrina, where did dat clock coom vrom?" I exclaimed full mit vonder.

"Oh, Carl," said mine frow mit a laugh all ofer her face, "dat ish de best shoke efer vas. A big crazy Shankee peddler coom here und traded dat clock vor dat liddle sick calf you vanted to kill, und for dat flaxseed dat nefer coom up ven you planted it." Und she laught till de tears run all ofer her sheeks.

"Hoontert dousant duyvels!" I hollert out, for I shemlt a rat as big as six. "Dat ish de dam Shankee vat has sheated me mit dat same old calf."

I didn't say nodinks more; but I runs to de woodshed und get mine ax und let de calf half it gersmack on he head, und kicked de flaxseed to de deyvel. Himmel, but I vas mad, and dolt mine frow if she did not stop mit her dam laughing, I would go hang myself mit de neck.

"But did you never meet the Yankee peddler again?" I asked.

"Yaw, I see him once in anodder town, und I shouted at him, 'You dam Shankee, you sheated me mit dat calf.'"

"What satisfaction did he give you?"

"He didn't gif me no sadisfaction; he only say, 'Nix vershday," und rode avay as fast as de duyvel."—Sketch Book.

The Garden.

Every one who handles stock knows that there is a difference in intelligence between animals even of the same kind. The careful observer who works among plants may discern not only intelligence, but a difference in intelligence in the plant family. In our summer garden the sweet peas have a trellis directly over the row; all they need to do is to reach up and grasp the convenient support with their tendrils. Instead, they sprawl over the ground till we lift and fasten them to the trellis. Near the sweet peas is a row of tall or climbing nasturtiums, planted to screen the end of a porch, which brings the plants a foot or so away from the lattice. Yet every runner, no matter which side of the plant it starts from, makes a straight shoot for the frame. It is an odd sight, the long runners on the outside of the bed pointing directly across and over the plants to the lattice work.

Trimming and Care of Tomatoes.—An early ripening crop of fine tomatoes is one of the most desirable products of the home garden. In such gardens, especially in our cool coast climate, the tendency is to much foliage and green fruit, with a scarcity of perfect and ripe fruit. A remedy for this may be found in staking and trimming the tomato plants. This is beginning to be practiced on a large scale by the market gardeners in the East, where the climate is better suited to the development of this fruit.

A strong stake is driven firmly into the hill when the plant is set out, and the latter is trained to one stalk by pinching off the buds that would form side branches. The central stalk is tied to the stake as it grows; when it reaches the top the end is nipped. The Market Growers' Journal says that this method has the following advantages:

1. The bulk of the fruit ripens much earlier. 2. There is less trouble from various fungus diseases. 3. The fruits are larger and considered finer in every particular. 4. The fruits are clean when picked. 5. Spraying may be continued much longer. 6. Tillage may be employed if desired until the last tomato has been picked. 7. It is more convenient to harvest a crop when trained to stakes. Although the expense of staking and training (on a large scale) is rather heavy, this system is worth the consideration of tomato growers in many sections.

To prevent dry rot and blight the ground must be well cultivated and kept moderately moist. Never spray the plant in watering, nor water from the top. Mellow the soil and pour a bucket of water near each plant where it will soak through to the roots from beneath. Afterwards cover the ground about the plant with a dust mulch.

Wild Flowers in the South.

One morning you drive through the woods and see nothing but the usual green of winter; two days after on the same road you behold afar what seems to be a huge white sheet showing through the tree trunks and bushes. It is not a sheet, merely a solid curtain of Cherokee roses, waxy white, fragrant and blooming so thickly that only here and there is any green to be seen.

A big dead tree that has been showing gray and hideous for months turns over night into an enormous purple bouquet; it is the work of a wistaria, sending down showers of lavender sweetness with every puff of wind. Sweet olive, bridal wreath, wild jasamine and fifty others rush into a prodigality of bloom that seems a wicked, delightful extravagance to Northern eyes, and the noble army of lilies marches up the side of each path and waves its banners beneath every wall.—Globe Democrat.

Monument to Potatoes.

"When I was in Germany last year," said a man who travels, "I saw some people who like potatoes even better than I do. At any rate they erect statues to them.

"Offenburg was the first city to erect a monument of this kind. The upper part consists of a statue of Sir Francis Drake, who introduced the plant into Europe. This, as well as the pedestal, is draped with garlands of the potato vine, with full grown tubers.

"On the pedestal on one side is Sir Francis Drake's name, the second side explains what a blessing the potato has been to mankind, the third records that the statue is the gift of a certain Andrew Frederick of Strasburg, the fourth contains the names of the erectors. A statue similar to this is placed in the town of Murz, and I have been told that there are other copies in many small towns."—New York Sun.

Strange Growth of Olive Trees.

Attention is seldom called to a remarkable and curious characteristic of the olive tree. After many years of growth the different large branches of the trees separate gradually from the trunk until they are quite divided from one another down into the root. These then slowly move apart, and in some instances six or seven distinct trees stand in the area which before surrounded the main tree, and they will sometimes be as much as twenty feet apart.—Consular Reports.

An English physician claims that the most desperate case of toothache, unless the case is connected with rheumatism, may be cured by the following remedy: Alum, reduced to an impalpable powder, two drachms; nitrous spirits of ether, seven drachms; mix and apply to the tooth.

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San Francisco Business College
733 Fillmore St., San Francisco, Cal.

THE MARKETS.

San Francisco, June 30, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The local market is absolutely featureless, with little spot stock offering, and not much interest on the part of buyers at the current values. Some sales of new wheat have been reported in the interior, on a basis of about $2.10 in this market, but so far there is little doing in new grain. Prices in the North are unchanged, and growers there are asking $1 per bushel for new crop.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling		2.20
California lower grades	2.00	@2.10
Northern Club	2.10	@2.15
Northern Bluestem	2.27½	@2.32½
Russian Red	2.10	@2.15
Turkey Red	2.10	@2.20

BARLEY.

Barley shows more firmness than for several weeks past, prices remaining as last quoted. Arrivals are liberal, and there is some activity in the market, with sales of new grain for Northern shipment. Values are still considered too high for export buying, however.

Brewing	Nominal	
Shipping	Nominal	
Chevalier	$1.70	@1.72½
Good to Choice Feed, per ctl.	1.40	@1.42½
Common Feed	1.37½	@1.38½

OATS.

There has not yet been much activity in the market, as prices are rather unsettled and more or less decline is expected. New reds are coming in freely, and small purchases are being made for immediate needs. Prices show little change, though sales of new reds have been made at a little higher figure than last week.

White, per ctl.	$1.90	@2.15
Red, new	1.55	@1.77½

CORN.

Arrivals have been larger than for some time, and there is considerable stock offering, but the movement is light. The top quotation is asked for spot offerings of California small yellow, and large yellow is stronger. Western grades are unchanged.

California Small Yellow	$1.80	@1.87½
California Large Yellow	1.87½	@1.90
Western State Yellow, bulk		1.77
Mixed, in bulk		1.75
White, in bulk		1.79
Egyptian White		1.90

RYE.

This grain is nominal as before, with none on the market.

Rye	Nominal

BEANS.

No decided change has occurred in the bean market during the last week, and the market is rather quiet, though some demand is reported all the time. Stocks on hand are very light, especially of white and bayo beans, and both large whites and bayos are a little higher. There is a rather easier feeling in pinks, but no material decline is expected in this variety. In fact, a large buying movement in pink beans is looked for in some quarters. Prices are very firmly held on lima beans, and the market is in a strong position. There is a fair demand at present, and with decreasing supplies continued firmness is expected. Blackeyes are quiet.

Bayos, per ctl.	$5.40	@5.50
Blackeyes	3.40	@3.65
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.75	@7.00
Large Whites	5.40	@5.60
Limas	4.15	@4.25
Pea	6.25	@6.50
Pink	3.15	@3.25
Red	Nominal	
Red Kidneys	3.25	@3.50

SEEDS.

Quotations show a few small changes, brown mustard and millet being higher, and hemp slightly lower. The prices are largely nominal, however, as there is no movement worth mentioning at this season.

Alfalfa, per lb.	18 c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	4@4¼c
Canary	4 c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

Prices stand as formerly quoted, and local trading is confined to narrow limits, as buyers are taking on no stock above present requirements. There is a little export movement, both here and in the north, but it is comparatively unimportant, owing to the high range of values.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

The arrivals at San Francisco have been about the same as last week, and as the quantity coming into the market is more than can be readily absorbed a further decline in prices is noted. Holders in the interior are weakening considerably in their ideas as to prices, and are pressing the stock on the market at prices which they refused a few weeks ago. Baling is now progressing actively in many districts, and arrivals are expected to continue heavy through the summer. The general impression here is that the quantity of hay cut has been far above the expected crop, and offers for shipment are coming from many new districts. Prices here are in many cases reported below the cost in producing districts and local dealers look for considerable decline in the country.

Choice Wheat, per ton	$18.00@18.50
Other Grades Wheat	13.00@17.00
Wheat and Oat	14.00@16.50
Tame Oat	14.00@17.00
Barley	11.00@13.00
Wild Oat	11.00@14.00
Alfalfa	10.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 85c

MILLSTUFFS.

Bran continues to arrive freely from the northern markets, but with a steadily consuming demand the price is firmly maintained at the former figure. Other millstuffs are also firm and miscellaneous feedstuffs are moving about as usual at unchanged prices.

Alfalfa Meal, or mealfalfa, per ton	$23.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	33.00@35.00
Mixed Feeds	25.00@30.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	30.00@32.00
Shorts	31.00@32.00

VEGETABLES.

The market has been heavily overstocked with red onions, and with only a moderate demand prices are lower. Yellow onions are also plentiful, but are slightly higher, as they find ready sale. There is a large movement of miscellaneous vegetables, but in many lines the arrivals are too large to be absorbed. Poor lots of asparagus are lower, as the canners are after choice stock. Rhubarb is quiet, but slightly higher. Peas and beans are both plentiful and peas are lower. Green peppers, egg plant, cucumbers and summer squash are all lower, and the arrivals of the two latter are too large to be immediately disposed of. Green corn shows a wide range, according to district and quality, some offerings selling by the dozen at high prices, while some of the sacked lots are cheap. Small packages of tomatoes are weak, but large boxes sell up to $2.50.

Onions, new red, per sack	40@	50c
New Yellow, per ctl.	75@	80c
Garlic, per lb.	4@	5c
Green Peas, per sack	$ 1.00@	1.50
String Beans, per lb.	3@	4c
Cabbage, per ctl.		1.00
Tomatoes, per box	40@	75c
Green Peppers, per lb.	8@	12½c
Green Corn, per sack	2.25@	4.50
Asparagus, extra choice, box	1.75@	2.00
Asparagus, common to choice	1.00@	1.50
Rhubarb, per box	1.25@	1.50
Turnips, per sack	1.25@	1.50
Summer Squash, per box	35@	50c
Cucumbers, per box	35@	50c
Egg Plant, per box	6@	7c

POULTRY.

Quotations show comparatively little change this week, though medium hens are a little firmer. Conditions have improved very slightly, as quite a lot of Eastern stock has come in on top of a large holdover from last week. Hens are quite plentiful, and meet with only a fair demand. Arrivals of local stock, however, have been limited, and there is not much on the market.

Broilers	$ 3.50@	4.50
Small Broilers	2.50@	3.00
Fryers	5.50@	6.50
Hens, extra	7.00@	8.00
Hens, per doz.	5.00@	6.00
Small Hens	4.00@	4.50
Old Roosters	4.00@	5.00
Young Roosters	8.00@	9.00
Young Roosters, full grown	9.00@	10.00
Pigeons		1.50
Squabs	2.00@	2.25
Ducks	6.00@	7.00
Geese, per pair	1.75@	2.00

BUTTER.

Receipts of butter has been moderate for the last few days, and the market is fairly active, cleaning up a large proportion of the arrivals. There is still more offering, however, than the local market can readily absorb, and a good deal is being stored all the time. Extras were lower a few days ago, but are now quoted at last week's price. Firsts and seconds are lower. Packing stock is now quoted on the Exchange.

California (extras), per lb.	26 c
Firsts	25 c
Seconds	24½c
Fresh Packing Stock, No. 1	23 c

EGGS.

Extra eggs are quoted as last week, but the feeling is rather stronger, as the arrivals of this grade have fallen off materially, and with a good demand supplies are kept well cleaned up. Firsts and seconds, however, are lower. These grades figure more largely than usual in the arrivals and stocks tend to accumulate.

California (extras), per doz.	26 c
Firsts	24½c
Seconds	21½c
Thirds	21 c

CHEESE.

California flats are barely steady, though prices are unchanged. Local Y. A.'s are slightly higher, as supplies are not very plentiful. Oregon flats have also advanced slightly. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	13½c
Firsts	12½c
New Young Americas, fancy	16 c
Oregon Flats	15 c
Oregon Young Americas	15½c

POTATOES.

New potatoes have continued to arrive liberally and receive rather less interest than before. Prices are accordingly lower. River stock is also a little lower, though Oregon Burbanks are moving at former prices.

River Whites, per ctl.	$ 1.50@	1.65
Oregon Burbanks, per ctl.	1.50@	1.75
New Potatoes, per ctl.	1.00@	1.50

FRESH FRUITS.

Attractive offerings of summer fruits meet with a good demand at present and prices are in some cases a little better than last week. There is a great deal of poor fruit on the market, however, which is being worked off at low and irregular figures. Heavy arrivals of nutmeg melons have caused a reduction of prices, notwithstanding a strong demand. Berries in general are plentiful and several descriptions are lower. Some cherries are arriving from Oregon and command good prices, and black cherries of good quality from local points are also firm. Royal Annes are lower, and large lots are going to the canneries. Old apples are lower. Good lots of peaches and apricots move off freely at slight advance, and plums and pears bring about former prices, the former being in good demand. Figs are lower and are arriving freely.

Melons, Nutmeg, per standard crate	$ 1.25@	1.75
Raspberries, per chest	4.00@	7.00
Currants, per chest	4.00@	6.00
Loganberries, per chest	1.75@	4.00
Blackberries, per chest	2.50@	4.00
Strawberries—		
Longworths, per chest	5.00@	8.00
Large varieties	3.00@	4.00
Cherries—		
Black, per lb.	3½@	6c
Royal Anns	3@	4½c
White	2@	3c
Apples, per box	75@	1.00
Figs, per drawer	35@	40c
Apricots, per box	50@	65c
Apples, new green, per box	35@	50c
Peaches, per box	65@	75c
Plums, per box	40@	75c
Pears, per basket	50@	75c

CITRUS FRUITS.

The demand for citrus fruits is moderate at present, but prices have been advanced on both oranges and lemons, and the new quotations are firmly held.

Choice Lemons	$1.75@	2.25
Fancy Lemons	3.75@	4.00
Standard	1.50@	2.00
Limes	5.00@	6.00
Oranges—		
Navels	1.75@	3.00
Valencias	2.00@	2.50
Grape Fruit	2.50@	3.00

DRIED FRUITS.

The old apricots are practically cleaned out and average lots of late have been bringing about 8½ cents. The new crop will begin to arrive this week and some revision of prices is expected, though growers are getting about the present range so far. Otherwise the local market is rather quiet. There is little movement of peaches at the quotations, as many growers are holding their remaining supplies at 5 cents or more. There has been some buying of apricots and prunes for export, and the latter are moving freely in domestic markets, though local packers report little inquiry. Figs are closely cleaned up, but lower prices are expected on the new crop, which is likely to be large. Raisins continue very quiet, with little movement of spot stock in any quarter. Prices are practically unchanged, offers for stock in sweatbox being generally about 2¼ cents, though some higher offers have been reported for choice lots. Local packers quote the following prices:

Evaporated Apples	7¾ @	8¼c
Figs, black		4 c
Figs, white		4 c
Apricots	8 @	11½c
Peaches	3½@	4 c
Prunes, 4-size basis	2⅞@	2½c
Pears	3 @	5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$1.00

NUTS.

Walnuts are still quiet at about the former quotations and local dealers report little business. Spot almonds are very scarce and buyers are now watching the new crop. New prices will probably be made in some sections in about a week.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Most of the local packers and dealers are now receiving more or less new honey, but prices locally are still being held pretty firmly at the figures formerly quoted, which few buyers are willing to pay. A large sale of extracted honey has been made in the country at about 5 cents, but little is offered below 7½ cents in the local market. The crop is large in some of the southern districts, but the production at other points will be moderate.

White Comb, per lb.	12	@15 c
Amber Comb, per lb.	10	@12 c
White, extracted	6	@ 8 c
Old, candied		4 c

HOPS.

Hops are reported scarce in all markets, and with a shortage in the north, the local buyers are actively in the market. Higher prices are being paid for the small offerings of old stock in good condition, and contracts for the new crop are also being made at higher figures.

Hops, Old, per lb.	6	@11 c
New Crop	12	@15 c

WOOL.

A fair movement is still taking place in some sections of this State and prices are firmly maintained. A large proportion of the stock in the country has been bought up at about the figures quoted, and is now being shipped rapidly.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Live cattle are slightly lower, and dressed cows and heifers are also weak, though dressed steers are fairly firm. Supplies of mutton are very liberal and prices on dressed mutton and lamb show some decline. Quotations on live sheep are for shorn stock, wool sheep bringing slightly higher figures. Pork and live hogs are in little demand.

Beef: Steers, per lb.	6¼ @	7¼c
Cows	5½@	6 c
Heifers	5½@	6 c
Veal: Large	6½@	8½c
Small	8½@	9½c
Mutton: Wethers	6½@	8 c
Ewes	5½@	6½c
Lambs	8 @	9 c
Hogs, dressed	9½@	11½c

LIVESTOCK.

Steers: No. 1	3¾ @	4 c
No. 2	3½@	3¾c
Cows and Heifers: No. 1		3¼c
No. 2		3 c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½@	4 c
Sheep: Wethers	3¼ @	4 c
Ewes	3 @	3¼c
Lambs	4¾@	5 c
Hogs: Grain fed, 100 to 150 lbs.	7 @	7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾ @	7 c
Common Hogs, lb	4 @	4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

By T. C. Tucker.

Sacramento, Cal, June 29.—The market the latter part of last week declined somewhat on apricots and peaches, but was very steady on plums. The sales this week show the market stronger on peaches, very steady on plums and unchanged on apricots. The improvement in the peach market is due largely to the brisk demand for Fourth of July trade, although as soon as this is over a decline is anticipated on the present varieties.

The auction markets today averaged as follows: Royal Cots, 85 cents to $1.35; Alexanders, 75 cents; Hales, $1.05; Triumphs, $1.15; Red Junes, $1.10 to $1.35; Simoni, $1.05 to $1.30; Abundance, 95 cents to $1.20; Burbanks, $1.10 to $1.35; Climax, $1.20 to 1.45.

The shipment of plums is heavy at the present, the principal varieties being Tragedies, Burbanks, Botans, Abundance, Climax and Simoni.

The shipments of peaches is also heavy, the principal varieties being Hales and some Triumphs. St. John's will be coming along next week. Georgia peaches are now arriving in the large markets of the East, 18 cars being sold today, Early Bells averaging $1.50 to $2, other varieties $1 to $1.75. The condition of the Georgia peach this year has been irregular to poor, and if this continues California peaches will probably be in good demand and fairly good prices realized, as the trade cannot afford to take a chance with "off" stock. The shipment of Georgia peaches to date is 435 cars; estimated shipments this week are 255 cars, and next week 845 cars, with heavy shipments until August 1. Georgia Elbertas will start about July 15.

Small lots of Bartlett pears are being shipped daily from the Sacramento River district. The first lot to arrive in the East sold in one of the auctions Monday at $3.55.

The cash prices to growers established June 28 by shippers are as follows: Hales, 40 cents; Triumphs, 45 cents; St. John's, 45 cents; Shiro, 50 cents; Ogon, 55 cents; Royal Hative, 40 cents; Clymans, 45 cents; Peach plums, 60 cents; Burbanks, 65 cents; Simoni, 75 cents; Climax, 75 cents; Tragedy, 80 cents; California Red, 65 cents. It has been reported that pears

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in the river district are being bought at 70 cents per box, unpacked, bank delivery, and plums at 40 cents per crate, unpacked, bank delivery.

Shipments to June 28, 1909, show 934 cars, as compared with 1043 to same date last season.

Special Citrus Market Report.

Los Angeles, Cal., June 29.—Lemons are in the saddle and riding hard. "What's the price of lemons this morning?" asked one of the leading shippers. "Five dollars a box," was the reply. "Well you may get it if the weather holds." "Yes, and if it doesn't hold we wouldn't get $3, so we might just as well ask all the traffic will stand while the good things are going round." This is about the way the lemon holders feel. The demand has been enormous and the available supply of fruit that will stand up well is very scare, and so why not get the price for it? Lemons went to $8.20 a box for one brand in Boston yesterday and there were a number of sales around $6 a box. A week ago today the price was $2.65 for the very best stock at this end of the line. Then the hot wave struck and prices have been creeping up steadily with every day's demand since that time. No telling where they will stop, but it is certain that they will not again be very low on good cured fruit for the remainder of this season, no matter what the future weather conditions may be.

There is little or no demand for oranges of any kind at this end, and in the auctions no interest except in Valencias. The jobbers apparently have enough confidence in the holiday market to pay fair prices for this variety. Prices are still in the neighborhood of $1.85 to $2 cash California, and from $1.90 to $2.10 usual terms. Seedlings and sweets are going begging at $1 a box cash at this end, the average in seven auction markets on Monday for either variety was $1.80 a box delivered, which means from 25 to 35 cents a box to the grower.

The shipments are decreasing to some extent, but are high. Friday the output was 105 cars of oranges and Saturday and Sunday 161 cars, and for the past seven days over 850 cars, while for the same time last year they were less than 300 cars. To date there has been shipped 27,058 cars of oranges and 4200 cars of lemons. To same time last year, 22,503 cars of oranges and 3384 cars of lemons.

PUBLISHER'S DEPARTMENT.

In this issue will be found "Cultural Notes," by E. A. Wright of Los Angeles, which we trust will become a regular feature in the horticultural department, and which we believe will be of value to citrus growers of the State. Mr. Wright doesn't claim to be an authority, but he thinks he can ask questions, and the results of his visits to orange groves over the State, written in an interesting way, will be printed from week to week. Questions and criticisms along this line are requested.

A slight change in the advertisement of the Hamlin School of San Francisco makes the announcement that the fall term opens August 9. This is perhaps the best school for young ladies in the West.

Winthrop & Hurd of Redlands are offering fine Loggenburg goats for sale. Read their advertisement on our last page.

The Western Machinery Co. of San Francisco are new advertisers in our columns. This is a good firm and it will pay readers to write to or call on them when in need of machinery.

Easy to Grow Orchids.

There is an idea that only the rich can afford orchids. That is a mistake. A well shaped, thrifty orchid plant in bloom may be had for about $3. Its blossoms will last longer than those of a $20 axalea, and when they are gone the plant will be in better condition than the axalea. Of course, for the owner of a small greenhouse or a sunny window the varieties of orchids she can grow to advantage are comparatively limited, though such a list including some of the showiest and most beautiful specimens. First on the list is the popular lady slipper, which does well in a sunny window or greenhouse. The Coelogne cristata is rated among orchid growers as the best white variety, each blossom being four or five inches across. It can stand a temperature of 40 degrees, and is one of the best and easiest grown of orchids. Good flowering plants of this variety are not costly, and after the blossoms are gone a plant can be kept in a house window, where it will thrive and be ready to produce an increased number of flowers next season. These blossoms will last, cut or uncut, at least two weeks. There are many other varieties equally desirable for window culture, which any good dealer point out to a purchaser for the asking.

Potting is really the only unique feature in orchid culture. Aside from this, orchids should be treated about as other window plants are. The standard potting materials are peat and moss, which hold the necessary moisture for the proper length of time. Baskets or some other open receptac'es are always used, because it is necessary to admit plenty of air to the roots. That is orchid culture in a nutshell, so you can see there is nothing too difficult for the window gardener.—Boston Herald.

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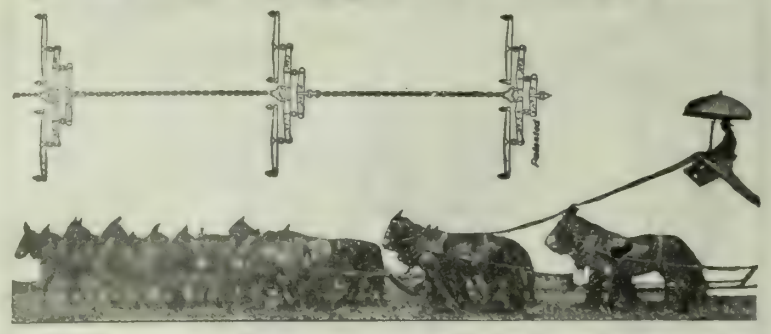
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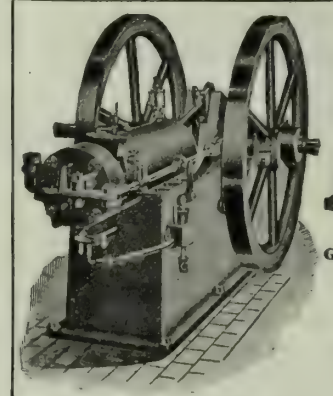
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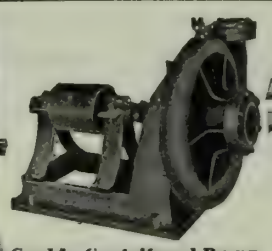
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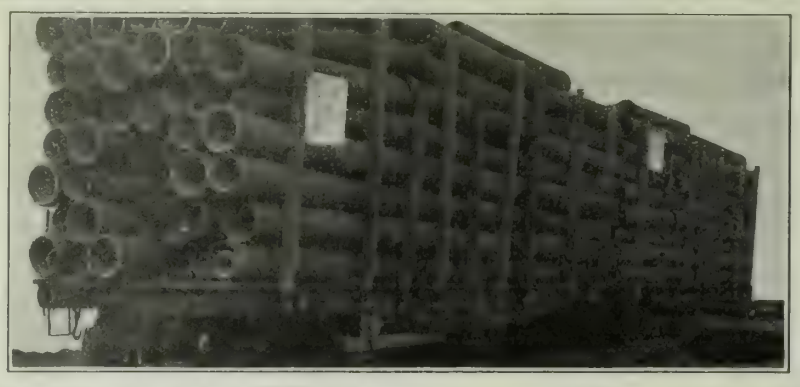
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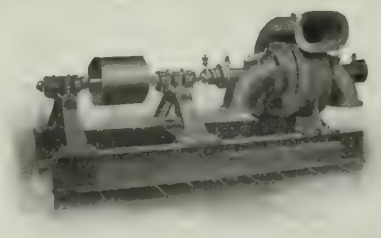
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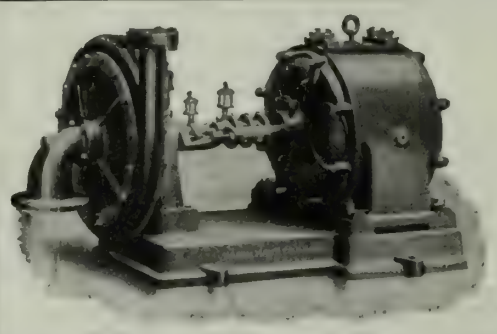
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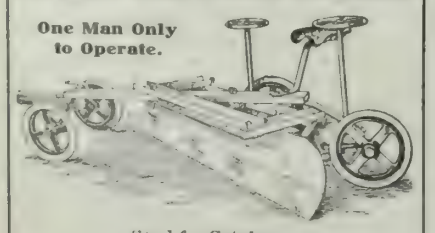
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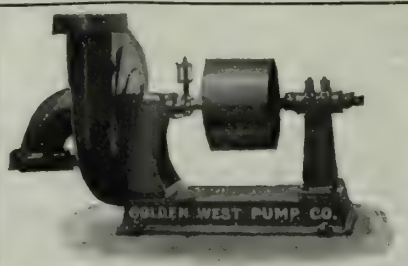
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 2. SAN FRANCISCO, SATURDAY, JULY 10, 1909. Thirty-ninth Year.

Alfalfa in the Orchard.

Written for the PACIFIC RURAL PRESS
By Mr. W. M. BRISTOL of East Highlands.

For at least a score of years the question, "How would it do to sow alfalfa in the orchard?" has been periodically propounded to the horticultural papers of California. So far as I have read, the question has never been fully answered in the terms of practical experience. The fact that I have made some experiments in that line has brought me many queries as to results. The experiments were not systematic, and the results cannot be concisely stated, but, for the benefit of all orchardists who have asked the question, either mentally or orally, I will narrate the circumstances and conditions and recite the conclusions at which I have arrived.

Half a dozen years ago I became impressed by the current arguments in favor of combining poultry culture with orange growing—a plausible and apparently feasible proposition. To make a profit on the poultry and have the fowls fertilize the orchard without cost certainly sounds attractive. I enclosed the entire place, with dividing fences between the different orchards, and built commodious houses, so located that the poultry could be diverted from one orchard to another to keep them out of the way of irrigation. For two or three years the venture was profitable—according to the books. But there were a phase of the matter that the poultry ledger did not show, namely, the effect on the orchards. The value of the fertilizer produced was considerable; but the fowls prevented the growth of cover crops, and thereby incurred a loss very much greater than the value of their droppings.

Nature has two principal methods of loosening the soil. In cold regions it is largely accomplished by freezing and thawing. In warm and arid climates it must be brought about chiefly by the growth of winter vegetation. After three years of the poultry regime the soil in my orchards had become so hard that a 48-hour irrigation did not penetrate to a depth of 18 inches. Many casual observers remarked that it was a fine thing to have the poultry follow the plow or cultivator and pick up the bugs and worms. My conclusion is that every angleworm removed from the soil is a direct loss, for the leavening and loosening power of the earth-warm army is tremendous. Indeed, it is said that they cover the earth to a depth of one-fourth inch annually with soil brought up from below. All things considered, I decided that the poultry must go, and to restore the soil as quickly as possible to its previous friability I sowed the orchards to alfalfa. Part of the seeding was done in October, and part in February, each resulting in a good stand. The ground was irrigated, cultivated and furrowed out as if for another irrigation. The seed was then sowed broadcast, after which a larger shovel was run through the furrows for the purpose of deepening them and covering the seed on the intervening ridges.

It goes without saying that an abundant supply of water is necessary in growing a summer cover crop. Fortunately, I was prepared to irrigate at any time by merely pulling a lever. I will admit that going into a California summer with one's orchards seeded to a cover crop seems foolhardy; but I braved my neighbors' discouraging remarks and stifled my own misgivings. Every ten days and for forty-eight hours the water threaded its way through the furrows. Weeds of various kinds sprang up and, if for no other reason than appearances, I decided to mow the crop. As it had to be done with the scythe, the task proved too great and was abandoned. Passers said, "See how that man is neglecting his orchards."



Cover Crop in Orchard of Mr. W. M. Bristol.

With the exception of one tract, which had received no fertilizer save the poultry droppings for two years, and which had carried all of its old crop until June, the yield of fruit was normal, and averaged 10% heavier per box than that from orchards which had been cultivated. I attributed this solidity to the fact that the cover crop had absorbed much of the available nitrogen in the soil.

In the following February the alfalfa was plowed under—practically a year after sowing. As soon as irrigation was begun it was evident that the condition of the soil was very much improved, and the trees showed no ill effects of the experiment. I had expected that gophers and Bermuda grass would give serious trouble, but was happily disappointed. Only one gopher made his appearance, and he was promptly poisoned. I may digress enough to say that a few stalks of fresh alfalfa, with their heads doubled over and tied in a fist-like tuft, form the best receptacle for carrying strychnine to the gopher, and have been proved almost infallible, even in alfalfa fields.

While I regard my experience with alfalfa in the orchards as successful and satisfactory under the circumstances, I do not intend repeating it. Prior to the experiment it was my practice to sow vetch, starting it early in September and plowing it under in April. There are only four months in my calendar which are wholly given over to cultivation. The accompanying view, in which the vegetation happens to be chiefly alfilaria, was taken April 15. I am aware that a majority of those who grow cover crops contend that they should be plowed under early, in order that quick and complete decomposition may occur. It must be admitted, however, that this practice is not in line with Nature's method of increasing the humus in the soil—for Nature always allows it to mature. I am also aware that early and late cover crops involve abundant irrigation, and are therefore out of the question in many places; but I see no reason, where water is plentiful, why the cover crop should not be allowed to round out its purpose. I do not favor deep plowing of orchards, believing that the roots of the matured cover crop have loosened the soil more effectively and with less injury to the tree roots than the plow can. The roots of the matured cover crop, beginning to decompose in May, keep the soil open and in condition to receive water throughout the summer. The roots of the immature crop, their career cut short in February, have vanished and the holes made in the soil are closed by cultivation before the summer has fairly begun. I make no effort, in plowing, to turn the crop all under, preferring to have a large portion remain on the surface and become dry.

I can see no point in which alfalfa excels the annual legumes as a cover crop, unless it be permitted to grow for two years before being plowed under. By that time its roots would have penetrated deeply and would have perforated a compact soil so that it would remain pervious to water for a considerable time. Should my soil again become so compacted as to require the alfalfa treatment, I shall first apply a generous dressing of a complete commercial fertilizer, and then sow alternate lands or spaces only in the orchards, permitting it to grow for two full seasons before turning under. The remaining spaces will be sowed to annual legumes and will be kept under thorough cultivation during each summer.

I do not contend that we can go all the way with Nature, but I do know that, to be successful coworkers with her, we must travel in the same general directions.

Not only my own orchards, but others in the neighborhood, where late and shallow plowing has long been the rule, and where but little commercial fertilizer has been used, are producing good crops, and seem to say to their owners: "Let Nature help you and us."

Pacific Rural Press

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The Week.

The type made us say last week, "the conditions for a good crop of almonds were never better than this year." We intended to say that conditions for a good price for almonds were never better. The crop will be small and the nuts will average large and of high quality; therefore the price should be good, and we urged co-operation among growers to get the advantage of this state of things, which we hope will be accomplished.

The National Irrigation Congress will meet in Spokane August 9 to 14, and delegations are now being appointed by our State authorities, by municipalities and by commercial organizations. Irrigation congresses have accomplished much for the promotion of national irrigation development during the last decade and they have great opportunity for further effort in making the projects now nearly or quite in operation successful by attracting settlers to them and by teaching them how to make a living under the novel conditions which exist. This is essential to securing the payment of cost of reclamation, which the government may reinvest in other reclamations, as the national irrigation law contemplates. There is serious danger, however, that the whole scheme of development may be made ridiculous by the boomers who cannot wait for the demonstration that projects already finished can be made self supporting and the people who take farms upon them can make a living. We have, for example, a declaration that the secretary of the Board of Control will bring before the Congress a resolution calling upon the government to issue gold bonds at 3 per cent for a hundred years to the amount of five million dollars—one million for drainage of swamp lands, one for new reclamations of arid lands, one for construction and improvement of deep water ways, one for national highways and one for forest protection and reforestation. Though these things may be good and profitable, this scheme to secure them will strike most people as wild and visionary. The reclamation service should begin to pay in something from its first projects soon, the forest service is doing well in demonstrating its ability to secure income, the States are beginning to take hold well upon State highways, the government is already proceeding wisely for drainage and improvement of rivers. The people of the country are watching closely for indications of the success of these progressive undertakings. Without such demonstration the scheme to invest national credit by the billion will strike the country at large as a proposition of the Mulberry Sellers type, and will give the whole plan of Western development, which is now working so well, the national ha! ha! the echoes of which will not subside for a generation. We dislike to think that a good work may be discounted by such unwise agitation as is promised at the next National Irrigation Congress.

An indication of the Eastern view of irrigation effort, and which must be patiently overcome, is seen in the writings of Mr. Joseph E. Wing for the Breeders' Gazette in connection with his descriptions of what two Californians are now doing in Virginia, as we have already quoted in our Live Stock department in recent issues. Mr. Wing gives due credit to the California spirit and enterprize which Col. Taylor and Mr. Jack are manifesting in their alfalfa growing in Virginia, but his misconception of the advantages of irrigated agriculture will crop out. Note the following extract from his writings: "If only no one knew of it, if only it could get pages in magazines and columns in newspapers, if it could have its joys half of them blazoned forth, as are the joys of California, what a rush, what a boom it would have! For it is so much more worthy in many ways than is poor old dry California. But here the soil must be fed, do not forget that! The natives forgot it, hence their sorrow now."

We have no doubt that Mr. Wing is right that the grand old dominion of Virginia would return to her pristine prominence and prosperity by the application of Western enterprise and by adequate investment in progressive agriculture, but what a mistake Mr. Wing makes in extending sympathy to California, where the same application and investment yield many times the return which can ever be possible in Virginia. And how inconsistent Mr. Wing is in deploring the fact that water is necessary in some parts of California, while in the next sentence he enjoins upon Virginia improvers the fact that they must feed the soil! Does he forget that water is only one form of plant food, and withal the cheapest to supply? Does he forget that a permanent water supply can be secured for hundreds of thousands of acres of fertile land at no greater cost per acre than the price of a ton of fertilizers, and this ton of fertilizers to be bought every year to enable the naturally poor and worn out soils of the Atlantic seaboard to yield a profit? The fact is of course that the cost of this ton invested in irrigation enterprise will render the California soil richly productive for a generation or two because the soil is many times as deep and fertile as Virginia soil. Another fact is that the yearly cost of supplying this water is not greater than the freight and labor in spreading the fertilizer, and the actual cost of the fertilizer itself is added each year to the net profit of the crop which is produced. "Poor old dry California" indeed. Mr. Wing, you know better, for you have looked closely into California agriculture. The age and the dryness of California, as you call them, are the secrets of its present soil wealth and irrigation is the key which unlocks this wealth in annual dividends wholly unconditioned upon adversity of weather which may reduce the Eastern farmers' returns below the annual cost of his fertilizers. Do not forget these things, Mr. Wing, when you are pursuing your honorable work of advancing Southern agriculture.

As one phase of the great and varied irrigation question, we hope due attention will be paid to the anti-dredge mining convention which Mayor C. L. White of Sacramento has called to assemble in that city on July 21. Everyone admires the enterprise which is bringing gold out of river flats, but everyone who loves the State is also apprehensive about destroying rich river-bank lands and turning fertile fields into boulder barrens and setting free acres of silt to shoal the rivers instead of keeping it for all coming generations in the form of productive meadows. We do not wish to prejudge the question nor discount the characteristic enterprise which has set the world's pace in dredge mining, but it is manifestly desirable that all questions involved should be squarely faced before such enterprise is allowed to proceed further in buying good land for the purpose of permanently destroying it. If there is a way to secure the gold and restore the land, this should be rigidly demanded by the State for the sake of its own future. The way to begin this inquiry is to assemble in public convention as invited by the mayor of Sacrament. Properly and naturally the United States engineers who are charged with the conservation of the rivers have promptly manifested their interest in the convention. When the engineers heard that the meeting was to be held they wrote Mayor White and asked him if they could send a representative. The mayor answered by sending them a very pressing invitation to be present. The government engineers want to learn all they can about the effect of dredge mining upon the rivers and the sentiment of the people upon this form of mining. Mayor White, in addition to 130 delegates first named by him, will name 30 more from towns not represented in the first list. We trust the attendance will go far beyond all official lists. We doubt not all interested will be welcome and the occasion should be a manifestation of popular interest in the most emphatic form.

The arising of such questions of State-wide interest cause us to rejoice that for some time there has been no sound against the territorial integrity of California. Southern California is attaining such notable development in both coast and interior desert regions that her people are entertaining broader views than ever before and are freely employing their surplus capital in promising enterprises in the San Joaquin and Sacramento valleys. Investment, trade and travel are all showing southern California people that the old cries for State division were narrow, provincial and ill-advised; there is far better chance for all our people in the State as a whole. We recall this California experience because the State of Oregon seems destined to go through a separatist sensation. It is claimed that there is a well-defined movement in the eastern part of Oregon for a division of the State to form a new State of the eastern half. Dissatisfaction over an alleged lack of interest by the better developed portion of Oregon in the less fortunate portion is given as the reason for this movement, and those favoring secession point out that there is ample territory and plenty of resources to make the proposed new State self-supporting and prosperous. This country is being developed rapidly in the past few years and is to be still further developed through enterprises under way and projected. This is the same old story which a few years ago was shouted in southern California. It is all the product of misconception and ill-judgment. The two parts of Oregon are complementary and each contributes to the development of the other and to the whole. It is working out that way splendidly in California, and Oregon will only have to wait a little to perceive the same movement between its parts. Besides a State cannot divide itself, nor will eastern Oregon be able to cast a vote to favor division even if it were possible to do it in that way. The Congress of the United States is the only power which can divide a State, and there never has been a State divided, except in the case of the Virginias, which was a war measure. The Carolinas and Dakotas came into the Union separate; they were not subdivided afterward. Congress does not desire more Western senators, and no local movement could prevail against that whim, no matter how strong it might be locally. We say, then, to Oregon: forget the proposition for subdivision. Get closer together and build up a stronger commonwealth for your own good; for the good also of the coast and the country.

We are quite in sympathy with the claim of the Rural New Yorker that too free claims for the

prosperity of the American farmer are not wise, because it is apt to set a popular tide of thought and transaction against farmers' interests. It is well to rejoice in the magnificent aggregate of our farm productions and to patriotically exalt the service which this aggregate renders to the development of the nation. It will, however, do harm to spread an idea that the farmer rolls in easily gotten wealth, because it sets all other producing classes to preying upon him in ways past finding out, it unsettles and demoralizes his labor supply and it prevents his getting his just dues and accommodations from corporations of all kinds which divide with him the products of his own effort and enterprise. Our farmers are as a whole doing well and contributing grandly to national prosperity; let it go at that. When it comes to close scrutiny of their profits and compensations, however, they are getting much less than their proper share of that prosperity. Perhaps it is largely their own fault, but pass that; it is true that they are not getting what properly belongs to them and it is unjust to them to obscure that fact by exaltation of their prosperity. The Rural New Yorker puts it in this way: "Many of the "friends" of agriculture in high places have been telling how exceedingly prosperous the American farmer has become. The papers are filled with stories of high prices for farm products and the immense value of a year's crop. It has got so that most city men believe farmers have money to throw away." The effect is, of course, to make the farmer the base of every kind of exaction. It is unbusinesslike and should be frowned down by everyone who believes in giving the farmer a square deal in the adjustment of occupations. Besides it is really cruel scoffing, because the mass of farmers know that the aggregate which yields such satisfactory national results is really the price of continual self-sacrifice and tireless effort on the part of individuals who are not adequately compensated therefor. The farmer denies himself that the nation may be rich, and the comfort he can get in his modest and moderate way should not be endangered by exaggerated imputations of wealth. As a rule he does not get what he deserves.

Queries and Replies.

Alfalfa on Reclaimed Bay Lands.

To the Editor: I desire your opinion concerning the use of some low lands near the southern end of the Bay of San Francisco, on which it is planned to raise alfalfa if the land is suitable. It has this year yielded a hay crop of about 500 tons. The island has been under successful cultivation for some years. Last year it was in tomatoes, and is now available for such area as would be thought needful for experimenting with alfalfa in order to determine the wisdom of later devoting the entire island to such use. There is an abundance of artesian water at hand. There are other tracts which, while leveed, are not in the best condition for cultivation, one not having been plowed for some years, and another was flooded with bay water this year, following a break in a dam.—Owner, San Francisco.

From what you say about the products already grown on the land, there is no question about its suitability for the growth of alfalfa, so far as soil is concerned. There is manifestly no content of salt remaining, or the plants you mention would not grow. The point to be determined will be what depth of soil you have above ground-water. For alfalfa to be long lived requires a chance for deep rooting, say five to ten feet above ground-water, if possible.

The rise of the ground-water during the winter, when alfalfa is dormant, is not necessarily destructive to it, but a high water-table during the growing season usually results in short life to the plant, although it may be very vigorous and satisfactory at first. If you are in danger of this high water-table, and you have water which can be used for summer irrigation, the common Eastern red clover will be more likely to succeed than alfalfa, because it has a fibrous instead of a deep running, porous root. On the reclaimed lands of the San Joaquin, red clover is very satisfactory and productive in places where alfalfa has soon failed because of the rotting of the roots. We would therefore advise you to experiment not alone with alfalfa, but with Eastern red clover (Trifolium Pratense), and with the white or Dutch clover (Trifolium repens). The two latter can be successfully grown together. On land subject to saturation, or even submergence during the winter, the Australian rye grass (Lolium perenne) is a good winter growing plant, and would give much pasturage while the clovers are dormant.

The Split-Pit Problem.

To the Editor: I am sending you some parts of cling peaches which show more gum than I ever saw on small fruit. The trees were sprayed for blight in November last, and in January, and have been well cared for. What is the trouble and what the remedy? The kernel seems to have been changed into gum, the pit forced open and this sticky substance forced through the pulp to the surface, as you see it.—Enquirer, Fresno.

The peaches which you sent show a phase of what is called the split-pit trouble. This is not due to any specific disease. It has been carefully studied for a few years back, and that conclusion has been reached; therefore it is not possible to prevent it by any spray designated to kill parasitic and destructive organisms. The splitting of the pit, the gorging of the cavity with sap, is manifestly a physiological trouble, but just what causes it, if there is any single cause, and in what way it may be prevented, are not yet known. The remedy may be to reject varieties which are most given to this weakness, or it may be in some way that modification of culture conditions which will lead to a more mature and normal development. Just at present, however, there is nothing to do but conjecture and make continuous observation, in the hope that a better understanding of the trouble and its prevention may be reached.

Summer Feeding Crops.

To the Editor: I have cut some grain hay and want to irrigate the land and put pumpkins in, but everybody seems to think it is too late for that. Do you think Kaffir corn would do, or could you suggest something else?—Farmer, Yolo County.

We suppose your neighbors object to the planting of squashes as late as this because the growing season, before the coming of the first frost, may not be long enough to develop the plant and its production satisfactorily. We are not sure that that is true. It depends, of course, very much upon the character of the season, and we have some seasons with such an abundance of autumn heat and absence of frost that good results would be obtained. We should plant a few just to see what happens. The planting of Kaffir corn and other sorghums as late as this is frequently undertaken, and with very satisfactory results, because in the growing of sorghum you do not have to wait for any full development of the plant and its products, as you do with pumpkins and squashes. Sorghum can be cut and fed at any time during the growing period.

Fertilizers in Irrigation Water.

To the Editor: Could you inform us whether the application of nitrate of soda or other soluble commercial fertilizers has ever been tried in solution with irrigating water, that is, allowing the water used for irrigation to carry at the same time the fertilizer to be used upon the land? We have at different times applied nitrate of soda and other fertilizers during the growing season to hop vines, but unless one irrigates after the application or happens to have a rain, the fertilizer often remains in the crystalline state throughout the entire growing season and is not available for the plants. Kindly inform us as to whether this method of applying fertilizers has ever been tried, and with what success.—Reader, Sacramento County.

Mr. A. S. Chapman, San Gabriel, Los Angeles County, has for a great many years practiced the application of soluble fertilizer by placing the material in the flumes, to be taken up by irrigation water on its way from the supply to the ground to be irrigated. We are not aware that anyone else has followed his example, nor do we know what his own position is with reference to this method at the present time, as some years have elapsed since we heard his account of it. We can only advise that you write to Mr. Chapman, in case he may feel disposed to give you the results of his experience; or, of he will kindly give us the facts for publication, many more may be edified.

Unthrifty Peach Trees.

To the Editor: Will you kindly inform me as to what is probably the trouble with peach trees which were slow to leaf out last spring and had small narrow leaves. They made a rank, thick growth of such leaves. Most of the fruit twigs die, They have few blossoms and mainly drop off. Some trees are affected only in one limb or one side of the tree, the other part of the tree being full of fruit. These trees were well sprayed with Bordeaux mixture, but the disease seems to be spreading each year.—Reader, Fresno County.

We have discussed this trouble before. We believe that you have to deal not with a disease of any kind, but with unfavorable temperature and soil conditions, particularly the matter of moisture perhaps, and such troubles were quite general last winter. We think, however, that most of the trouble has come from allowing young trees to get too dry during the latter part of the summer and autumn. Others are no doubt effected by standing water in the soil during the winter time, which has interfered with the root action, and thus caused die-back—sometimes of the branches, sometimes quite generally through the tree. These things occur when there is no sign of disease, and therefore spraying with the Bordeaux mixture or any other remedy would have no effect, because the trouble is in the soil and not in the tree itself. This matter will be looked into by the University experts under Professor Smith, who is now giving systematic observation of tree maladies in the central part of the State, under a special appropriation made by the last legislature, and more exact knowledge may be expected as a result thereof.

Nursery Work—Peppermint Growing.

To the Editor: Where can I find the fullest account of what I ought to know in starting in on the nursery business in this State? I would also like to experiment with peppermint, with the view of raising it and also expressing the oil here.—Beginner, Marin County.

The fullest account of nursery work and handling of orchards and vineyards in this State is given in our book on California Fruits.

Experiments have been made with peppermint growing and the making of oil from time to time on the Pacific coast for the last forty years, and every such undertaking has been abandoned. There is no local consumption which warrants such an enterprise and there is no chance to compete in Eastern markets with peppermint oil made in New York State and Michigan. One or two counties there can supply the whole world. If you are acquainted with the industries you will know that prices fluctuate sharply, and just as soon as too much is planted a good part of the acreage is plowed out as unprofitable. There seems to be no inducement to take up that line on this coast.

Horticulture.

ALMOND CULTURE.

By Mr. J. P. Dargitz of Acampo at the Educational Congress of the Sierra Polytechnic Institute at Paradise, California.

At the request of Mr. J. H. Kimball the writer has consented to give this paper on the subject of almonds. It is written, not as an authoritative document, but rather as the result of some years experience and careful study in handling a large orchard of almonds composed of some very productive and profitable varieties, and some other varieties which have succeeded in bankrupting some of my predecessors.

Anyone desiring to engage in the production of almonds with any likelihood of profit should very seriously consider the matter of climate, soil, varieties to plant, methods of prunning, spraying, harvesting and marketing. We will therefore take up the subject of climate first.

Climate.—In the matter of climate, there are two things which should be considered—frost and rains. Almonds bloom the earliest of all our tree fruits, and must therefore have a specially favored location, as far as frost is concerned. In selecting a location for an almond orchard I should prefer a slightly elevated location where the cold air has an opportunity to draw off onto lower ground, as this will often avoid a killing frost. The blossoms will stand quite a frost without detriment, but after the little nuts are the size of peas or hazelnuts they are very sensitive to the cold. I am satisfied, however, that early rains destroy far more almonds in this State than the frost has ever done. Continuous rain or cold cloudy weather during the blooming time will prevent proper pollinization. Then, when the grower thinks he has a fine show for a crop because his trees are full of little almonds varying in size from a grain of wheat to a pea, he will find his hopes blasted by their all dropping to the ground. He will often attribute this to frost when it is due to unfertilized nuts. A week of warm sunny weather during the best of the blooming time augure well for a crop. So far as my experience goes, the paper-shells, like all highly bred products, are rather deficient in pollen, and it is advisable to plant an occasional seedling or bitter almond among them to assist in the pollenizing process. Perhaps the better way is to select some of the harder shelled nuts that are rich in pollen and alternate rows to assist the paper-shells in this matter. If you have a location where you are reasonably sure of sunny weather in February or at blooming time, very good. If not, I would fight shy of the paper-shells. This brings us now to the consideration of varieties.

Varieties.—Of the paper-shell varieties, the Nonpareil, IXL and the Ne Plus Ultra are the three leading varieties. I consider the Nonpareil as the best nut and the surest bearer in our locality, and the best seller, always bringing the highest price. However, there is a strong tendency in some markets to give preference to the IXL. Where this nut will bear well it is well worth planting, but its shy and uncertain bearing in most places is greatly against it from a commercial standpoint. The Ne Plus Ultra is, in my judgment, the poorest of all the paper-shells, with due apologies to the man who named the nut. It is quoted lowest in price, inclined to produce many double kernels, drops its fruit when nearly grown unless well watered, and seems to be a shorter-lived tree than any other variety in our orchard, being frequently doughty at 20 years of age, while all other varieties planted among them are remarkably healthy. And yet there is a call in the markets for this almond.

Then there is a class of almonds called soft-shells, but much heavier in shell than the paper-shells. They are the class that people like to have on the table about Christmas time, and are to be cracked with a small nut cracker. The manufacturers of these nut crackers will always help us to sell this class of nuts. I once heard a dealer say that the most of the pleasure in consuming nuts was in cracking them. In this class of nuts I would mention the Drake's Seedling, which is an excellent nut, a fairly good bearer, good seller, quite well supplied with pollen, and altogether a profitable nut. The Peerless I think comes in this class, though I have never fruited it, but it is grown to some extent around Winters, and is quite a favorite there, I am told. It looks more like a paper-shell, being a long nut, but if I know the nut it is a soft-shell and not a paper-shell.

The next nut to be mentioned in this class is the Texas Prolific. And I think it is what I have said about this nut that brought me this invitation to come to Paradise. I count myself to have done well, if that be so. More than twenty years ago Mr. Williamson, then a member of the firm of W. R. Strong Nursery Co. of Sacramento, in his travels found this nut fruiting in Texas and brought buds of it to Mr. Robert Adams, superintendent for the above company's nursery east of Acampo, and told him to go ahead and propagate it, for it beat anything he had ever seen to bear. About twenty-five acres were planted, alternating the rows with Nonpareil, or Drake's Seedling. They have borne continuous crops since they were three or four years old. Of course they have had light crops and heavy crops, but they have always had a crop and have averaged much better than any other variety we have. They are the latest bloomers we have, blooming in March, which may account for the better bearing qualities, as we usually have more sunny weather then. I consider them very rich in pollen, as they seem to make more prolific any other variety planted alongside of them. They sell along with the Drake's Seedling, and, in fact, it takes an expert to say which is which, often when samples of the nuts are placed side by side.

The Jordan is a hardshell which is a comparatively new nut for this country and is valuable because it has a very long kernel which the confectioners desire. It is said to be a shy bearer by some and a heavy bearer by others, probably due to location.

I should say, other things being equal, plant Texas Prolific and alternate every two rows with either Nonpareil or Drake's Seedling.

Soil.—I understand that expert Mackie has advised the growing of almonds around Paradise because of your soil conditions, so I will simply say that any soil good for tree fruits generally and with good under-drainage ought to do well for almonds.

Pruning.—Almond trees should be pruned much the same as a peach tree for the first three years, aiming to get three or four main limbs low down, and only shortening in to prevent breakage in case of too rapid growth, or to produce the necessary branching. Thereafter pruning will consist in removing water sprouts and in keeping the head thinned out sufficiently to admit plenty of air and sunshine. It is not necessary to prune so as to lessen the production of pieces of fruit, as in the peach, but rather to get sufficient strength to hold what blooms.

Spraying.—So far as I know, we have three pests on almond trees in this State. The red spider, peach moth larvae and a blight resembling the peach blight. Fortunately the remedies are known and easily applied. I have in the last three years used the dust spray with excellent success. It is very quickly applied and costs only about one-fourth as much as the wet sprays. It is also less disagreeable to handle. In all occasions for spraying, so far as known, we have just three conditions to meet, fungus diseases, insects that bite and chew, and insects that suck. For fungus diseases we have lime, sulphur and sulphate of copper as the remedies. For insects that bite and chew we have some form of arsenic, and for insects that suck we may use anything that will make it disagreeable for them. It may be lime dust alone used in plenty, or it may be water alone used sufficiently to drown them. When we have a wet spring or an occasional rain in April or May we do not have much aphis, but when we have no rain we have an abundance of aphis. Prof. Wickson says "drown them," and I am not sure but water alone will do it just as well and just as quickly as anything else. But so far this class of insects have not bothered the almond. Very finely powdered bluestone, sulphur and lime will get the red spider, and if you will add one of the arsenicals you will get the peach moth larvae. For the blights or fungus diseases the lime, sulphur and bluestone finely powdered will answer the purpose. In fact, if these remedies applied in a soluble form will not correct the trouble we have no remedy at present known.

The formula I have used in December has been as follows: Lime, 40 lbs.; sulphur, 10 lbs.; sal Bordeaux, 2 lbs. When in full bloom I go over them again with the same plus 2 lbs. of arsenite of lime, this latter addition to get the peach moth larvae. It has proved quite successful.

Harvesting.—When the nuts are sufficiently opened that they will hull easily we begin the gathering. We use half sheets which for our large trees are each 15 by 30 feet, two of these being spread to a tree, making a surface 30 by 30 feet; then with suitable poles we proceed to jar each limb on the tree so as to cause the nuts to fall on the sheets. When four to six lug boxes may be filled from what are on the sheets they are emptied into the boxes, and a wagon gathers up the boxes and they are hauled into the sheds, where they are run through the huller and then carried to the sorting tables, where women and children sort them out, and then the nuts are spread out on trays in the dry-yard to cure. When they are dried enough so the kernels will break before bending they are ready to bleach. For a small harvest this can be done by placing in trays and dipped in water quickly or dampened by a water spray and then run in the sulphur house used for bleaching peaches. After a suitable time, varying from thirty minutes to one hour, owing to conditions, they are taken out and placed in the sun to dry the shells and then they are sacked up ready for market. Do not attempt to bleach before curing or you will ruin the kernels, as they will take the sulphur if they are not thoroughly dry.

Steam in Bleaching.—We bleached about sixty tons last year and used the following method, which is better. When cured we placed the trays on a car and ran them into a sulphur house. We had placed conveniently near a five-horse-power steam boiler and carried about fifteen or twenty pounds of steam in it. Then we opened a valve and admitted this wet steam into the sulphur house where the nuts were and allowed them to steam for thirty minutes. Then, having an adjoining sulphur house all ready with the sulphur in it ready to fire, and as soon as lighted took the nuts from the steam and ran them at once into the sulphur bath, where they remained about thirty minutes and then were taken out and were at once sacked up ready for market. This method has several advantages. It saves drying after bleaching. The steam softens and dampens the shells so they take the bleach nicely, but does not go to the kernels at all. It saves time, for two men by this method can bleach and sack up more than two tons per day. Be sure you do not get high pressure or dry steam, for if you do you will cook the nuts.

Marketing.—Where there are almonds in sufficient quantity to make it an object there are several large firms in the State who will buy the almonds when sacked, and usually pay for them a stipulated price upon delivery at a shipping station. Of course they all expect to make money or they would not be in the business, and it is only fair and right that they should make a reasonable profit for buying and selling for the grower. But it has seemed to me that the grower ought to have the right of fixing the price at which he will sell his product. If the growers could get together and agree upon what is a fair and reasonable price and then hold for it, much good would be accomplished all around. As it is at present the price fixing is largely left to the large firms who buy and sell. Naturally they will buy as low as possible to prevent some one else buying so as to undersell them. Now it has seemed to me that if the growers would fix the price and maintain it that the large buyers would just as soon pay the price, for they would feel that some one else would not be able to undercut them.

There are already several growers' organizations in the State which are working in this way, one in Sutter county and one in Yolo county. If all the growers would get together and agree it would cause the large buyers to sit up and take notice.

After all, it is the success from a commercial point of view which determines the extent to which almonds or any other fruit shall be produced. It is not so much a matter of consumption, for this country consumes many times the nuts that we raise. We import vast quantities of almonds annually, but with a little protection against foreign labor and with the protection which growers can afford themselves by agreeing not to compete with each other in the selling of their crops we can greatly increase our home production.

Acampo, California. J. P. Dargitz.

FERTILIZING ALMONDS.

Some of our almond growers who may think their old trees might be reinvigorated by fertilization will be interested in a consular account of an experiment in Spain, as follows: As a comparative test of the production of almonds under the same conditions, buth with and without fertilizers, a prominent fruit grower of Alicante divided his orchard last season into two equal parts, soil and age of trees being identical. One section of the plantation, after the usual superficial cleaning, wooding and pruning, was left to the unaided resources of nature, and to the other the following fertilizers per acre were applied: 330 pounds superphosphates, 40 pounds nitrate of soda, 40 pounds sulphate of ammonia, 440 pounds kainit (Strassfurt salts, largely composed of potassic chloride).

The results were remarkable. The section of the orchard unfertilized yielded 418 pounds of almonds per acre, while the part treated with fertilizers produced 1502 pounds per acre. The cost of the fertilizers was about $25.40, and the net profit on the experiment was about $75.30 to the acre.

This report ought certainly to incite our almond growers to try fertilizers.

Citrus Fruits.

THE BROWN ROT AND LEMON CURING.

The circular on the keeping quality of lemons, by Messrs. R. H. True and A. F. Sievers of the U. S. Department of Agriculture, from which we have drawn freely in recent issues, closes with an account of the work of fungi in causing the destruction of the fruit during the curing and subsequent transportation. We shall take a few paragraphs on this subject:

An important phase of the whole situation as regards keeping qualities is the matter of the different forms of decay met with in these tests. In the first few examinations no definite record was kept of each form, but the blue mould predominated, a condition which becomes prevalent after much handling of the fruit, as is the case in sorting, packing, and shipping. After a few weeks it becomes apparent, however, that a different form of decay was beginning to appear, which suggested the necessity of keeping a close watch on the relative growth of each form.

As many as five apparently distinct types of slow disease of the rind were seen, oftentimes having very striking form and color characteristics. These were not studied, since, apart from injured appearance, the loss due to them directly appeared to be but small. They may, however, possess greater significance by opening the way for the more actively destructive powers of the mould.

Finally, there is a very prevalent form of decay resembling in appearance and in odor the virulent brown rot of the citrus region. The conspicuous symptom is a brownish discoloration, which may appear anywhere on the lemon, followed by softening, discoloration, and a spreading of the affected area, which in time involves the entire lemon. The progress of the decay can be noted by the brown color and disintegration of the tissues.

From the work thus far accomplished certain general conclusions seem to follow, but in indicating them it should be distinctly borne in mind that they are advanced in a tentative way and may be more or less modified as these investigations progress. It is probable that the keeping quality of American fruit in the market is affected by the manner of handling in the course of its history, especially during the later stages of handling in California, during transit, and in the wholesale houses. Rough handling results largely in cases of blue mould. A well marked physical breakdown, resulting apparently from brown rot infection, seems to cause most serious losses after the fruit has been stored for some weeks or months. In a series of experiments designed to demonstrate the communicability of this disease under the conditions of storage present, negative results at first seemed to point to a physiological breakdown, but a study of the decaying lemons by Mrs. Flora W. Patterson, mycologist of the Bureau of Plant Industry, revealed the presence in practically all cases of fungal hyphae resembling those of Pythiacystis, the brown rot. This organism is therefore apparently the chief cause of the brownish rot which appears in the lemons after they have been some weeks in storage. Infection probably takes place in California and the disease remains undeveloped until weeks after arrival in the Eastern market. This raises a somewhat difficult phase of the brown rot question, which deserves and shall receive serious consideration.

Forestry.

SOME HARD FACTS ABOUT EUCALYPTUS.

Written for the PACIFIC RURAL PRESS by Mr. N. D. INGHAM, Sylviculturist in Charge of the University Forestry Station at Santa Monica.

It is almost impossible to read a newspaper or magazine through today without finding an article upon the eucalypts. The majority of articles are amusing to any person who has ever worked among the trees, as the writers have never had any field experience, but have read a few Australian reports and take it for granted the different species will grow the same in this State.

Occasionally an article by a beginner appears in print; the writer has a few new species that will revolutionize the eucalyptus industry in California. The leader generally is the E. marginata (one of the best trees in Western Australia), a complete failure in California. Eucalyptus paniculata, E. pilularis and a few others are mentioned with E. marginata at different times.

These trees have all been given a fair trial, in wind-breaks, avenue trees, and as isolated specimens, allowing an unlimited feeding area and a chance to reach their greatest development in diameter growth. In all instances the specimens have failed to make a merchantable growth, in from ten to thirty-five years.

There are over one hundred species and varieties of eucalyptus growing in California today, and this number can be sifted down to four of commercial importance: E. globulus, E. corynocalyx, E. tereticornis, and E. rostrata.

The "blue gum" leads the eucalypts in California, because of its rapidity of growth under favorable conditions, the light colored wood, and high strength tests. This is the lumber tree, and lumber for wagon work, farm implements, hardwood flooring, veneering, etc., will command a greater price in the future than the same amount of eucalyptus wood in the form of ties, poles, piles, fence poses and fuel.

There are many other species which produce a good strong lumber, as E. resinifera, E. punctata, and E. citriodora, but their growth under favorable conditions is too slow for the present generation to ever realize any returns. Consequently, it would be as well to set our hickory, oak and ash.

True, there are many localities where E. globulus will not make a merchantable growth, and one of the other three leading commercial species will have to be substituted. However, if your land and locality are suited to the growth of E. globulus, at least set out the largest part of your planting to this species.

Maturing Age of Eucalyptus.—The general public has never thought of the maturing age of the eucalyptus. The general belief is that the different species of the family will grow forever, barring accidental deaths. Mature trees may live for years, but the value of each succeeding year's growth after reaching maturity will be so small that it would not be profitable to allow the trees to stand.

Strong alkali lands either kill young trees or mature them under merchantable size; cold localities produce stunted trees; a shallow water-level and hardpan mature trees at an early age. Trees of E. globulus in San Diego county have matured within 12 years, under merchantable size, upon a soil having a hardpan three feet below the surface. These trees are growing along an avenue, allowing a large lateral feeding area. E. corynocalyx under similar conditions are making a slight growth each year, but the trunks of many of these trees would not make one standard-gauge tie.

Close planting matures trees at an early age and sacrifices the diameter growth. The young plants should be set out six by six or eight by eight feet apart, and weak and inferior specimens thinned out during the first four years of growth, allowing only 150 trees to remain on each acre for lumber purposes. If 150 trees were set out by the check system, the trees would stand less than 18 feet apart in the rows. In the hardwood forests of the East, Nature thinned out the trees until many acres have less than 150 merchantable trees. The vry best of our soils will not produce more than 200 trees.

There are groves in the State today, on good soils, that have made a height growth of over 100 feet in 22 years, but the diameter growth will not average 16 inches chest high. Why? Because the trees were set out eight by eight or seven by seven feet apart, and never thinned; close planting sacrifices diameter growth in favor of height.

To start a lumber grove, set the trees out close together to make them grow straight, and then develop a diameter growth by thinning out all week and inferior trees, and reduce the number to less than 200 to each acre. If a tree will grow 100, 200, or 500 feet in height, and the diameter at the base is only 18 inches, after the first 30 feet of the trunk the remaining portion is only fit for posts and fuel. Fuel ten years hence will be worth less than today.

Sawing of Eucalyptus Lumber.—There is far more waste to eucalyptus logs than to any other kind of lumber. Most of the figures given from time to time as the possible yield of eucalyptus in lumber are figured out by a contents rule used in the East for pine. The majority of the people expect to saw up eucalyptus logs the same as pines, oaks and maples, by the slab method. Slow-growing trees are less liable to warp and season check, as compared with the rapid-growing eucalyptus. The heart wood of the eucalyptus is worthless, except for fuel, for within it are the knots of the young tree's limbs, and it season checks more than the wood a few inches from the center of the tree.

To saw a eucalyptus log and practically eliminate season checking, the heart wood, an area varying in each tree from three by three to six by six inches, has to be blocked out and the lumber quarter sawed. The lumber should be stacked in high tiers, and in the shade if possible, but the main point of handling is the sawing.

It can be easily seen that it would be folly to saw up trees that are 12 inches in diameter at the base, as the lumber will be very narrow, and fit only for tool handles, insulator pins, etc. This also partly shows the loss to any grove owner who intends to saw up a ten years' growth, as the waste in the heart wood will be no greater at 20 years, and the profitable growth is not in height but in diameter, which can only be had by allowing a small number of trees to grow on each acre.

Mistaken Instances.—An article published in the Los Angeles Express on May 20, 1909, and copied by many other papers over the State, has undoubtedly attracted a good deal of attention. In the article the writer mentions a grove of Eucalyptus rostrata, 13 years old, some trees over 175 feet in height, etc. I had the pleasure of visiting this grove on January 13, 1908, and measured the tallest tree in the grove with a clinometer, and it measured 102¾ feet; but the main fact is that the grove in question is not E. rostrata, but E. viminalis.

An Eastern eucalyptus company with land at Tulare, California, has photographs in its prospectus of E. viminalis, labeled E. rostrata, and has probably sold many small tracts upon the strength of those pictures.

The E. viminalis is one of the most rapid and straight growing species in California, while E. rostrata is a low and generally crooked growing tree, but having a colored wood, superior in strength to the first named species.

The large figures published from time to time as possible profit from an acre of eucalyptus trees are in most instances computed on the following bases: Some one tree found growing under ideal conditions, with an unlimited feeding area, is measured and reduced to board feet, ties, posts, fuel, and oil. The results added together are multiplied by from 500 to 900, the number of trees the computer expects to grow on an acre of land. Isolated trees send out lateral roots as long if not longer than their own height, and the fact that 680 trees to the acre will allow each tree a feeding area of but 64 square feet is evidently not taken into consideration by the person making the calculation.

Eucalyptus groves growing upon a good soil, under proper management, will return a good interest on the money invested, although it is hardly an enterprise for the small investor, but for people who can afford to tie up capital for a long term of years.

AGRICULTURAL REVIEW.

Horticultural Notes.

It is estimated that the apricot crop will sell for $110,000 in Kings county this season. The crop is figured to be 700 tons.

The Ventura county horticultural commission states that the black scale promises to be very bad in that section this year.

Reports from Sutter county state that the 3500 acres of bearing Thompson seedless grapes will produce a very large crop this season.

Almost the entire crop of apricots in the vicinity of Winters has been shipped to market this season. Only about two cars will be dried.

At Sanger the agents of the canneries last week offered $17.50 per ton for Foster peaches and $20 for Tuscan clings. These varieties will be ripe next week.

The apricot crop in Ventura county is very good, being larger than last year. One Santa Paula rancher has sold his crop on the trees for $80 per acre.

Lots of cantaloupes are being shipped from the Imperial valley. One day last week 63 cars were sent out. The quality of melons is very much better than last year.

The Valencia orange crop of the Porterville district is estimated to make 200 cars this season, and it is expected the fruit will be all shipped by the middle of July.

H. L. Blake, a fruit grower of Vacaville, has been appointed to the position on the State Board of Horticultural Examiners made vacant by the resignation of H. P. Stabler.

Over two hundred hands are at work in the Hefner and Fredonia orchards near Gridley harvesting the crop of pears and prunes, the first car of fruit being sent out last week.

The Waters cannery at Pomona commenced putting up apricots last week. As the crop is late the harvest will last till about the first of August, when the peach season will begin.

The apricot crop in Kings county is about harvested. About 8 cents is being paid for the dried cots. Armona claims to have sent out the first car of dried apricots of any locality this season.

The first car shipments of watermelons from the Clovis district were shipped last week. The Farmers' Union has nearly all the melons in Tulare, Fresno and Stanislaus county signed up to be shipped in their pools.

The grape growers of California are preparing to make an extended display of wines at the coming State Fair, with the idea of impressing upon the people of the country the importance of the industry in this State.

The Farmers Union has leased the Nelson packing house at Fowler for the purpose of handling the fruit of its members in that locality. It is stated that the bulk of the crops in that vicinity will be handled by the Union this season.

The work of rebuilding the California Fruit Canners' plant at Fresno is being rushed, that it will be in shape to handle raisins this fall. No canning will be done there, but fruit in that district is being bought and sent to canneries at Visalia, Hanford and Stockton.

According to the Watsonville Pajaronian, fully 70 per cent of the 1909-10 Pajaro valley apple crop has been purchased and partly paid for. The prices paid so far are larger than those of a year ago. Never before has so large a percentage of the crop been purchased in advance.

A bumper crop of olives is expected in the vicinity of Corning this fall, and in order to properly handle it the Maywood Packing Company is enlarging its plant. A pickling plant with capacity sufficient to cure 10,000 gallons of ripe olives and oil pressing machines capable of making 15,000 gallons of olive oil are being installed.

The Fresno Republican estimates that from 300 to 500 cars of peaches will be shipped from that section this summer. The heavy shipments are caused by prospects of better prices being received in the East for the fresh fruit than for dried or what canners will pay at home. Some peaches have been purchased by large shippers at from $20 to $25 per ton. The prospects are that heavy shipments of grapes will be made also from that section.

The St. Helene Star says that G. de Latour, of the Beaulieu vineyard at Rutherford, has his large vineyard in the finest possible condition and the vines are loaded with grapes. Some portions of the vineyard give prospects of a yield of from 10 to 12 tons of grapes to the acre, and Mr. de Latour confidently expects at least 800 tons from his vineyard of 100 acres. As Mr. de Latour has his grapes contracted for at a splendid price, it is needless to say he is wearing a well-satisfied smile. Next year Mr. de Latour will plant on his place between Rutherford and Oakville 10,000 vines of the Pinot variety, to be used in the manufacture of his champagnized wines. With this additional planting planned for next year, Mr. de Latour will have on his two places more than 200 acres of vines, the most of which are of the very choicest varieties.

General Agriculture.

The new sugar beet factory at Santa Ana will begin operations next week.

A large acreage is planted to corn in Kings county, caused by the high price of grain this year.

A thousand-acre barley field owned by Chamberlain and Carr, south of Hanford, was burned last week.

Volunteer barley is a good crop in Yolo county this year, which, with the good prices, is netting the growers about $28 per acre.

San Diego county will vote August 3 on a proposition to issue $1,250,000 bonds, with which will be constructed a system of good roads throughout the county.

Eighteen thousand acres of wheat land in Morrow county, Washington, have been sold to 1000 German and Hungarian families, who will settle there the coming fall.

The grain farmers of the eastern portion of Tulare county estimate the yield this year at 85 per cent, while the price ranges from $1.80 to $1.84 paid by dealers. This means prosperity for that section.

According to the Riverside Press, the hay and grain crop of that county this season is valued at $3,000,000, which makes the orange crop of that section look less like being the sole dependence of its residents.

Dr. W. A. Finney, who is the owner of considerable land near Lincoln, Placer county, is having several irrigation wells sunk, and the prospects are for a good supply of water. It is expected to have each well furnish water for 40 acres of alfalfa land.

A colony of Mennonites from the Central West is to locate on a large body of land near Bakersfield this fall. The land is now a bare, brown section, which is to be set out to orange trees and alfalfa fields. Fully 5000 settlers are expected to settle there within the next two years.

A big stack of alfalfa hay belonging to Jess P. Nielsen, on the John Sheehy ranch near Watsonville, caught fire by spontaneous combustion last week and was destroyed. The stack was 100 feet long, 20 feet wide and 30 feet high, and contained over 100 tons of hay.

The sugar beet harvest has commenced in Butte county. It is expected that by early in August enough beets will be on hand to start up the big sugar factory at Hamilton City. The crop in the Sacramento valley is expected to be double that of previous seasons.

Last Friday the Sacramento Valley Irrigation company, known as the Pittsburg syndicate, closed a deal for the purchasing of 5575 acres of land, being the last of the unsold portions of the Glenn tract in Glenn county. The company has now nearly 150,000 acres in Glenn and Colusa counties.

While the grain crop in Sutter county is light this year, owing to the overflow of the river last winter, yet the hay crop will be a big one. It is stated that large producers of hay have been refusing $15 per ton f. o. b. baled, as it is the belief there that hay prices will be higher the coming fall and winter.

The State officers have everything in readiness to commence the construction of the roadway connecting the Sacramento valley with Humboldt county. The distance from Peanut, in Trinity county, to Humboldt county is only 28 miles, but a mountain range must be crossed, and it is estimated to build a good public high-

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way that distance will cost the State $50,000.

The condition of the cotton crop in the United States has fallen from 81.1 per cent on May 25 to 74.6 on June 25. Compared with last year at the same dates it is 7 per cent lower. What has caused the prospective crop to deteriorate is not explained in the bulletin issued by the Department of Agriculture.

The details for the drawing by lot covering 1,500,000 acres of government land in Washington, Idaho and Montana have been worked out. The great drawing will be held at Coeur d'Alene, Idaho, beginning August 9. The drawing, which may last a whole week, includes the Spokane reservation of 153,000 acres, the Flathead reservation of 1,200,000 acres and the Coeur d'Alene reservation of 310,000 acres.

Stock and Dairy Notes.

A new creamery has been started at Petaluma by Carl Plow.

The pear crop around Red Bluff will be a good one this season.

D. L. W. Hoffman, the dairyman of Meridan, has purchased the Henry Meier ranch, located in District 70, near Yuba City.

The 600-acre stock ranch known as the Kimball place, near Yuba City, has been sold to Eastern parties for a consideration of $23,000, and $5000 for stock and implements.

George A. Smith has sold his creamery at Corcoran to the Tulare Co-operative Creamery Association, and will devote his attention to the breeding of fine Jersey stock.

The Mutual Dairy Association of Los Angeles, composed of 400 dairymen, is now offering to deliver 13 quarts of milk for $1 in that city. The association has an output of 6000 gallons daily.

Owing to an unusually dry spring the cattlemen of the southern part of Humboldt county are planning to ship some of their stock to Oregon to pasture till next winter. One company will import several hundred tons of alfalfa for the purpose of helping carry over the stock.

The creamery at Visalia is paying 4 cents more per pound of butterfat for all sweet cream delivered at that place before 12 o'clock noon than was being paid for sour. The Visalia creamery shipped 50,000 pounds of butter during June, and the Tulare creamery is making about 100,000 pounds of butter per month.

Down in Orange county they are printing stories of egg production which show there are some fine hens in that part of the State. Mrs. L. M. Hartwick of Orange reports a pen of 34 White Leghorn pullets laying 264 dozen and one eggs from January 1 to June 1, or an average of 93 7-34 eggs per hen in five months. G. G. Sweeney of the same place claims fifteen Brown Leghorns laid 1749 eggs during the same time, being an average of 116 9-15 eggs per hen.

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HOW FAR DO BEES FLY FOR HONEY?

This is a question of great practical importance to the beekeeper, and the fruit grower will also be interested in it. Mr. G. M. Doolittle gives the American Bee Journal the conclusions from his experience. As I see the statement again going the rounds of the papers that bees will not go more than 1½ to 2 miles from home for honey, some even claiming that bees will perish and die for want of food within 3 miles of good pasture, it may not be amiss to say a few words again on the matter.

On one occasion I was 2½ miles from home, and I began to see bees that were loaded, apparently flying with difficulty against quite a strong south breeze, the place being north of my apiary. It was in time of teasel bloom, and the main teasel fields began three miles from my apiary and extended on still farther north for 6 or more miles. The nearer we approached home, the more bees were slowly passing us, facing the stiff south breeze; and upon going into the apiary I found the bees dropping down in front of the hives heavily loaded with nectar from the teasel.

A bee that works on teasel gets her abdomen covered with a whitish dust at the tip, this dust growing less and less as it nears the thorax, something similar to the yellow dust on the bee that works in the blossoms of the pumpkin and squash, so that she is readily distinguished from bees that work on other bloom.

Then the next year I had something which dealt a death blow to the 1½-mile theory. Seven miles to the southeast of my apiary is a hill, which is the highest point in our county, it being nearly 800 feet higher than where I reside. After a distance of one mile there is a gradual rise till the top of the hill is reached. There is from 10 days to two weeks difference in the time of all bloom on this hill (and especially basswood) and that at the apiary. After the basswood had been yielding nectar about the apiary for two weeks that year, I noticed that, while the bees were at work as strong as ever, the bloom had all gone from the trees in sight about me, so I began to retrench about putting on more sections, as is usually the case when the honey flow is likely to come to an end soon. But the end did not come, and as the bees soon become crowded for room I had to enlarge their sections again. This state of affairs kept on for a week, when I went to the first high point southeast from the apiary one afternoon when the breeze was from the northwest. I was astonished by the swarms of bees which were pressing toward the apiary from the hills with their loads of honey.

The next day I drove to the top of the hill, seven miles from the apiary, and found the bloom on the basswood trees in that fresh, white state which all beekeepers like to see in hot weather, knowing that when the trees have that whitish appearance they are in the best condition for nectar secretion that can possibly be. And these trees were musical from the humming of the bees at work on the bloom.

On my return home I kept watch of the fading bloom, and at four and a half miles from the apiary there was no bloom but what was too far gone for the bees to work on. That year I had 28 days of continuous basswood nectar pouring into the hives, and have had other years where the yield was nearly as long drawn out. However, from this I concluded that the one and a half mile flight idea is a fallacy.

DISPLACING THE HARROW.

Although we believe the writer whose words we shall give below does the harrow injustice, because a heavy long-tooth harrow certainly does work the soil down into cavities in the furrow bottom after plowing, it is interesting to know what he thinks of the sub-soil packer as a substitute for the time-honored harrow. In a letter to an exchange Mr. N. S. Belden, who describes his experience at Las Vegas, New Mexico, says:

I plowed my land deep and followed as closely as possible with a Campbell subsoil packer weighted to 1000 pounds. When this was accomplished I was done until seeding time. I have never seen a harrowed field look better on the surface, and I know that my land is in good condition to hold the moisture. The seeding was done with a shoe press wheel drill, crossing my plowing and packing work. My seed bed was about uniform after this process, and I doubt if the harrow could be made to do the same work. I have not harrowed this field, nor do I intend to do so until a crust forms. The field is left in a uniform appearance and the grain seemed to come up all together. If farmers will practice plowing their ground and packing it at least five months before seeding, and if the weeds put in an appearance go on the land with an Acme harrow that will entirely cut the surface, he will find it in about as perfect condition to receive the seed, and with as good a mulch to hold moisture, as by any other plan he can take.

In this Western country the farmer is able to work almost the year round, and if he does not get his land in proper condition after waiting for it to gather moisture and settling into a good seed bed, he has two seasons of which to take advantage, but he should not sow at random simply because he thinks his land is ready after packing and plowing. I do not believe in dry farming, for the reason that I have never seen any plan to follow. But I do believe that New Mexico will be accepted as a farming country very soon, and as readily as Nebraska and Kansas have been taken in. It was only a few years back when the best of Nebraska to my certain knowledge was considered very drouthy, and all kinds of propositions were offered to overcome it. Now they have too much moisture, simply because by years of tillage the surplus has been stored and new plans have been discovered. The old farmer is not now pointing to the man with the book learning with ridicule, but is studying his lesson.

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FISH AND GAME LAWS OF CALIFORNIA, 1909-1910.

The California Anglers' Association has issued a neat folder containing a complete summary of the California fish and game laws as they stand on the statute books now and are in force.

Hunters' licenses can hereafter be procured from any county clerk, from the Fish and Game Commission, Mills Building, San Francisco, or at the Los Angeles office, or from any of the deputies of the Commission. For citizens of California the fee is $1.00 per year; for non-residents of this State who are citizens of the United States the fee is $10.00 per year; for non-citizens (aliens) the fee is $25.00 per year. These licenses are not transferable and will probably be issued this year in form and style that will identify the bearer. They will be good for one year—from July 1st, 1909, to July 1st, 1910.

The penalties for violations of the fish and game laws are as follows: For killing elk, a felony, imprisonment not exceeding two years. Fine for violation of fish laws, $20 to $500 and imprisonment. Fines for violation of game laws, $20 to $500 and imprisonment. Smallest fine for using explosives to kill any fish, $250, and imprisonment. Smallest fine for killing does, fawns, antelope or mountain sheep, $50.

Most of the changes and new features made by the recent Legislature are in the interest of the people at large and acceptable to the true sportsman and in the interest of fish and game protection, commercially as well as on sporting lines.

Among these changes the individual bag limits for one day's shooting or fishing that will now prevail are the following:

Valley or "desert" quail, doves, snipe, curlew, ibis, plover, rail or any other shore birds, 20 instead of 25 as heretofore.

Ducks and black sea brant, 25. The former duck limit was 35 in one day. Black sea brant, reckoned one of the best table birds of the wild goose group, is now on the protected list. This bird is found at less than half a dozen shooting grounds on the California coast and should have been protected years ago. During the season for them, instances are known where one boat has brought in 75 or 100 black brant in a day.

Bucks, two in one season to one individual, as before.

Tree or gray squirrels are now limited to 12 in one season to one person.

Trout, 25 pounds or 50 fish in one day. Black bass, 50 fish in one day, as before. Steelhead trout, 50 pounds weight or 50 fish in one day, Golden trout 20 fish in one day. This variety of trout has been planted, for several years past, in many favorable waters and has propagated so well that now the Golden trout is ready for the angler for three months each year as noted below.

It is now illegal to fish for trout or white fish from one hour after sunset to one hour before sunrise. This provision is a deserved sedative for the dark lantern fisherman, generally a market provider. Trout of less than one pound in weight cannot be sold. Trout, black bass and steelhead trout can only legally be taken with hook and line. Trout cannot be shipped or carried out of the State. Market fishermen must have a license. Salmon, shad or striped bass may not be caught with nets on Saturday or Sunday in open season. Striped bass can only be caught with hook and line in May and June and cannot be sold during these months.

The open seasons on wild game and fish have also undergone changes in some respects and in others remain the same. As the laws now prevail the open seasons are:

Deer, three months' open season, August 1st to November 1st. Two weeks longer.

Ducks, black sea brant, curlew, ibis, rail, plover or other shore birds, open season from October 1st to February 15th. With the exception of ducks this gives two weeks more for the other birds and curtails sea brant slaughter. For other varieties of wild geese there has been no action taken. They can be shot any time and the bag is unlimited.

Doves can be shot only from July 15 to October 15th, as before.

Valley and desert quail can now be shot from October 1st, instead of October 15th, up to February 15th. This gives two weeks more quail shooting in a season.

English or Wilson snipe, October 1st to April 1st, also two weeks more of open season. The season should close March 1st at least.

Tree squirrels can be shot from September 1st to January 1st, as before.

Trout and white fish, meaning the fish of the interior and mountain streams as compared with the steelhead of the so-called coast streams, and none less than five inches long, can be taken from May 1st until November 15th.

Steelhead trout; found only in coast streams, none less than five inches long, can be caught from April 1st until November 15th, in or above tide water. The close season, from September 16th to October 23rd, has been taken off. In tidewater only steelhead may be caught from April 1st to January 31st, leaving but two months close season on this variety of trout.

Golden trout, not less than five inches, now have an open season of three months, from June 1st to September 1st.

Salmon cannot be taken by the net men above tidewater boundaries. The close season prevails as before, from September 16th to October 23rd, and includes all Satudays and Sundays of the year so far as the net men are concerned.

Black bass season is still open from June 1st to January 1st.

There is now a close season on shrimps during June, July and August. This is essentially one of the best features in the new rearrangement of the fish laws, for it saves, in the three months, tons upon tons of fish fry of many food varieties that spawn in our bay waters.

On crabs the open season begins March 1st and ends October 31st, four months of close season. In Humboldt and Trinidad bays, during the open season, can be taken on Thursdays only.

There was a time when these grand crustaceans (cancer magesticus) could be caught in around San Francisco bay in incredible numbers and of immense size, frequently measuring as much as 12 inches lengthwise on the back of the shell. Years of unrestricted crab fishing and the daily shipping of hundreds of dozens of crabs East and to interior points has almost exterminated them.

What is still unlawfnl and has been made unlawful will be found in the following summary:

To buy, sell, offer for sale or barter quail, dove, pheasants, grouse, sage hens, snipe, ibis, plover, rail or any deer meat or skins.

Mountain quail, wild pheasants, grouse, sage hens, swans, bobwhite quail or any imported quails, partridges and wild turkeys are now in close season all the year round for from two years to an indefinite period and must not be shot or hunted.

To take or kill meadow larks or robins (and a wise provision it is), or any other non-game birds, except bluejays, English sparrows, sharp shinned hawk, Cooper's hawk, duck hawk, great horned owl or California linnet. The phase of the law places, for instance, mudhens and a bunch of other feathered creatures on the protected list.

To shoot on cultivated or enclosed land, where signs are displayed, any deer, quail, wild duck, dove, snipe, curlew, ibis or plover, without permission of owner or occupant.

To use any animal as a blind to approach any wild geese, duck, curlew, ibis, plover or other water fowl. This is aimed to stop the "bull hunters" who slaughter wild fowl with large bore guns and by using trained cattle or horses to get within murdering range. Nothing in this section prohibits the use of a dog in upland or marsh shooting in legitimate hunting or retrieving.

Motor boats or any boats propelled by other power cannot be used while in motion in shooting wild ducks. This knocks out the sneak boat—a good idea, too—as well as the scull boat. The latter adjunct to duck hunting should have been left out. This style of duck shooting is legitimate and requires skill and extreme adroitness to get results, and at that the bag limit is rarely shot in one day.

The use of the convenient duck blinds, on shore or in ponds, duck decoys and baiting, has not been abridged.

To hunt wild birds or animals without license.

To have in possession doe or fawn skins.

To take or kill, at any time, does, fawn, elk, antelope, or moutain sheep.

To run deer with dogs at any time, except to follow a wounded deer in open season.

To shoot half hour before sunrise, or half hour after sunset.

To fish for trout or white fish from one hour after sunset to one hour before sunrise.

To trap or hold protected game or birds of any kind without having first procured written authority From the Board of Fish and Game Commissioners.

To take, possess, or destroy nests or eggs of any birds.

To ship game or fish in concealed packages, or without your name and address.

To buy or sell trout less than one pound in weight.

To take or have in possession at any time Sacramento perch, female crabs, or sturgeon, under 25 pounds in weight.

To take red abalones less than 17 inches in circumference.

To take black or green abalones at any time.

To take trout, black bass, or steelhead trout, except with hook and line, or to ship or carry trout out of the State.

To take salmon with a net less than 6½-inch mesh, or to use a set-net in taking the same.

To take shad, or striped bass, with a net less than 5½-inch mesh, or to use a set-net to take same.

To extend a net or seine more than one-third across the width of the river or slough.

To fish for market without a license.

To fish for salmon, shad, or striped bass with nets Saturday and Sunday.

To take fish, in any manner, within 50 feet of a fishway.

To take, buy, sell or have in possession at any time striped bass, less than three pounds in weight, or to buy, sell, ship or offer for shipment any striped bass, during May and June.

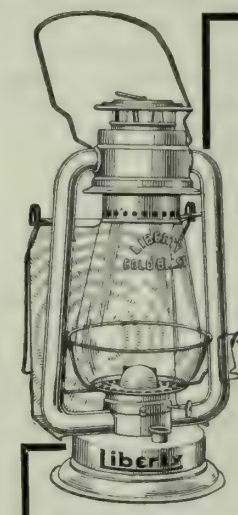
To export dried shrimps or shrimp shells.

To shoot at any kind of wild duck from any boat propelled by steam, gasoline or other power while such boat is in motion.

To take lobsters or crawfish from the waters of this State.

To have in possession any dressed catfish less than eight inches in length.

To take crab less than six inches across the back.



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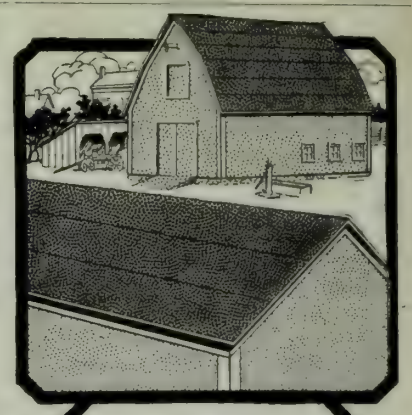
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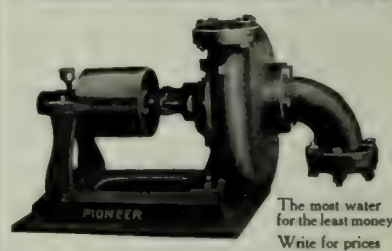
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WHAT HOLSTEIN COWS ARE DOING.

All who have Holstein-Friesian cows will be interested in a year's work of the Advanced Registry Association, as reported at the last meeting by Mr. M. H. Gardner, secretary. Part of the report is a summary of the products of all cows that have been under test. This affords average standards of what the best cows ought to do.

During the past fiscal year our breeders have had 2410 cows under test for periods of not less than seven consecutive days. Of these 2410 cows reported, 44 began their official records not less than eight months after calving, and fifteen completed semi-official long-time records. Of the 2351 ordinary seven-day records reported, 74 were extended to 14 days, two to 21 days, and 11 to an irregular number of days.

The averages by ages or classes were as follows: 686 full aged cows averaged: age, 7 years 26 days; days from calving, 23; milk, 469.8 lbs; per cent fat, 3.47; fat, 16.315 lbs. 159 senior 4-year-olds averaged: age, 4 years 8 months 15 days; days from calving, 26; milk, 449 lbs.; per cent fat, 3.51; fat, 15.1752 lbs. 200 junior 4-year olds averaged: age, 4 years 2 months 16 days; days from calving, 24; milk, 433.3 lbs.; per cent fat, 3.45; fat, 14.918 lbs. 181 senior 3-year-olds averaged: age, 3 years 9 months 15 days; days from calving, 23; milk, 409.2 lbs.; per cent fat, 3.47; fat, 14.183 lbs. 246 junior 3-year-olds averaged: age, 3 years 2 months 17 days; days from calving, 24; milk, 385.3 lbs.; per cent fat, 3.49; fat, 13.44 lbs. 249 senior 2-year-olds averaged: age, 2 years 9 months 5 days; days from calving, 30; milk, 341.5 lbs.; per cent fat, 3.45; fat, 11.833 lbs. 630 junior 2-year-olds averaged: age, 2 years 1 month 20 days; days from calving, 28; milk, 309.7 lbs.; per cent fat, 3.41; fat, 10.56 lbs.

This herd of 2351 animals, of which one half were heifers with first or second calves, produced in seven consecutive days 929,149.8 lbs. milk, containing 32,163.321 lbs. of butter-fat, thus showing an average of 3.46 per cent fat. The average production for each animal was 395.2 lbs. milk, containing 13.681 lbs. of butter-fat, equivalent to 56.5 lbs., or 27 quarts of milk per day, and 16 lbs. of the best commercial butter per week. When 2351 animals of a breed, half of them heifers, and all officially tested within a period of one year, can show such a grand average, it would seem that any further comment would be deemed superfluous.

The list of cows having produced in excess of 24 lbs. butter-fat in seven days has been increased during the year by 10 additions, now numbering 34 in all; and two of the cows in the list one year ago have during the year increased their former records. Forty-one full-aged cows appear in the prize list of the seven-day division; the last of these, and the one getting the lowest prize, having a fat production of 21.184 lbs., while the 49 heifers appearing in the junior 2-year class all show a production in excess of 13.9 lbs. butter-fat.

ANGUS CATTLE IN SAN DIEGO COUNTY.

Mr. Carl Mendenhall, who is farming in the interior of San Diego county, gives the Breeders' Gazette an interesting account of his family's experience with different breeds and their grades, which has covered a period of 30 years. He says:

My grandfather started with Short-Horns and scrubs. I guess the bulls were old style and not pure bred, but were the best about here at the time, and improved the scrubs a little. The winters here are hard; our range is in the mountains and we have some snow. The Short-Horns did not rustle well, and it took them from four to five years to mature.

About 15 years ago my father bought a bunch of yearling Herefords. They were a great improvement; being pure-breds, they marked all of their calves, and these half-breds rustled through in fine shape and were ready for beef at long twos and three, seldom ever going over till four.

About 10 years ago we had a series of dry years here, and as there is always feed here in the mountains, father sold everything that was fat and picked up cattle from the valleys in the late fall. Among these were an Angus herd shipped to San Diego county by Mr. Churchill. One registered bull and two cows, also three young bulls and one heifer, were in the lot. These cattle came off corn stubble, and we turned them out with the rest of the stock. They wintered through well, and in the spring the old bull whipped every Hereford bull we had, one at a time, killed one, and broke another's shoulder by getting under his guard and spilling him over backward.

The next spring, and as long ts the Angus had the run of the herd, we had a larger percentage of black calves than "white-faces." We like the cross of the two, but it is not good after one cross. We are now corresponding with Eastern Angus men and intend to get a carload of blacks and sell off all of the Herefords.

Our conclusions are that the Angus here rustle better, get a larger per cent of calves (we use one bull to 20 cows, and figure on 90 to 95% getting with calf), and the steers sell better and younger than the Herefords. We also have never lost a heifer in dropping a black calf.

RANGE METHODS WITH TRIMMING LAMBS.

Mr. F. B. Hammond, a Utah sheep ranger, gives a graphic account in the Breeders' Gazette of the expeditious way in which altering operations are conducted on a large scale:

The docking is done as soon as lambing is well over. The lambs will range all the way from a week to a month old. Experience proves that the younger lambs have a better chance to survive than the older ones.

A speedy and simple method of docking must be followed. A man who owns a hundred thousand lambs has no time for coal tar dip, chisels, pruning shears or hatchets; neither has the small flock owner, for that matter. The mothers are thin and hungry for new pasturage, and they should not be penned for docking longer than a half day.

The ewes and lambs are put into a large pen, and then into small side pens as they are needed. There are usually three men to each side pen. One man docks the lambs as fast as the other two pull them. The docker uses three instruments—a good jackknife, a whetstone, and his mouth. He stands on the outside and does his work on the top pole of the pen. One of the men pulls a lamb, gathers its right legs in his right hand and its left legs in his left hand. While doing this he has discovered whether the lamb is a male or a female. He hurries to the docker, lays one ear on the pole for its mark, and then the other. If he has a ewe lamb he then throws its tail across the pole and with one whack the docker cuts off the tail. The lamb is dropped on the outside of the pen and the puller rushes for anothed lamb.

If he catches a male lamb he does the same things as he did with the ewe lamb up to and including the ear marking. Now, instead of throwing the tail across the pole, he leaves it hang down along the side of the pole; he spreads the legs and holds the lamb firmly and in such a position that its scrotum is on the pole. The docker pulls the skin of the scrotum over the pole with one hand and cuts the end off with the other. With the knife still in his hand he presses in with both hands at the base of the testicles and thus force them out. Now, if he undertook to get one or both with his fingers he would have trouble. The testicles are small and slippery and are often very difficult to get hold of. But right here comes the simple part of it: he uses both hands to press out the testicles, and now he simply seizes them with his teeth and jerks them out. The lamb is dropped outside, and away rushes the puller for another. The tails are left on the wethers that they may be easily distinguished from the ewes later on. The several tails and scrotum ends are counted, and thereby the number of lambs is determined.

When all the lambs are pulled from the side pen their mothers are turned out and soon find their lambs. Not more than 3% die from castration, and not more than 1% from loss of tail.

This whole process of marking, docking and castrating is done very quickly. A good docker can command $10 a day, and will attend to all the lambs two speedy men can bring to him. Anywhere between one and two thousand lambs is a day's work for him. The only disagreeable thing about using his teeth is his thoughts, and he soon gets to working so fast that he has not time to think about that.

A GRAND COW PRIZE.

After formulating plans for an educational campaign for the advancement of the Iowa cow, the executive committee of the Iowa State Dairy Association and the Cow Culture Club have decided that the owner of the best cow in Iowa should be given $4000 in addition to the $1000 offered by W. W. Marsh of Waterloo, says



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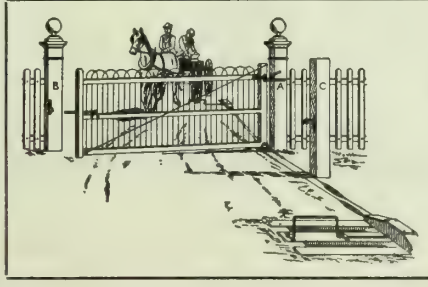
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My herd is headed by the Imported bull Inkerman of Cullen, No. 62268, assisted by the Blackbird bull Brechin, No. 64119. Both are splendid types of the breed. My cows comprise the Queen Mother, Princess, and Heroine families. Look up the record of this breed at the International Exhibition at Chicago, where all breeds compete. Here they have topped the beef breeds for fifteen successive years. Prices reasonable and correspondence solicited.

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Livestock World. The two bodies met jointly in the Chamberlain.

Breeders in all parts of the United States will be asked to contribute to the reward for the best educated and most cultured cow in the State. Many voluntary offerings came to the dairymen by wire while they were in session. Aside from cash subscriptions for the best thoroughbred cow, breeders in the East will offer cups for grade cows which rank well in the contest.

Following the decision to increase the prize for the best cow to half as much as that set aside by the legislature for the general educational campaign, the dairymen resolved to boost the legislature's $10,000 fund to $15,000 or $20,000. The creameries of the State will be depended upon to increase the budget, and already subscriptions have been received for the sum to conduct the big educational project.

POINTS ON SHIPPING HORSES.

Mr. S. W. McClure, who has had wide experience in handling horses on board cars, gives the following practical suggestions:

Every year during the horse shipping season, which is just now on, we hear much complaint from the shippers, occasioned by the loss of many horses when unloaded in the various stockyards for feed and water. At various times these losses have been enormous, and when trainloads of range horses are shipped, as many as 150 head have died in a single day when unloaded at the stockyards for feed and water. The histories of these losses are all similar, and they are generally seen only in range horses. The animals, which had never seen a board slat, are driven in from the range and loaded into the cars, after which they are usually given a run of from 25 to 30 hours without feed or water. Aside from this, the animals are frequently off feed and water for 8 or 10 hours before loading, making a total of almost 40 hours without anything to eat or drink. The excitement caused by loading and shipping unbroken range horses is very great, and they go into the cars half scared to death and in a high state of nervous tension. This nervousness lasts for a considerable period, and always results in the development of profuse diarrhea. All careful shippers have observed this condition, and it is attributable to nothing but the excitement incident to the unusual conditions under which the horses are restrained. The diarrhea soon results in depleting the stomach and intestines of a large proportion of the feed they may contain, and after a few hours the intestines are greatly irritated, and remain in this condition for many hours more. Now if these horses arrive at some stockyard in this empty, nervous condition and intensely thirsty, with a slight elevation of temperature, and are given any large amount of cold water, it acts as an irritant to the already inflamed organs, and the result is an acute attack of gastro-intestinal inflammation, with death following in from 1 to 20 hours—generally at about the seventh hour. The symptoms of this disease are intense watery diarrhea, some colicky pains, great depression, weak pulse and hurried respiration. As the trouble progresses great weakness develops and the animal remains down, refusing drink and feed. The amount of pain as evidenced is usually not great. I have been unable to explain the nervous depression frequently accompanying this disease. It may be only a result of nervous exhaustion, or again due to the absorption of some toxic substance from the inflamed intestines. The mortaility of this disease is very high, and few of the affected horses linger over 24 hours. No treatment can be advised, as it is not practicable to treat range horses, but this disease is one that is entirely preventable and at no cost. These thirsty horses will, when given access to sufficient water, drink enormous quantities, sufficient to produce intestinal disturbances in any animal. The shipper, knowing they are thirsty, generally gives them hay, and in less than an hour demands that the water be turned on. Should this request be refused, the railroad generally has some horses to sell that it did not buy. I have even seen the shipper water these thirsty horses immediately on unloading, and mostly with fatal results. It would seem that the most intelligent method of handling these horses would be to hay shortly after unloading, and after three or four hours turn on a small quantity of water—only sufficient to give the animal a taste. Repeat this operation every hour until the horses are well filled. This procedure will require the careful attention of the shipper to see that some eight or ten horses do not acquire possession of the trough and consume all the water given. It is advisable to divide the animals into as many pens as possible, and this will result in less work. I know of a shipper who lost some 150 head of horses, and solely as a result of his own carelessness in giving too large a quantity of water at one time. This shipper insisted that the water contained some poisonous principle and this killed his horses. This theory is untenable, for the same water was supplied to at least 2000 people for their daily use, and the most careful chemical analysis showed it to be pure spring water.

SHEARING BY HAND AND MACHINE.

Shearing in the Western States, says a writer in the Denver Field and Farm, is a business which is carried on by professional shearers, who travel from one part of the country to another as the season advances. In the early spring they begin shearing in Arizona and Texas, and proceed north until the work for the year ends in Montana. On account of the unusual amount of experience which these men have had, they are able to shear with great rapidity. An average of from 90 to 120 sheep is considered a good day's work for a shearer. Very large records have been made by expert shearers. Some of these records are not sufficiently authenticated, but at least 250 sheep have been sheared within a single day by one man. Within the last 10 years the establishment of plants for machine shearing has progressed with great rapidity throughout the Western States. At first considerable opposition was raised to machine shearing, both by the sheep owners and by the shearers. The shearers feared that sheep could be sheared much more rapidly by this method, and therefore their business would be interfered with by the establishment of shearing plants. Sheep owners feared that the machine shearing would have a bad effect upon the sheep. It is possible to shear more closely by machine than by hand, and the owners were therefore anxious concerning the effect of snowstorms or the burning sun upon the exposed skin of the sheep. The experience thus far had with machine shearing is satisfactory and favorable to the use of machines. A large number are being established every year, some owned by companies and others owned by individuals. The motor power, as a rule, is furnished by gasoline engines, and shearing plants are constructed of various sizes, according to requirements, carrying from 10 to 35, or even 40 clippers. The number of sheep which can be sheared by machine is about the same as that by hand work. The ordinary shearer averages about 100 sheep a day. The advantages of machine shearing are a neater clip, less cutting of the skin than by hand shearing, and a slightly heavier fleece. Many sheep raisers who have had extensive experience with both methods claim that they secure about one pound of wool more by machine than by hand work. With inexperienced shearers the cutting of the skin and injury to the sheep may be considerable by either method. It is necessary that shearers who have worked only by hand should be given some instruction in the use of the machines. For this purpose an expert is usually sent out with each plant and remains to teach the shearers and to see that the plant is in working order. The process of shearing occupies considerable time under the most favorable conditions, and it is therefore desirable to proceed with as great rapidity as possible. As a rule each shearer stands in front of a pen, which holds about 10 sheep. The pen is made of sections of fence, and is surrounded merely on three sides, the sheep being prevented from running out in front by the presence of a wrangler. The sheep are sheared by hand or by machine on a level floor, the shearer standing at the same level with the sheep. The animals are never tied or restrained in any way except by the left hand and the legs of the operator. As soon as a sheep is sheared the fleece is kicked out of the way, the animal is released into the pen, and another one is grasped into its place.

PRESERVING SHINGLES.

Two correspondents of the Rural New Yorker give hints on increasing the life of roofing shingles which may help our readers. One writes as follows:

In regard to shingle dip, I advise linseed oil, either raw or boiled (boiled dries quicker), mixed with oxide of iron to a consistency so when the shingles are dipped they will drain quickly. Another good thing is creosote oil (which is crude carbolic acid) mixed with liquid coal tar and mixed at the rate of one gallon of tar to four gallons creosote oil. This is a sticky mess, and the shingles cannot be used until dry, but it preserves them all right. The simplest, and as good as anything, is to dip them in the milk of lime. This is also cheap. Milk of lime is simply building lime slaked in water to make whitewash. The shingles should be dry. Green wood will not take any kind of dip. I would advise the use of galvanized wire nails.

Another writer approves a method that is certainly much easier in this State: After you shingle your roof, give it two coats of crude petroleum. You can buy this by the barrel, and if you will give it one or two coats every three or four years, I think your children or your grandchildren will have the job of reshingling it next time. The difference in the preserving qualities of crude petroleum and any kind of paint is this: The paint forms a ridge at the top of the layer of shingles and holds the water just under the lap, and rots it quicker than if it had no paint on; the crude petroleum, on the other hand, saturates the shingle and forms an oil or grease under the layer, which will not let the water get up under the layer of shingles, and while the oil appears to be gone off the face of the roof after a time, you need not worry, for it is there, just under the surface, and is taking care of the health of the shingles for you.



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CRAFT'S DISTEMPER AND COUGH CURE.

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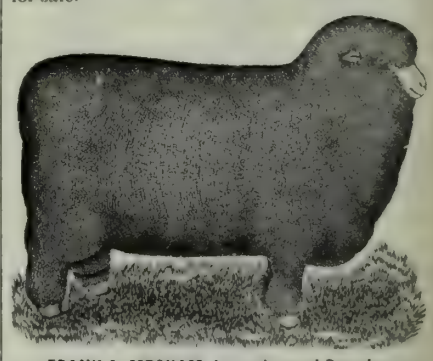
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G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

Patrons of Husbandry

WHAT IS WORTH WHILE?

My eye was caught the other day by this expression in an article on good housekeeping, and I began to think how extended its application is. There are so many things in the world that are not worth while. Whether life has been long or short we can all look back and see things that we have done that were not worth the time we put on them, were actually not worth while. There is no such thing as doing all that appeals to us to be done. Among many possible activities we must wisely select what are possible and desirable for us in order to make any kind of success in housekeeping or home-making, or farming or business, or, in the end, of life. If important and unimportant things are done indiscriminately the result is a jumble of half-done work, and to select wisely means in housekeeping that at least a foundation for good health is laid in so far as it depends on the preparation of wholesome and appetizing food and the maintenance of the degree of order and cleanliness necessary to comfort. But housekeeping is to home-making only a foundation. The latter is to the former as the soul is to the body. It is that which gives life and meaning and purpose to what otherwise might be mere drudgery. And the home—for of woman's work home-making is the most important—the good home depends neither on money nor convenience to make one in truth. A lovely home can exist in a house of logs in the forest. It all depends on the personalities that occupy the home. If love and cheer and wisdom guide its activities it will not be a place merely to eat and sleep in. It will be a place where father and mother and children grow to be friends, where they trust one another, where they talk intelligently and enjoy talking with each other; where young people are neither boisterously rude nor painfully shy; where they learn to treat their elders with respect and their equals with courtesy; where they converse on current topics intelligently and on happenings of importance, on things that are really worth while, with interest. From such a home come the fine young men and women of good manners and refined tastes, and withal the noble enthusiasms and aspirations of youth.

But of what value is the sending forth into life of young people of this character? Of all the value in the world, for it is what the world exists for. For what is success in corn and cotton growing, in cattle and sheep raising except that men all over the world may have a better supply of the best and most suitable food and clothing, that the average comfort of human life may be raised? For what is success in business but that homes may be kept up under the best conditions. Why should communication be made easier and travel more rapid except that men may meet each other more frequently and gain knowledge and culture from attrition. Why should wealth be accumulated after the necessities of life are met but that this brings into life the means and the leisure for beauty—more beauty than is possible in merely meeting the conditions which necessity imposes. It gives opportunity for more convenient and beautiful homes, for clothing finer in material and more beautiful in design, for the arts of the sculptor, the painter and the architect. But all these avail nothing if they are considered as ends in themseves. They are but to lift man to a higher plane. The miracles of science in changing his physical conditions set free his intellect, and that is for the benefit and help of all men in the world; the race rises or falls together, and what helps one is for the help of all.

Men need not be rich in order to have high ideals nor to carry them out. Emerson says: "Hitch your wagon to a star." And the great blessing of life is that the best things in it are within reach of all. The poorest home may be enriched by love and intelligence, and that is the best the richest can have.

More and more people of wealth are coming back to the idea of country living and country homes where they can enjoy the beauty of field and forest and mountainside. Scientists say that at the present time our earth has reached the highest point of physical life and beauty. More discoveries of the means of controlling the powers of nature may be made, the culture of plants and the breeding of animals may be carried to greater perfection, but the earth itself has at this time the requisite amount of air and moisture to make it a beautiful and desirable dwelling place. The ages of excessive moisture which gave the dense forests which prepared the coal measures of today have passed, so have the glacial ages when the ice waves of the poles extended over what are now waving grain fields and blooming valleys. Now the rose family, with its flowers and fruits, the apple, peach and pear, and their allies occupy the place of the coarser vegetation of an earlier period. But the earth, having reached its meridian, must now begin to decline. Moisture will diminish and plants can no longer live in beauty and luxuriance. No science can then make it habitable, and finally our earth will come to the death which has overtaken the moon, without the air and moisture necessary to support either plant or animal life. Now our earth is at its fullness of life and beauty, and let us count ourselves fortunate to be living at this stage of its existence and enjoy in full the music of falling waters, the wind in the trees and the loveliness of waving grass and blooming flowers.

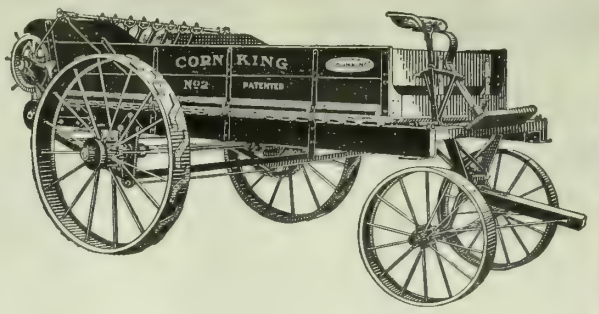
In consonance with this maximum of physical life in the world is the high tide of moral and intellectual life which abhors cruelty and meanness and evil, and which will some day give us the age of reason when useless and cruel wars shall be relegated to the past, along with the tortures and horrors of past ages. Men are beginning, slowly and dimly, to be sure, yet beginning to see the end of evil strife in "The parliament of nations, the federation of the world." In all animal life there is nothing finer than the perfect human form; it is an inspiration to perfection. "Before a fine statue man instinctively straightens himself," and in the world of spirit there is nothing so admirable as a noble human character.

Personal influence never loses its force. It is the lovable, impulsive (faulty from its very impulsiveness), generous character of one of our public men with its strong sympathies with the people, and enthusiasm for every right cause, which has given him so strong a hold upon the affections of the people. It is always character which we respect; honesty, honor, integrity, and it is character which is more certain to descend to children than wealth. The best things are possible to us all in this age of freedom and aspiration; the clean living, the pure thinking, the nobleness of man, the honor of woman, the living of lives of courage, of cheer and of helpfulness to others. These are the best things in the world. They are "worth while."

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Why buy another farm?



Are you thinking of buying another farm in order to extend your operations and produce larger crops?

You will find it better in almost every way to build a new farm on top of the one you now have.

Do not seek to farm more acres but make your land produce more bushels.

If the farm you now have produces—say 35 bushels of oats per acre, instead of buying more land to get an additional 35-bushel yield, why not make the farm you have produce 70 bushels per acre? You can do it.

Buy an I.H.C. Manure Spreader

It is the machine which enables you to take the manure produced on the farm and in a few years fully double the productive power of your land.

It does this by placing the manure on the soil in the most available condition to support plant life.

It also makes the manure go further than can be done in any other way.

I. H. C. manure spreaders are made in three styles: Corn King, Cloverleaf and Kemp's 20th Century.

The Corn King is of the return apron type. The steel roller equipment of the apron on this machine reduces friction to the minimum, even with the heaviest loads. This machine will be supplied with either a ratchet feed or a double pawl worm feed for the apron. Either of these feeds can be regulated to bring the desired amount of manure to the beater. The beater is equipped with long, square steel teeth with chisel points. It is driven by means of a chain from a large sprocket on the rear axle. A vibrating rake is used on this machine to level the load as it comes to the beater. The Corn King spreader has steel wheels of the most serviceable construction and a frame made of thoroughly air-dried wood stock and put together in a very durable manner. There are three sizes of this machine: No. 2 small, No 3 medium and No. 4 large.

The Cloverleaf is of the endless apron type. It is also supplied with two feeds for the apron—ratchet or double pawl worm feed. The beater on this machine is constructed the same as the beater on the Corn King. This spreader also has a vibrating rake to level the load as it comes to the beater, has steel wheels and a well made main frame. This spreader is made in three sizes: No. 2 small, No. 3 medium and No. 4 large. It is very attractive, being well painted and symmetrically designed.

The Kemp's 20th Century is of the return apron type. The apron on this machine has a worm feed which is very positive in its action. The beater bars are provided with long, round steel teeth, so placed on the cylinder that perfect distribution of the manure is insured. This machine has a leveling rake to insure a uniform supply of manure to the beater. The Kemp's 20th Century will be supplied with either wood or steel wheels. The frame of this machine is well braced both crosswise and lengthwise, and the wood stock used is of the very best. This spreader is made in a number of styles and sizes.

It is impossible to describe all of the features of the above machines in this small space. However, we have catalogs which illustrate and describe in detail the many excellent features of these machines. These catalogs are well worth procuring, not only because they describe the spreaders but because they contain information on soil fertility.

Points that are well to bear in mind in connection with these spreaders are that you can top-dress your fields and grow large crops of clover to turn under and enrich the soil, so that you may grow still larger crops and add to the soil's fertility. They double the value of the manure, save much time and labor and greatly increase the value of your land by increasing the soil's fertility.

Any one of these machines will pay for itself in from one to two years, depending upon the amount of work you have for it to do.

Call on the International local agent and see about owning one of these manure spreaders. He will supply you with catalog and full information, or, write direct to nearest branch house.

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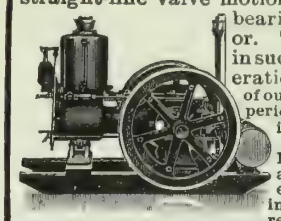
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The Poultry Yard.

SECOND EXPERIMENT IN SELECTIVE BREEDING FOR EGG PRODUCTION.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

The subject of the above experiment is of interest in millions of home poultry yards, as well as in commercial poultry centers. The peculiar and beneficient thing about the poultry industry is the fact that it is a home industry, and its interests at some point touch every home. Naturally the work going on at the Maine Experiment Station for the past ten years has attracted general attention.

In 1898 the station began an experiment "to try on a large scale selective breeding for egg-production." This experiment ended in 1907. The conclusion reached, as published in the PACIFIC RURAL PRESS, was "that after nine years of selection with respect to egg-production, the birds breed no truer to a definite type of egg-production than they did at the beginning."

This deduction, so at variance with accepted poultry faith, made a great stir, and is still agitating poultry circles. At the station a new experiment was begun in the spring of 1907, and a bulletin giving data of results is now issued. Through the courtesy of Station Director Charles D. Woods we are able to give excepts covering the points of general interest. The mistakes in the data of the first experiment, which were so adversely criticised, have been guarded against, and the greatest painstaking, together with high scientific knowledge and mathematical exactness, used in this experiment. In fact, it requires a mind fairly well trained in methematics to even follow the complex figures in the "coefficient of correlation." However, the result, in plain language, proves that the fair to good layer—the one that hits the golden mean—is the mother of the 200-egger. While this may be something of a wet blanket on advertising eggs from hens laying anywhere from 200 to 300 eggs per year, it gives emphasis to the fact that vigor and good treatment count for more than pedigree. The wide-horned Texas cow on the range gives hardly enough milk to nourish her calf for a few weeks; yet that same cow, when sheltered from torrid suns and chill "northers," and well fed on, succulent food, astonishes the natives who say she is no milker, with brimming buckets of milk. This does not mean that breed and strain are not important. They are of great importance, but the best breed and strain is worthless without vigor and good treatment. Again, if pedigrees went on producing prodigies, where would it end. Nature has wisely set a limit. According to the poultry records in the agricultural reports of the early part of the last century in Massachusetts, the average laying of the hens was quite as good as today, while some of the top-notchers beat even "Miss Peggy."

Inheritance of Fecundity.

From Bulletin No. 166 of the Maine Agricultural Station.

The plan of the new experiment was as follows: To hatch in the spring of 1907 as many pullets as possible from 200-egg hens and keep an exact pedigree record on the mother's side of each of these chickens. An exact pedigree record of the male ancestry was not kept. All male birds used, however, were so-called "registered cockerels." They were cockerels in whose ancestry the females for at least seven generations had been birds laying 200 or more eggs in the pullet year. These "registered" pullets were then to be housed and fed exactly in the same manner as were the "unregistered" pullets—that is, birds of similar breeding, except that their mothers laid from 150 to 200 eggs each in their pullet years, instead of 200 eggs. The specific questions which this experiment was instituted to answer may be briefly stated as follows:

1. Will the daughters of high laying hens (200-egg birds) on the average produce more eggs in a given time unit than will birds of less closely selected ancestry?

2. What data do the performance records of such selected birds afford regarding the inheritance of egg-producing ability in the domestic fowl?

PLAN OF THE EXPERIMENT.—On the first of November, 1907, there were put into house No. 2 of the station's plant 250 pullets. Each of these was the daughter of a hen that had laid approximately 200 eggs in her pullet year. These 250 pullets were divided into flocks of 50 each, and were fed and handled in every way exactly in accordance with the usual methods of the station. They were an even lot of birds, and had the strong, vigorous appearance which has characterized the station's Barred Plymouth Rock stock. They were to the eye slightly small for the breed, and also gave the general impression of being slightly smaller than the "unregistered" pullets of the same age in the other houses. The smaller size of the "registered" pullets had been noted for some years in the breeding work of the station.

At the same time that these 250 registered pullets (so called because from "registered" mothers) were put into the house there were also put in 600 other Barred Plymouth Rock pullets. These were of the same average age as the 250 "registered" birds, and differed in their breeding only in respect to their mothers. They came from hens that had laid less than 200 eggs during their pullet year, and more than 150. "Registered" cockerels (from the 200-egg line) were used as the male parents for all the pullets, both "registered" and "unregistered."

The birds used in this experiment, whether registered or unregistered, were not closely inbred. In the breeding work of the station for many years Professor Gowell exercised the greatest care to avoid close inbreeding, which he felt to be wrong in theory and dangerous in practice. The breeding practiced was what is known as "line-breeding."

Except in the matter of flock size, the treatment and management of all the birds were exactly the same. All the birds were trap-nested from November 1, 1907, to July 1, 1908. The trap-nest records were stopped at the latter date, owing to the necessity of poultry house overhauling. The records obtained, however, cover the major portion of the year, and just that portion which is the most significent in the study of egg production.

The body of the bulletin is taken up with the egg records of the large flocks, "correlation tables" giving the egg production of each individual mother and daughter, and from which is calculated the correlation between them; comparative diagrams, scientific discussions of the subject, etc. From exact figures it was found that the "registered" daughters of "registered" mothers laid 20% less eggs than their mothers in the given time, and were poor winter layers, whereas the mothers had been good winter layers.)

GENERAL RESULTS.—The general result of the comparison of the daughters of 200-egg hens with other pullets not daughters of 200-egg hens, but receiving the same care throughout, is that the daughters of 200-egg hens do not show so high an average egg production as the others. Furthermore, the daughters of 200-egg hens do not conform so closely to type as do the birds which are not daughters of 200-egg hens.

SUMMARY.—1. The daughters of 200-egg hens were in this experiment very much inferior to their mothers in average egg production. This is particularly true of winter egg production.

2. This experiment gives no evidence that there is a sensible correlation between mother and daughter in respect to egg production, or that egg producing ability is sensibly inherited. A relatively high producing mother was as likely as not to have relatively poor producing daughters in this experiment.

3. In this experiment the daughters of 200-egg hens were not such high egg producers as pullets whose mothers' egg records fell in the 150-200 egg class. The daughters of 200-egg hens were most inferior (proportionately) to the "unregistered" pullets in respect to winter egg production.

4. The daughters of 200-egg hens were in this experiment somewhat more variable (that is, conformed less closely to type) in respect to egg production than were the "unregistered" pullets. No special stress is to be laid on this greater variability. The significant thing is that the "registered" pullets were not less variable than the "unregistered."

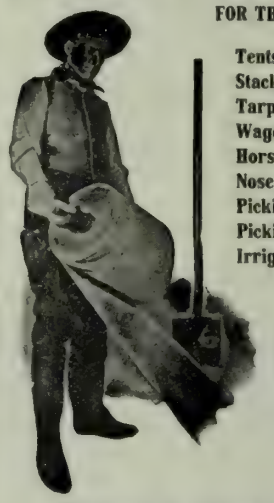
In must be remembered in considering these results respecting the inheritance of egg producing ability, that they are not to be regarded as more general than the data on which they rest. The statements which are made are intended merely to set forth the results of a concrete eperiment. They are not at present intended as generalizations applying to all poultry under all conditions. The problem of the inheritance of fecundity wherever attacked is an extremely intricate one. Further experiments of the same general type as the one described in this bulletin, but planned on somewhat broader lines, are now in progress at the station, and will be carried on for such length of time as is necessary to establish absolutely and beyond all possibility of doubt the answer to the problem with which we are here concerned, namely, whether there is or is not a definite and appreciable inheritance of egg-producing ability in the domestic fowl. Until this basic question is definitely answered, schemes and rules for increasing egg production by breeding that involve anything further than attention to health, vigor and constitution in the breeding stock, lack foundation in ascertained facts.

PHYSIOLOGY OF EGGS.

The following description by a physician, Dr. J. V. Smith, gives a clear idea of egg-formation:

Every hen has two small organs near the extremity of the body called the ovaries. These are filled with elastic tissue and feel under the finger like sponge. The eggs are started here, and those which will mature a year or two hence are in embyro. In forming, the egg is forced up, seized by the stroma and passed rapidly through. When the egg leaves the ovary it consists of yolk only, but in its passage through that short canal the yolk is surrounded by enough albumen to perfect the chick. The white of the egg has in it all that nature requires for making bones, muscles, blood vessels, connecting tissue, skin and feathers. Just before the egg leaves the body, this canal has the power of secreting lime for the shell. This shows how valuable the egg is as a nutriment, and also what demands are made for rich food by a laying hen. Besides what she requires for her own sustenance, she is called upon to secrete the material for the body of an entire chick, and also retains for the little creature sufficient to last many hours after it leaves the shell. It shows also that a hen cannot make albumen so rapidly except out of albuminous food, such as wheat, insects or meat. It is not true that there is a certain number of eggs and that this number exhausted no more can be expected, but it is true that the secretions lessen as old age comes on, also from insufficient nutriment, and latterly the hen fails to have sufficient force to carry on the process. The practical bearing of this is that we must see that the fowl is always well kept. The way to have good laying hens is to quicken the circulation and strengthen the system by liberal nutriment.

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The Home Circle.

A Poem Written in Church.

Just in front of my pew sits a maiden,
A little brown bird in her hat,
Besprinkled with tinsely azure,
And the sheen of the sun upon that.
Through the purple-bright panes shines a glory,
With crimson and gold softly blurred,
But fairer the Spirit of Beauty
That painted the wings of the bird.

The organ rolls down its great anthem,
With the soul of a song it is blent;
But I—I still pine for the singing
Of one little song that is spent.
The voice of the pastor is gentle,
"No sparrow can fall to the ground,"
But the poor broken wings on the bonnet
Are mocking the merciful sound.

Oh, sweet is the breath of plucked lilies
That lie on the altar of prayer,
But my soul is athirst for the free song
Up high in the bountiful air,
And I wonder if ever, or never,
O'er woman's heart spreading unfurled,
White wings of the Spirit of Pity
Shall guard the bright birds of the world! —Old Poems.

A Drummer Boy Hero.

The first soldier to win the coveted medal of honor was Julian Scott, a 15-year-old drummer boy in the Third Vermont Infantry, in 1862. The act which gained him the medal was performed several months before the Congressional act instituting the reward was passed.

The medal of honor is the highest decoration for personal valor awarded to the soldiers and sailors of the United States. It is to Americans what the Victoria Cross is to the English or the Iron Cross to the Germans. The standing regulations governing its award read:

In order that the Congressional medal of honor may be deserved, services must have been performed in action of such a conspicuous character as to clearly distinguish the man for gallantry and intrepidity above his comrades—service that involved extreme jeopardy of life or the performance of extraordinarily hazardous duty. Recommendations for the decoration will be judged by the standard of extraordinary merit, and incontestible proof of performance of the service will be exacted.

The act of Congress ordering 2000 of these medals to be prepared was approved by President Lincoln July 12, 1862, and the first medal was issued the following year. It was a five-pointed star of gunmetal, tipped with trefoil, each point containing a victor's crown of oak and laurel.

On official occasions, says Uncle Sam's Magazine, it was worn suspended around the neck and under the center line of the chin, by order of the President. A bow-knot of ribbon is worn in the lapel of the coat in the absence of the medal.

In 1868 the Grand Army of the Republic organization adopted a design so similar that it was misleading, and steps were taken by the Medal of Honor Legion to have a new design issued to replace the old one. Congress in 1904 adopted the new medal. It is of silver, heavily electroplated in gold.

The five-pointed star has been retained, and in its center appears the head of the heroic Minerva, the highest symbol of wisdom and righteous war. Surrounding this central figure in circular form are the words "United States of America." An open laurel wreath, enameled in green, encircles the star, and the oak leaves at the bases of the prongs of the star are likewise enameled in green and give them prominence.

The medal is suspended by a blue silk ribbon spangled with 13 white stars representing the original States, and this ribbon is attached to an eagle supported upon a horizontal bar, upon which are attached two points of the star, bearing the word "Valor." The rosette is hexagonal, is spangled with 13 stars, and is the same color as the ribbon.

It was on the morning of April 16 that the afterward famous Vermont Brigade—Third, Fourth, Fifth and Sixth Regiments—was ordered to advance and to attack a strong fortification masked in a forest near Lee's Mills, or Burnt Chimneys, on the right bank of Warwick river. When the command reached the bank of the river, under cover of the fire of a light battery, four companies of the Third Regiment, in one of which Julian Scott was serving as a musician, despite desperate resistance by the enemy, hidden among trees and a dense undergrowth on the opposite side, succeeded in wading across.

The water midstream was breast high and soaked the paper cartridges carried in little leather boxes on the back. The rest of the brigade failed to come up, but the plucky advance guard drove the Confederates from their position and had pursued them some distance before they rallied. Then, unsupported, and with worthless ammunition, the Vermonters fell back. As soon as the enemy realized that the retreating companies had no defense but bayonets, they subjected them to a merciless fire.

The climax to the catastrophe came when the Vermont companies reached the stream they had forded an hour earlier and found it a roaring flood. While the fighting had been going on the Confederates had opened the flood-gates at the mills above and had cut off their assailants. Many of the Vermonters tried to swim the stream but were drowned. Others were shot as they hesitated on the bank.

Young Scott plunged into the water and struck out for the opposite shore. In midstream he stopped to rescue a wounded comrade who was shot through the neck while swimming beside him. Scott pulled him shore and laid him on the bank out of danger, and again and again returned to the stream, rescuing wounded and exhausted men until he had drawn eleven of his comrades to safety.

Even then, faint from the long struggle and suffering intensely from a bad wound in his head, he went back once more to save a twelfth man, also wounded, from being carried down with the flood. The man died as Scott laid him on the bank. It was by such service that the first medal of honor was won. Julian Scott lived not only through the war but for many years after it, and is buried now in a Plainfield, N. J., Cemetery.—New York Sun.

Clippings From the Fashions.

Jewelry in jet, silver and steel is fashionable.

Veils of white close-meshed tulle with small black chenille dots, are modish and becoming.

New face veils of fine black or white tulle are spotted thickly with great irregularly shaped dots of black chenille, so large and so close together as to obscure the features.

In parasols for ordinary use there is a fad for simplicity. The handles, however, may be of any degree of richness, and long and strong enough to lean one's whole weight upon them.

For filmy tailette of the garden party, the parasol is in harmony with the lace borders, frills and ribbons of the costume.

To make a plain parasol dressy for especial occasions, wide ribbon is tied to the stick in a large bow with long floating ends; another adorns the top, placed close to the tip.

Dainty and becoming for young girls is the Charlotte Corday hat of embroidered muslin falling over several frills of mousseline de soie, with wide pink ribbon twisted lightly about the crown and dropping in long fringed ends at one side.

Lace coats, long and short, are the mode. The long redingote of silk, satin or fine smooth cloth is again in style.

Happily, the prophecy that the shirtwaist is going out of fashion never comes true, and the beginning of each season is marked by a lavish display of new models of this indispensable garment. One-piece suits and princesse gowns may come and go, but the shirtwaist goes on forever. The all-white waist is not as favored as for several years past; the touch of color is even more general this year than last.

Nearly every toilette now has a touch of black. It may be a piping, a cravat, or black wings on a white hat.

The Rural Press Household.

The home garden is bright with the glowing tints of the nasturtium or Indian cress, and the housewife now has a wholesome garnish for various dishes, and the most effective of flowering vines for her brown jardiniere, while the tender seed pods make an excellent substitute for capers.

PICKLED NASTURTIUMS.—Leave an inch of stem on the pods; soak them in strong brine for three days; drain out and freshen one day in cold water; put them in a colander till all the water is drained from them; then pack in jars and cover with boiling vinegar and seal. In a month they will be pickled sufficiently to use.

KEEPING BERRIES FRESH.—The commercial berry when it reaches the consumer is a thing of a day—or less. To freshen and keep for two or three days without cooking, pick over carefully, throwing out all with even a suggestion of mould, and hull if necessary; then wash a few at a time in plenty of cold water; drain and put in an earthen bowl or deep granite pan, and cover with dry granulated sugar; put a tight lid or a plate over the dish and set in a cool place.

A VEGETARIAN DISH.—The walnut loaf is the piece de resistance of a vegetarian dinner, and is said to taste much like a meat loaf. To a quart of grated bread-crumbs add a seasoning of sage, thyme and parsley, with salt and pepper; a level teaspoon of each is about right, but it may be seasoned to the taste. Mix the crumbs with a heaping tablespoon of butter and an egg whipped very light; add a cupful of minced English walnuts and a half cup of sweet milk; put into a deep pudding dish and bake a rich brown in a moderate oven. Cut in slices and serve, either hot or cold.

A sandwich that is especially nice for children's lunches is cut from a sweetened loaf made the same as for rusks. Butter the slices and use a filling of minced raisins, figs or dates.

TOILET HINTS.—The nicest dressing for the hair is made of equal parts of pure olive oil and the best grade of bay rum. Part the hair and rub this into the roots, massaging the scalp with the tips of the fingers; then throw a soft towel over the head and rub the hair thoroughly; now comb and brush the hair well. This will clean the head and give a delightful softness and gloss to the hair.

Unless the hair has much natural oil, frequent washing makes it harsh and brittle. Be careful to protect the hair from dust and smoke, then a dry shampoo as above, given daily, will keep the hair in excellent condition, fragrant and glossy, and the scalp cool and healthy.

For dandruff it is recommended to sponge the scalp daily with sulphur and water; an ounce of the flowers of sulphur in a quart of distilled water.

The hairdressers of Paris, says the London Mail, are now using eucalyptus leaves steeped in boiling water for the shampoo for their customers' hair, and find that it makes the hair glossy as well as fragrant.

The excessive use of sachets attached to the costume is becoming less modish; there must only be an atmosphere, a mere suggestion of scent, instead of a definite aroma about the clothes. The vaporizer is in great request. When the boots and shoes are put away, little sachets of the favorite perfume are slipped into them; the lace and ribbon drawer has its sachet, also.

The most convenient sleeve protectors for ordinary use may be made out of old black stockings. Cut off the foot, hem, and run in an elastic cord at top and bottom.

A simple and agreeable method of disinfecting a close room for the sick is to burn together freshly ground coffee and camphor gum. The aroma is tonic and invigorating as well as purifying.

"Wot's yourn?" asked the waiter of a quick-lunch patron.

"Doughnuts and black coffee," was the reply.

And the waiter sent in the order to the cook by wireless: "One in the dark an' two rubber tires."—Chicago Tribune.

"Silence is golden," remarked the man who is fond of trite quotations.

"It ought to be," growled the practical politician; "it costs enough."—Philadelphia Record.



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THE MARKETS.

San Francisco, July 7, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The spot market shows a tendency to weakness all over the country, with the near approach of the new crop. There is very little offered from the new crop so far, but there is a little movement at the range quoted, the top price being for Sonora wheat. Northern grades are generally lower, and there is some decline in local milling and lower grades, though the upper grades remain nominally as before. The local market is still inactive, on account of small supplies and high prices.

California White Australian	$2.20	@2.30
California Club	2.10	@2.15
California Milling	2.17½	@2.20
California lower grades	1.95	@2.05
Northern Club	2.10	@2.15
Northern Bluestem	2.25	@2.30
Russian Red	2.07½	@2.10
Turkey Red	2.10	@2.12½
New California Wheat	1.95	@2.07½

BARLEY.

Barley is coming in rather freely, and there has been some movement to the North. Large lots of new grain are arriving at interior shipping points. There is a good demand, and the feeling in the market is quite firm, both for spot and futures, with considerable advance of feed grades. Brewing grain is now moving, and is firm in price. Chevalier is lower.

Brewing		$1.50
Shipping		Nominal
Chevalier	$1.60	@1.70
Good to Choice Feed, per ctl.	1.45	@1.47½
Common Feed	1.40	@1.42½

OATS.

There is now a fair amount of trading, but no great activity, the movement being confined mostly to new reds. Prices show considerable change, with an advance on the better grades and lower prices for ordinary offerings.

White, per ctl.	$1.90	@2.15
New Red, choice	1.75	@1.80
Common	1.60	@1.70

CORN.

A little Western grain has come in this week, but the supply is of small consequence and there is no important demand. Prices have changed considerably, all Western grades and California large yellow being lower.

California Small Yellow	$1.80	@1.87½
California Large Yellow		1.80
Western State Yellow, bulk.		1.73
Mixed, in bulk		1.71
White, in bulk		1.75
Egyptian White		1.90

RYE.

Sellers have been offering new rye to arrive for some time, and sales were reported early in the week at about $2.10. The movement is limited, however, and with larger offerings the price has fallen abruptly to the present quotation, at which some activity is expected.

Rye, new, to arrive	$1.40	@1.45

BEANS.

There was quite a liberal movement during June, considering the prevailing market conditions, and the supply remaining is lighter than for several years. With a moderate demand for the rest of the season, it is expected that practically nothing will be left when the new crop arrives. The demand for pinks has been rather light for the last week, and the price is slightly lower, but other varieties are being held firmly at full prices. The present values are pretty well established, and little change is anticipated for some time. The demand is moderate.

Bayos, per ctl.	$5.40	@5.50
Blackeyes	3.40	@3.65
Cranberry Beans		Nominal
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.75	@7.00
Large Whites	5.40	@5.60
Limas	4.15	@4.25
Pea	6.25	@6.50
Pink	3.00	@3.20
Red		Nominal
Red Kidneys	3.25	@3.50

SEEDS.

Seeds of all descriptions remain quiet and featureless, with prices nominally about as formerly quoted. No activity in this market is expected for some time.

Alfalfa, per lb.	18 c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	4@4¼c
Canary	4 c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

Some changes have occurred in outside markets, but local conditions remain as before, and milling operations are generally being conducted on a limited scale. Prices are steady as before, and no immediate decline is expected. Buyers, however, are very conservative, and the movement is comparatively light.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

Arrivals in this market this week have been about 1000 tons less than for the two preceding weeks, owing apparently to the new demurrage law, which compels local dealers to order their shipments very cautiously. The arrivals are nevertheless heavier than the market can easily take care of, and values are still weakening, the prices realized in many cases, it is claimed, being below those paid in the country. The large local consumers are still holding off and refusing to purchase anything for future needs, and with a very moderate immediate demand dealers look for considerably lower prices. Choice wheat hay still brings good prices, as it is not arriving very freely, and prices generally are maintained at about last week's level. The principal movement is of volunteer wild oat and barley hay, which are in general demand.

Choice Wheat, per ton	$18.00@18.50
Other Grades Wheat	13.00@17.00
Wheat and Oat	14.00@16.50
Tame Oat	14.00@17.00
Barley	11.00@13.00
Wild Oat	11.00@14.00
Alfalfa	10.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 75c

MILLSTUFFS.

Supplies of bran now on hand are smaller than a month ago, but the demands of this market are being largely supplied from the North. There is a fair demand for the leading millstuffs, which are held at steady prices. Rolled barley and oats are lower.

Alfalfa Meal, or mealfalfa, per ton	$23.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	33.00@35.00
Mixed Feeds	25.00@30.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	29.50@30.00
Shorts	31.00@32.00

VEGETABLES.

Onions are more plentiful than last week, with heavy accumulations which are being pressed for sale. Reds are very cheap, and yellows have declined. Rhubarb is out of the market. Asparagus is not in much demand at present, and prices have dropped. Most lines of summer vegetables are now coming in freely in large boxes, and small packages find only a limited demand, with weakening prices, green peppers, summer squash and cucumbers in particular being lower. Tomatoes are more plentiful and lower, though there is a fair demand. General offerings of corn are lower, but choice lots from Alameda county are still firm.

Onions, new red, per sack	25@	50c
New Yellow, per ctl.	60@	75c
Garlic, per lb.	4@	5c
Green Peas, per sack	$ 1.00@	1.50
String Beans, per lb.	3@	4c
Cabbage, per ctl.		1.00
Tomatoes, small box	35@	50c
Large box	1.50@	2.00
Green Peppers, per box		1.00
Green Corn, per sack	1.00@	2.00
Asparagus, extra choice, box	1.50@	1.75
Asparagus, common to choice.	75c@	1.00
Turnips, per sack		1.50
Summer Squash, large box	50@	75c
Cucumbers, large box	50@	75c
Egg Plant, per box	7@	9c

POULTRY.

Prices are entirely unchanged since last week, though the market has been fairly well cleaned up and some lines are a little more firmly held. There has been very little stock received from local points this week, and only moderate arrivals of Western poultry. The demand, however, is very small just now, and little advance is expected.

Broilers	$ 3.50@	4.50
Small Broilers	2.50@	3.00
Fryers	5.50@	6.50
Hens, extra	7.00@	8.00
Hens, per doz.	5.00@	6.00
Small Hens	4.00@	4.50
Old Roosters	4.00@	5.00
Young Roosters	8.00@	9.00
Young Roosters, full grown	9.00@	10.00
Pigeons		1.50
Squabs	2.00@	2.25
Ducks	6.00@	7.00
Geese, per pair	1.75@	2.00

BUTTER.

Prices on butter show very little change, and have not fluctuated much from day to day, though there was a slight advance on heavy purchases for the holiday, accompanied by light arrivals. Stocks are liberal at present, however, with quite a large surplus which it is necessary to store, and extras stand exactly at the last quotation. Packing stock is ½ cent lower.

California (extras), per lb.	26 c
Firsts	25 c
Seconds	24½c
Fresh Packing Stock, No. 1	22½c

EGGS.

Conditions remain about as before, with prices as last quoted, though extras were ½ cent off for a day or two, owing to lack of demand. The top grade is rather scarce on account of the hot weather, and is now moving at firm prices, though lower grades are easy. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per doz.	26 c
Firsts	24½c
Seconds	21½c
Thirds	21 c

CHEESE.

With about the average amount of trading, the market has been fairly well supplied with all descriptions, and prices are unchanged. Y. A.'s and Oregon stock are still rather firm.

Fancy California Flats, per lb.	13½c
Firsts	12½c
New Young Americas, fancy	16 c
Oregon Flats	15 c
Oregon Young Americas	15½c

POTATOES.

There is no longer any old stock of any consequence offering, but new potatoes from interior points are quite plentiful. The local demand is fair, but in the absence of a shipping movement prices are slightly lower.

Oregon Burbanks, per ctl.	Nominal
New Potatoes, pre ctl.	$ 1.00@ 1.40

FRESH FRUITS.

Supplies of summer fruits are increasing, but there is a quite strong demand for most varieties, keeping the market fairly cleaned up, and prices are rather firm for the leading descriptions, such as apricots, peaches, plums and pears. The first Bartlett pears are coming in, but find little demand. New apples are in good demand at firm prices. Figs are lower, as the market is full of ripe stock. Everything in the berry line is very low, with heavy receipts and little demand except for canners. Nutmeg melons are moving freely at fair prices, and watermelons find a moderate demand. The few grapes offered bring fairly strong prices.

Melons, Nutmeg, per standard crate	$ 1.50@	1.75
Watermelons, lb.	3@	5c
Raspberries, per chest	3.50@	5.00
Currants, per chest	2.50@	5.00
Loganberries, per chest	1.50@	2.50
Blackberries, per chest	1.50@	3.00
Strawberries—		
Longworths, per chest	4.00@	6.00
Large varieties	2.00@	4.00
Cherries, per lb.	2@	4c
Grapes, Seedless, crate		1.75
Apples, Choice, per box	1.25@	1.50
Common	75c lb	1.00
Figs, per drawer	25@	40c
Apricots, per box	65@	75c
Peaches, per box	60@	75c
Plums, per box	40@	75c
Pears, per basket	75c@	1.25

CITRUS FRUITS.

Navel oranges are entirely cleaned up, and Valencias are held at higher prices. The feature of the market is a sharp advance in lemons, due to a heavy demand and high prices in the East. Limes have also advanced slightly.

Choice Lemons	$ 3.00@	4.00
Fancy Lemons	5.00@	5.50
Standard	2.50@	3.00
Limes	5.50@	6.00
Oranges, Valencias	2.50@	3.25
Grape Fruit	2.50@	3.00

DRIED FRUITS.

Apricots are the principal feature at the moment, as the new crop is beginning to come forward in fair volume, and is moving readily to other markets. There is little old stock left, and so far there has been too little strictly fancy new fruit offered to establish prices on the top grade. General offerings, however, are bringing about the quoted prices at producing points. The Eastern demand is moderate, but considerable inquiry for export is reported. Both spot and future peaches are dull, and packers seem to be following a waiting policy, offering fruit for shipment at rather low prices. Old prunes continue to move off fairly well, but there is not much business in futures. Other fruits are quiet. Raisins remain dull and featureless, with prices about as before. A little demand for fancy seeded is reported in the East, but there is pressure to sell in some quarters, and outside markets generally are taking little interest. Local packers quote the following prices:

Evaporated Apples	7¾ @	8¼c
Figs, black		4 c
Figs, white		4 c
Apricots	8 @	9 c
Peaches	3½ @	4 c
Prunes, 4-size basis	2⅞ @	2½c
Pears	3 @	5 c

RAISINS.

Loose Muscatels, 4 crown	3¼c
3 crown	2¾c
2 crown	2¼c
Thompson Seedless	2½c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$1.00

NUTS.

New crop almond prices are not yet quoted, but will probably be fixed in a few days. Spot offerings are closely cleaned up, and prices are firm. Walnuts are about as before.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	9½c
Softshell, No. 2	6 c

HONEY.

Prices still remain rather high in the local market, and there is some movement at the present quotations, though buyers are not coming forward very readily. Arrivals are gradually increasing, but the supply is not yet heavy. Local dealers, however, do not look for any immediate decline from the present figures.

White Comb, per lb.	12	@15 c
Amber Comb, per lb.	10	@12 c
White, extracted	6	@ 7½c
Old, candied		4 c

HOPS.

Growers are now holding out firmly for full prices, and the quotations show a little advance this week. Buyers, however, are inclined to act conservatively, and the movement is hardly as active as it was a few weeks ago.

Hops, Old, per lb	6½	@10 c
New Crop	13	@15 c

WOOL.

Wool remains steady at the prices formerly quoted, and there is considerable activity in the larger markets. Locally the spring clip has been pretty well bought up, and business is rather quiet, though some shipments are still going forward.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Little further change has taken place this week, mutton remaining fairly steady at last quotations. Lambs are higher, as the local spring lambs are becoming scarce and stock is being shipped in from outside points. Small veal is also becoming scarce, bringing higher prices. Other descriptions are unchanged.

Beef: Steers, per lb.	6¼ @	7¼c
Cows	5½ @	6 c
Heifers	5½ @	6 c
Veal: Large	6½ @	8½c
Small	9 @	9½c
Mutton: Wethers	6½ @	8 c
Ewes	5½ @	7 c
Lambs	9 @	10 c
Hogs, dressed	9½ @	11½c

LIVESTOCK.

Steers: No. 1	3¾ @	4 c
No. 2	3½ @	3¾c
Cows and Heifers: No. 1		3¼c
No. 2		3 c
Bulls and Stags		2 c
Calves: Light		5 c
Medium		4½c
Heavy	3½ @	4 c
Sheep: Wethers	3¼ @	4 c
Ewes	3 @	3¼c
Lambs	4¾ @	5 c
Hogs: Grain fed, 100 to 150 lbs.	7 @	7¼c
150 to 250 lbs.		7¼c
250 to 325 lbs.	6¾ @	7 c
Common Hogs, lb.	4 @	4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., July 6.—There have been no auction sales of citrus fruit held since last Friday at the time this is being written, and so it is not possible to say what the after-holiday tone will be. Usually there is a depression caused by dealers overestimating the amount of fruit needed and by the reaction in the demand. There were more oranges at market points than ever before at this time of the year, and as there never has been a precedent for just such a condition as exists today we will have to live and learn.

Lemons are in great demand. The jobbers in some cases got tired of wiring the shippers and brokers, from whom they received no answer, unless they were old customers, and telegraphed anybody they happened to know out here in California, asking them to go and try to buy them a car of lemons. Prices went up to as high as $6.50 a box for some of the best cured stock with a reputation, and to $5 for good fresh stock with a reputation yet to make. The demand is still strong, but as the hot wave has subsided it is not so incessant and prices have dropped a little. Prices for good lemons will not be very low at any time this season, and when the next scorcher strikes will likely go higher than ever.

Opponents of the increase in the tariff have already commenced to use the argument of high prices against the increase. Our Senator Flint gets back at them by telling them that it is the present status of the tariff that makes high prices possible, that when California growers receive the encouragement given by a higher tariff they will raise more lemons and so make a condition like the present an impossible one.

Valencia prices did not look strong at the close of last week. The shippers are very optimistic, however, and seem to expect a steady market with fair prices if the fruit is properly distributed. The asking prices at this end are still at the old mark of $1.85 to $2 cash California, and from $1.90 to $2.10 f. o. b. There has been some selling delivered at less than these figures, and if the stock goes hard there will no doubt be more price cutting.

POINTERS FOR "DRY FARMING" LANDS.

Summary of Bulletin No. 15, of the Washington Experiment Station at Pullman, includes the following pointers for those handling lands commonly designated under methods of "dry farming."

1. Keep up the supply of humus by chopping in all the straw and stubble available. [We doubt the wisdom of this point for light lands. Humus is good, but

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dry straw and stubble are hard to humify and it takes much moisture to do it. It is often better to feed or burn it off.—The EDITOR.]

2. Disk the stubble before the fall and winter rains begin to absorb the precipitation as quickly and completely as possible.

3. As soon as the soil is fit to work in spring work up two to four inches of loose dry soil to hold moisture.

4. Follow the plow as closely as possible with a sub-surface packer.

5. Keep the fallow clean and mulched by use of a knife weeder.

6. Harrow wheat in spring as soon after the soil is fit to work as the wheat is well rooted.

Successful dry land tillage does not call so much for an increased amount of labor as for labor properly applied. If two or three extra workings of the soil should be called for the farmer can determine whether an increase of 10 to 25 bushels per acre will pay for it.

PLOWING UNDER ALFALFA.

Californians are more occupied with getting in alfalfa than with getting it out, and yet in the rotations with alfalfa that are surely coming in this State, and in turning under old stands for renewal, the way to do it well becomes important. P. K. Blinn of the Colorado Experiment Station discusses the subject as follows:

The attempt to break alfalfa with the ordinary plow is usually a miserable failure, as it is now suited to the work. A very successful alfalfa plow can be made by adjusting and making a few changes in the regular sod plow or prairie breaker. The essential points to consider are: The long strong beam to steady the plow; the long landslide to resist the tremendous cutting strain. It is often necessary to reinforce the beam with heavy iron to withstand the draft. The plow should be adjusted to cut a very narrow furrow, not over 12 inches. An extra long share, to lap part of the last furrow to prevent the roots when only partly cut off near heel, from whipping around. This can also be prevented by the use of a horizontal cutter bolted to the bottom of the landslide, thus partly cutting the roots in the next furrow. This cutter is forged with a right angle shoulder that fits and fastens with the bolt through the short landslide.

The next essential is a very sharp share, drawn thin and hardened so that it will not be brittle. A sharp share should be replaced each day, and a good file is necessary to touch up the edge once in a while. Breaking alfalfa on stony land is very difficult, and is extremely hard on plowshares.

The most essential point in an alfalfa breaker is a long, heavy, well pointed share, with a very wide wing, six or eight inches at the heel, and one and a half to two inches of the edge rolled so as to run almost flat on the bottom of the furrow, thus cutting ahead of the "lift" and avoiding a dragging cut.

The standard plow factories are making alfalfa specials for the Western farmer, with extra alfalfa shares; these are chiefly in sulky plows; but where it is not practical to afford such a plow, the walking breaker can be fitted, although it is somewhat harder for the man that holds the plow.

Alfalfa breaking usually requires from three to four good heavy horses for a team. The depth and the time to plow alfalfa are somewhat mooted questions. They vary with conditions. It is usually conceded that fall breaking is a success, but in Colorado alfalfa is generally plowed shallow, four or five inches deep, so that the crowns of the roots may be well harrowed to the surface to dry out. Alfalfa is then replowed, one or two inches deeper than it was broken. Alfalfa, when dormant, if plowed under in moist soil, will readily take root and grow if not harrowed out. Many farmers are having better success in breaking alfalfa late in the spring, after the alfalfa is 10 or 12 inches high, plowing under the green manure. The growth seems to have exhausted the stored plant food in the roots, and if they are all cut off, very little growth will be made, especially if the field is planted to some crop like potatoes that can be well cultivated. Complaints about difficulties in plowing alfalfa usually come from sections where rotation with alfalfa has not been customary.

ECONOMIES OF SILAGE.

Prof. D. H. Otis of the University of Wisconsin gives the following interesting computations:

Of the various feeds which are the most palatable, corn silage is without doubt the cheapest and most effective to add to the ration. It is a valuable feed for diary and beef cattle and also for horses, calves and sheep. Many of the leading Wisconsin farmers find that silage can be handled as cheap, if not cheaper, than the corn crop can be handled in the usual manner. Silage furnishes a succulent feed with very little waste and is always ready to use.

In combination with alfalfa or clover, with a mixture of corn or barley for grain, silage furnishes an especially good ration, all grown on the farm and cheaper than mill feeds. The importance of palatability cannot be overestimated, as it increases the amount of feed eaten and, when properly assimilated, the more the animal eats the larger product it will return.

A ton of mixed hay occupies 400 cubic feet of space, and eight tons of corn silage can be put in the same amount of room. The ton of mixed hay contains about 960 pounds of digestible dry matter, while eight tons of silage contains 2560 pounds of dry matter. This one point of the economical storage of the corn crop, when put up in the form of silage, is worthy of attention where a large number of animals are fed.

The cost of handling the corn crop in the form of silage is less than when any other method is used. One of the leading Wisconsin farmers reports that it cost him 50 to 60 cents per ton, or $7 per acre, to put his corn crop into the silo. The same area of corn would yield about 150 baskets, which would cost him $8 for husking, while the cost of cutting, stacking, shredding and grinding would be about double what it costs to put the same crop into the silo.

The advantages of summer feeding of silage, particularly during periods of drouth, is fully appreciated by those who have tried it. During the latter part of the past summer Wisconsin suffered a severe drouth, and corn silage was fed to the university dairy herd. The flow of milk was never kept up so well during the summer as it was by the use of this silage. The summer silo is sure to become a more important factor in successful dairying.

The use of silage for fattening beef cattle has been tested at a number of experiment stations and by stockmen with excellent results. In experiments conducted by the writer in 1904 it was found that silage fed steers sold at $4.95 per 100 pounds, while those fed no silage brought only $4.70 per 100 pounds, a gain of 25 cents in favor of the silage fed animals. It was found that for every 100 pounds of gain, 471 pounds of silage fed saved 18 pounds of grain and 156 pounds of alfalfa.

In these tests silage was fed in connection with alfalfa hay, corn chop, kafir corn chop and cottonseed meal. The average soil, in unusual seasons, will produce 12 to 15 tons of green corn per acre. Even with a yield of 10 tons per acre, there is an income, according to this experiment, of about $33 per acre.

The financial statement of this experiment showed that the silage-fed steers made a profit of $4.10 per head, while the same grade of steers fed on the same feed, except silage, lost $1.47 per head.

PUBLISHER'S DEPARTMENT.

APPRECIATION FROM AUSTRALIA.

A good friend of the PACIFIC RURAL PRESS, Mr. Albert O. Pike, writing from Hectorville, South Australia, says: "Your paper has been a great help to me in my horticultural life, and, if I may say just those two simple words, 'thank you,' believe me, I mean them to convey my gratitude to you.

Mr. Pike has promised to write us an article along horticultural lines in Australia, and we trust we may have it soon to give to our readers.

Geo. G. Roeding of Fresno is advertising the "Tee Irrigating Valve" in this issue of the RURAL PRESS. This device is cheap, handy and reliable. Anything of this nature being offered by Mr. Roeding is sure to meet with a large sale, as irrigationists will have no resitation in buying. Look up the ad and then write Mr. Roeding about it.

Have you read the advertisement of the Arthur Koppel Co. relating to Agricultural Portable Railroads. They are just the thing for fruit handling, for dairies and stock farms. Write the company for one of their booklets, which gives valuable information.

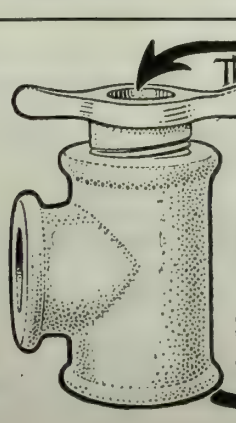
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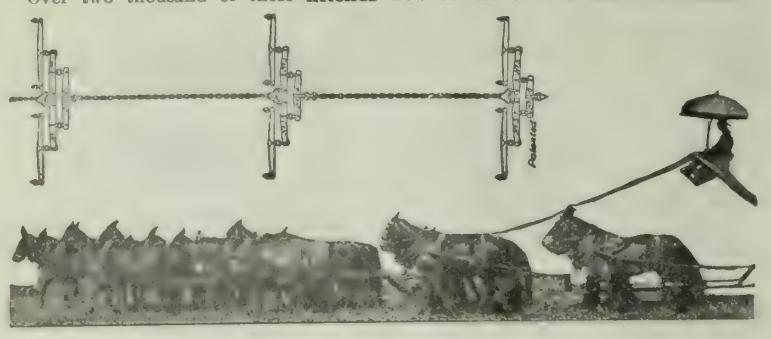
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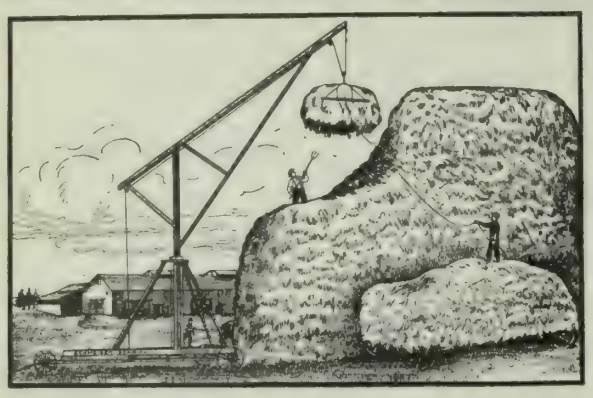


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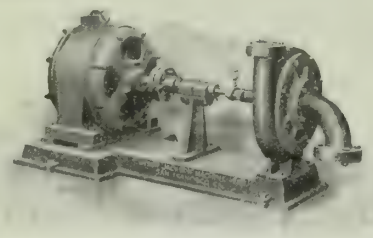
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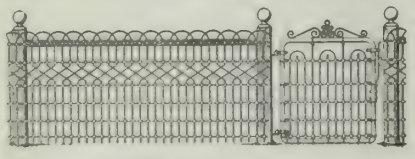
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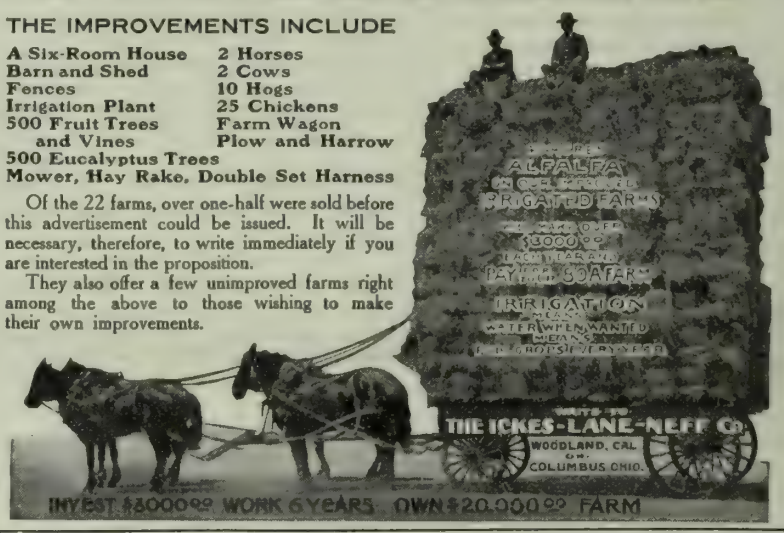
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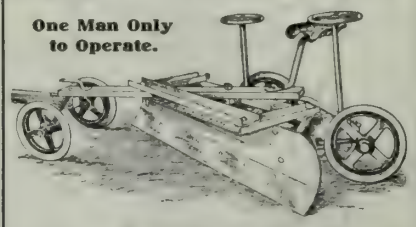
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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 3. SAN FRANCISCO, SATURDAY, JULY 17, 1909. Thirty-ninth Year.

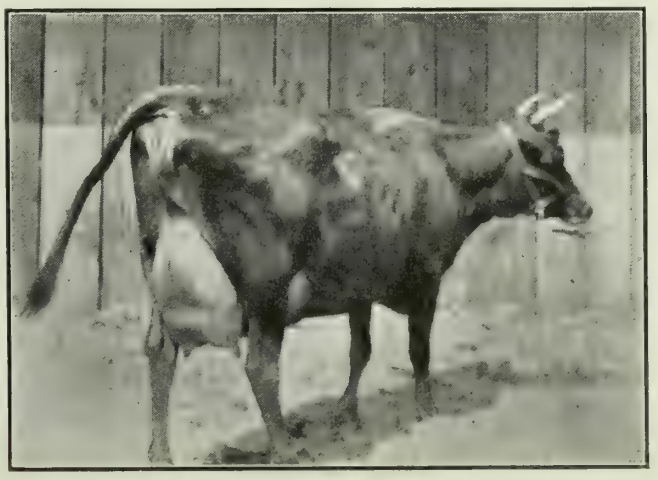
The Jersey Cow as a Money Maker.

Written for the PACIFIC RURAL PRESS
By GEO. A. SMITH, Corcoran, Cal.

The Jersey cow is recognized the world over as the best "family cow." We frequently hear of the Jersey cow that supplies the family and the neighbors with milk, cream and butter, and makes eight, ten and twelve pounds besides. And the Jersey cow, generally speaking, is the only cow that does that for the family. Her reputation as a family cow is unexcelled. Now, if the Jersey is unexcelled as a family cow, why isn't she unexcelled as a dairy cow? Why would not a number of such cows make a good profitable dairy? The idea seems to be prevalent that the Jersey cow is only good as a family cow. This is a mistaken idea, is entirely wrong and without foundation. There is absolutely no reason why a fine family Jersey cow would not also be a fine dairy cow. To those who claim that the Jersey is not a dairy cow, I would refer them to the records made by the Jersey cows at the World's Fair at St. Louis. All the Jerseys were fresh from 30 to 109 days before the test began, so that at the end of the test of 120 days they had been milking from 150 to 229 days. The whole herd of 25 Jerseys averaged 41½ pounds of milk per day, or about 5 gallons. Two gave over 60 pounds per day, and 13 others gave over 50 pounds per day, and the butter average per day was 2.28 pounds. The net profit as butter producers, 39½ cents per day, and as milk producers 45 cents per day. The Jerseys exceeded all other breeds in average butter production 19.2 pounds per cow for the 120 days. This is a demonstration of what the Jersey cow can and did do in a dairy. It is not uncommon for Jersey dairies to make an average of 300 to 400 pounds of butter-fat per cow per year.

Again, in the World's Fair test at St. Louis, although the Holsteins produced 1430 pounds more milk per cow than did the Jerseys, the value of the Jersey milk based on fat and solids not fat was $1.58 more per cow than the value of the Holstein milk; thus the 1430 pounds excess per cow of the Holstein milk was handled at a total loss.

Many dairymen have the fallacious idea that they are making more money by keeping dairy cows that produce a large quantity of milk which as a rule is low in butter-fat making the production of this extra amount of skim milk a loss, for the reason that cows must consume feed to produce skim milk as well as butter fat. A cow producing a large quantity of milk must necessarily consume a large amount of feed, which, of course, requires a great deal of energy to digest and assimilate. This wasted energy used in producing this large abount of skim milk wears the cow out, while she is yet young, and leaves her in the herd an unprofitable producer. According to my observation and experience, extending over a period of 18 years, the reason the average Holstein herd pays from $2 to $4 less per cow per month than the average Jersey herd is because of the number of cows in the average Holstein herd that have worn themselves out trying to produce a large amount of poor quality of skim milk of very little value out of feed which, if fed to Jersey cows and used by them in producing butter fat worth 35 cents per pound, would have made the owner a neat profit. Again, it is hardly fair to compare a herd composed of Holstein cows that will average between eleven and twelve hundred pounds each with a herd of Jersey cows that will average between eight and nine hundred pounds each, for the reason that four Holsteins will consume as much feed as five Jerseys. Now, if the four Holsteins produce $100 worth of butter in a given time and the five Jerseys average as much per cow as the Holsteins (and it has yet never been proven that they do not), then the five Jerseys would produce $125 worth of butter fat in the same time with the same amount of feed. This, of course, would show 25 per cent gain made by the Jerseys over the Holsteins, and this is the way it usually turns out in actual experience, and is the reason why there is a greater demand for Jersey cattle than for any other dairy breed and why they sell at a higher price.



Premium Jersey Cow "Black", Owned by G. A. Smith, Corcoran.



Scene in the Irrigated Dairy District of Tulare County.

In the recent sale of T. S. Cooper & Sons of Coopersburg, Pa., the 122 head of all ages averaged close to $650 each. At Mr. A. P. Walker's sale, at Rushville, Ind., on June 16, 57 head averaged $570.61 each. The above prices indicate what people think of the Jersey as a dairy cow. Breeders of Jersey cattle here on the Pacific coast, where the Jersey cow is not so well known, are unable to fill their orders. My sales this year amount to 94 head, and I am now preparing for shipment a carload for my Oregon customers. This shows the condition of the Jersey market in Oregon, where there are more breeders than in California. Yet they are unable to supply the demand. The people everywhere are beginning to find out the true worth of the Jersey as a dairy cow. Seventeen Jersey cows, under authenticated fat test, have produced 700 pounds or over of butter each in one year. The average yield of butter of the 17 is nearly 813 pounds.

The Jersey is hardy, often a profitable producer at old age. Some have produced calves at 19 years old, and were profitable in the dairy. My cow, May B's Belle, at 13 years old, 92 days after being fresh, and after being exhibited at four different fairs and having traveled several hundred miles on the railroads, making a change from one fair to another for four consecutive weeks, the second week after returning made a record of 17 pounds 8½ ounces of butter in one week.

The portrait on this page represents the cow, Black, No. 188531, A. J. C. C., a premium butter cow at California State Fair, 1908. She is a typical Island type Jersey cow, her mother being Imported Mary Schley Fox, the only daughter of Champion Flying Fox ever imported from the Island of Jersey to the Pacific coast. She has the ideal Island type udder, which measured six feet in circumference, extending well forward and well out and up behind. She has good length and depth of body, with a good general dairy conformation; in fact, she is built for business, the kind that is profitable for the dairyman as well as the breeder.

UNIVERSITY FARM DAIRY INSTRUCTION.

A circular has just been issued by the College of Agriculture of the University of California giving information about the courses in dairy science and practice, which will be given on the University Farm at Davis during October and November of the current year. Davis is thirteen miles west of Sacramento, and being a junction point of the Southern Pacific lines makes the Uni-

(*Continued on Page 43.*)

Pacific Rural Press

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E. J. WICKSON - - - - - - - - Editor
FRANK HONEYWELL - - - - - Business Manager

The Week.

The first week in July brought high winds and low temperatures to the elevated interior regions west of the Rockies, which touched lightly the eastern mountain rim of California but did not extend into our valleys nor affect the favorable harvesting conditions which are widely prevailing this year. In Colorado and vicinity there were severe storms, which delayed transportation seriously, and westward other unseasonable things happened, among them the occurrence of the coldest night on record for July at Reno, showing itself by thin ice on still water. In the Tahoe region of California, at an elevation of about 6000 feet, similar things were observed. On the broad productive valleys of California, which range from a few score to a few hundred feet above sea level, nothing of the kind occurred, and quiet days and balmy nights prevailed. We take occasion to mention these facts once in a while for the sake of distant readers who do not know the infinite variety of California, and may be apt to spread the weather freaks of the plateau region too widely over our coast districts. When it blows cold in other parts it is quite apt to blow warm in California, and fortunately the converse is not true, except perhaps in less degree and infrequently.

Harvest figures are proving in some cases rather better than anticipated, but still in such measured amounts that nothing which has been claimed, in the way of conditions warranting good prices, need be changed. Prices are high all around, and they deserve to be, not only because of moderate amounts, but owing to quick demand for nearly all kinds of supplies. There is wonderful activity discernible everywhere. Demand for land in small tracts was never so keen, and probably there never was a time when so much good land was available in this way. At the same time, great projects for development, all the way from higher farming of large tracts purchased for that purpose to the projection of great improvements for electric power generation and transmission, are taking shape in many places. Such free use of capital in development creates, of course, local markets of increased capacity and gives new outlook toward agricultural production. Thus one form of development advances another and ministers to general prosperity.

All such enterprises create also a greater demand for thoroughly expert services, which we cannot help pointing out because it is so closely connected with the educational work in which we are so deeply interested. A few weeks ago Mr. J. W. Mills of Marysville, who had been engaged for many years in experiment station work for the University of California, retired to take up farming on his own account because he believed he could make more on his own land than the State could pay him. He did not, however, indulge long in such independence, because a large owner of land offered him several times as much per year as he had before received, to use his knowledge and ability on more thousands of acres of land than he had hundreds of acres for his own use. And now we hear that Mr. W. W. Mackie, who has been engaged in soil work on the Pacific Coast under the United States Department of the Interior, has resigned his Government position and accepted a place with the Rindge syndicate near Stockton. In his capacity of manager and general overseer of the syndicate Mr. Mackie will have charge of 21,000 acres of rich farming land in the Island district. Aside from the personal interest in these two successful young men which we feel as their old instructor, there is in their experience a wider significance to us in their selection by business men to direct the large investments which they expect to make productive. It means that the man thoroughly trained in the science of agriculture and subsequently proved good in the application thereof to actual production, is the man of the future in agricultural enterprise. How long is it since a man from college would have been discounted in such connection, if not actually scoffed at? Old things have passed away, and all things have become new! And now the College of Agriculture of the University of California not only has these two, and many others, managing important enterprises for themselves and for others in this State, but in other States and in other countries, demonstrating to all observers that agriculture is an art which requires men who know things and know how to do things, not alone by imitation or tradition, but through original courses of action based upon the principles involved when occasions arise for such action. The greater the activity in agricultural enterprise, the wider will be the demand for young men who have acquired such mastery of themselves and of their environment.

Speaking about large enterprises, we recall now that in commenting upon the great ideas which would be flashed upon the coming session of the Irrigation Congress, the figures we used were only one per cent of those actually proposed by the broad-minded men who will father the propositions. We talked about millions for irrigation, for drainage, for waterways, for highways, and for reforestation—all to be in gold bonds to run for a hundred years. Perhaps some readers thought we were getting rather nervous about a small amount of money, and we haste to declare that it was not a question of millions at all, but of billions—five billions of dollars in gold bonds for a century Those are the figures which we apprehend will give such an inflated aspect to the whole scheme of National improvements that no sane man will commit himself to them as a mortgage upon posterity. Our point really is that the national irrigation scheme is working now quite as fast as it should, on the basis of millions, and it makes it ridiculous to try to think about it in billions. Take the facts as they are, therefore, and see if they are not good enough to proceed upon in an experimental way for some years to come. It is just announced by telegraph from Washington that the increase of the reclamation fund by the disposal of public lands for the fiscal year ending July 30 is estimated at $7,770,000. There has also accrued through repayment of building charges about $1,000,000. The balance available in the Treasury to meet existing contracts and carry on the work to December 31, 1909, is, in round numbers, $4,500,000. In addition, there is $1,400,000 from the $7,700,000 above named, this being advanced to cover contracts now in hand. Existing contracts and liabilities on unpaid accounts and expenses incidental to carrying out various contracts will absorb all of this amount. Plans are therefore being made to utilize the funds available for 1910. These plans will be presented to the Secretary of the Interior after a conference of leading engineers of the reclamation service at Portland during the latter part of the present month. It strikes us that this is good enough, and it is certainly about all the Eastern parts of the country will stand for. If it should be billionated, as the boomers declare they will advocate, the grandest national enterprise the country has ever undertaken will be denounced as wild, woolly and visionary.

But there are billions, and billions are really a factor in the world's progress; it may be worth while to try to become used to them. There is a great deal of British capital being used in the development of California, and so long as we do not have enough of our own we are glad to get it. At a meeting last week in London of the Royal Statistical Society, Mr. George Paish read a paper on "Great Britain's Capital Investments in Other Lands," and stated that to obtain an income from abroad of nearly $700,000,000 a year Great Britain had invested a sum of about $13,500,000,000, and was obtaining an all-round return of 5.2 per cent. As soon as the large amount of capital sent out in recent years bore fruit the annual income would reach a much greater figure, and having regard to the investment of capital in Canada, in Argentina, in India, in the United States, and in other lands in the last few years, before the close of the current year the total amount of British capital invested abroad would probably exceed $15,000,000,000, and there were good prospects that in the seven years from 1905 to 1911, inclusive, the British would place new capital in other lands to the extent of at least $3,500,000,000.

Now, as we admitted that billions of dollars are things capable of calm discussion, those who are advocating billions of national credit for reclamation, etc., may charge us with inconsistency and lack of patriotism in calling for British billions at over 5 per cent while we object to American billions of 3 per cent gold bonds. There is a tenable claim in that, we admit. But we urge that we are not claiming that billions may not ultimately be profitably used in national improvements. It may certainly prove to be rational and desirable, but we insist upon a clearer demonstration of that fact than can now be had. Reclamation enterprises have proved to be successful in so far as they catch and carry water, but they are still largely experimental, so far as the profitable use of that water and the profitability of the land at its largely increased cost are concerned. Our claim is that it is better to go ahead on the basis of millions which we now have for the purpose until it becomes clearer that these millions will be actually repaid from the produce of the land, so that they can be used again in new reclamations. They are beginning to do that, as the figures in the foregoing paragraph show. Let them do it more abundantly. The Panama Canal is enough of an enterprise for the present. When that is finished, conditions may favor a five billion dollar enterprise.

But to return to the earth. The story is current in the Sacramento valley journals that "sugar beets enrich the land." This is such a strange doctrine that it is worth while to examine the basis upon which the claim is made. The argument which hails from Hamilton City, near Chico, is in this wise: "Land that had for years been planted to wheat and barley, and had been declared worn out, was planted to sugar beets when the sugar mill was established at this place some three years ago. Beets were produced in good quantities for two seasons, paying several times as well as the grain crops had paid for a number of

years. For this season the land was planted to wheat again, as an experiment to prove the theory that beets enrich ground that has been impoverished by grain. The wheat is being harvested now, and is yielding 56¼ bushels per acre. About 150 acres have been cut.'' Now, the facts in this statement are probably correctly stated, and are significant, but the reasoning is false. The facts do not ''prove the theory that beets enrich the ground.'' They simply indicate that the deeper and better cultivation which is necessary for a good growth of beets, and the effect of the beet root itself as a subsoil opener, prepare the soil to do better with a following crop of wheat. The beet does not add fertility to the soil; on the other hand, it takes greatly from it, but because of its profitability as a crop and because of the direct and indirect effects of the deep-rooting plant, it is a splendid feature in a rotation. The whole world knows by experience that the beet does not enrich the soil, and that continuous growth of beets will deplete the soil to such an extent that it is not profitable for long. It also knows that a rotation in which beets, grain and legumes are successive is the proper way to handle the land to maintain its profitability, if suitable fertilizers are also used as required. From this point of view the truth about the relation of the beet to the soil is good enough; what is the use of trying to deceive people about it?

Queries and Replies.

On the Uses of Gypsum.

To the Editor: Will the application of gypsum to a light sandy soil deteriorate it if applied each year? I understand that gypsum is what might be called a stimulant and imagine that it would weaken the soil eventually. I have a streak of very light soil that does not produce half a ton of alfalfa to the acre. It is not alkaline. People in this neighborhood are using gypsum to the amount of 300 pounds to the acre with wonderful results. In a couple of years I intend to plant this land to vines, and if gypsum will rob the land of plant food that the vines will need I do not want to use it. If not, and it will make this 20-acre strip pay like the balance of the land from which I cut a ton to a ton and a half to the acre, I would like to use it.—J. S., Fresno county.

You should read carefully the general article on gypsum which appeared in our issue of June 5 and other references which we have made from time to time. You will have to try a little experiment to see just what the effect of the gypsum on alfalfa on your light sandy soil will be. Gypsum is rather a stimulant or tonic than a plant food. It does, however, set free other soil substances and in this way indirectly is of advantage to the plant. You would succeed better by making a good application of stable manure to your sandy tract, but this should be done when the rains begin, and not late in the winter or spring, for fear of causing the ground to dry out too rapidly.

It is putting it a little strong to call gypsum a soil robber, and at the same time it could not be called a soil strengthener, as are animal manures and commercial fertiliers which contain nitrogen, phosphoric acid and potash. These substances will intrinsically improve a poor soil, which gypsum cannot do, although it may make it immediately more productive and poorer afterward. If, however, gypsum will give you a good growth of alfal, the subsequent turning under of alfalfa stumps and the decay of the roots will make the poor soil better for the subsequent growth of vines.

The Pistachio.

To the Editor: In course of writing a treatise on pistachio vera, with the sole purpose of having this nut par excellence extensively planted in some States, I would be very thankful if you would kindly send me printed matter on the subject or suggest the best works issued on this nut.—E. G., San Francisco.

We can only say that the pistachio vera was introduced into California many years ago, has been tried several times since, and yet has never demonstrated its acceptance of California conditions on a commercial scale. The man who at the present time has most confidence in it and is growing the largest number of trees is Mr. George C. Roeding of Fresno, who we hope may now be having leisure time enough to write us the reasons for his continued faith in pistachio growing.

By writing to Dr. B. T. Galloway, chief of the Bureau of Plant Industry, Department of Agriculture, Washington, D. C., you can get accounts of the growth of the pistachio in other countries, as described by the government explorers.

Planting Onion Sets.

To the Editor: I put out in May last a third of an acre of onion sets which I desire to make bulbs. Should the little bulbs be exposed to the air, that is, with only the roots in the ground? If so, should they be covered in their early growth, or if they are exposed can they be left exposed or should they be covered later? Kindly let me know if the same treatment be used in onions grown from the seed?—Amateur, Alpine County.

Your sets should be planted just beneath the surface of the ground; that is, the bulbs should be just covered and not left above the surface. The same method should be followed with transplanting young seedling onions. If you plant too high there is too great danger of drying out, and the covering of small bulbs in a suitable soil does not interfere with the subsequent enlargement.

The Wonderberry.

To the Editor: I am sending you today by mail a small twig and fruit of the Wonderberry, said to be one of Mr. Burbank's newest and greatest productions. I have never seen it advertised in anything except Eastern catalogues and magazines. Quite a number of the neighbors have it planted, and it looks so much like the deadly nightshade that we are wondering if it is half as good for table use as is recommended.—Subscriber, Madison.

The plant is a solanum, and so is the deadly nightshade, but that does not indicate that it is dangerous, for there are solanums that are among our most valuable food plants. The worst we can see about the fruit is that it appears to us worthless. The only wonder we have about it is that anyone can desire to eat it.

Relative Value of Cattle Foods.

To the Editor: Please enable me to compare the feeding values of pumpkins, squashes and alfalfa?—Reader, Ukiah.

Concerning the representative relative value of the different substances which you mention, please study the following table of analyses:

	Water.	Ash.	Protein.	Fiber.	Starch sugar.	Fat.
Piemelons	94.50	0.40	0.77	1.23	2.88	0.22
Pumpkins	90.90	0.50	1.30	1.70	5.20	0.40
Alfalfa, green	80.00	1.72	4.94	4.70	7.90	0.74
Alfalfa hay	10.95	6.48	17.60	22.63	39.31	3.08

So far as leading nutrients are concerned green alfalfa is worth about three times as much as pumpkins or squashes, and alfalfa hay about ten times as much, roughly speaking. In the case of hay the particular value of succulent food for milking animals is not considered. It may be of considerable importance in maintaining milk flow.

The Imperial Prune.

To the Editor: After hunting through all the libraries in the city, and also a great many nursery catalogues, I still have not obtained the information that I am looking for, and as a last resort I come to you. I want to buy a place in Napa; this place is set to prunes, and the agent told me they are called the ''Claret Mammoth.'' In looking over your ''California Fruit and How to Grow Them'' I find no mention made of this particular kind. Any information you can give me will be highly appreciated.—Enquirer, San Francisco.

The name which you are endeavoring to get phonetically is not ''Claret'' Mammoth, but ''Clairac.'' It is one of the names of the Imperial prune, and you will see it mentioned in ''California Fruits,'' Fourth Edition, at the bottom of the right hand column on page 224. The difficulties with this prune are three—first, shy bearing; second, late ripening and large size, which makes drying difficult; third, great susceptibility to injury by thrips. Still the Imperial has the advantage of selling well on account of its large size, providing the difficulties which are encountered in this growth can be overcome.

Restoring Neglected Trees.

To the Editor: I purchased last spring an old orchard that has been badly neglected, and having lately removed here from Missouri I am at a loss to know what to do with such trees in this State. The apple and plum trees have grown long straggling branches having the fruit and leaves away out on the end of the branches. What can be done with them?—Newcomer, Santa Cruz.

It is impossible in this column to give definite instructions concerning such an elaborate business as growing fruit trees in California. Our book on ''California Fruits and How to Grow Them'' was especially prepared to meet such demands for information.

The apple and plum trees which you mention should be cut back this winter very severely to force out a new growth next summer. All the dead limbs should be cut away now, down to the place where you get good growth, painting over the wound with thick oil paint or grafting wax. The trees should be well cultivated this summer so that there may be abundant moisture remaining in the soil, for they have probably suffered severely from neglect and drouth in the past.

Not Disease, but Bad Growing Conditions.

To the Editor: I am sending herewith some branches from my olives and figs and a leaf from my walnut. These trees are all doing poorly. Can you tell what is the trouble?—Reader, Santa Clara County.

Your specimens do not indicate any particular disease, except in the case of the walnut leaf, where the light yellow patch indicates the occurrence of erinose, which, however, is not in sufficient amount to produce any effect upon the thrift of the tree. You must look for the troubles of your trees in the soil, either in shallowness (which possibly prevents retention of enough moisture for growth late in the summer season) or becomes filled with standing water during the rainy season and in that way brings the roots of the trees into bad condition. You are evidently not suffering from plant diseases, but from some defect in the soil or in the manner of its cultivation, lack of drainage or of irrigation, as the case may be.

No Huckleberry Wine Here.

To the Editor: Will you kindly advise me how to make wine from huckleberries? In your State the art of wine-making is undoubtedly better known and perfected than elsewhere, and your State being our next door neighbor, it seems but proper to apply to you for information.—Student, Arizona.

Few huckleberries are grown in California, and no wine whatever is made from them, so far as we know—except possibly as a home indulgence. You had better write to some Eastern friend who is up on huckleberry wine, elderberry wine and other devices for making one believe that he has something like the real thing, which comes only from the grape. We are too rich in the grape to think of these near-wines—except perhaps as household medicines.

Horticulture.

POLLINATION OF APPLES.

By Prof. C. L. Lewis and C. C. Vincent, of the Oregon Experiment Station.

[One of the most interesting pieces of work in scientific and practical pomology has been accomplished by the experts named above. As our abstract will show it involved very close observation, ingenious invention and patient recording and deduction. It is in its nature only within reach of trained investigators with material afforded by a large variety orchard such as no commercial producer could afford to maintain. The conclusions are of the widest scientific and practical value and will be very interesting to our readers.—Editor.]

To determine whether apple pollen was carried through the air by the wind, in sufficient quantities to insure cross-pollination, experiments were conducted in the following manner.

How Little the Wind Does.—Small glass slides 1x3 inches were smeared with vaseline and placed at different distances and at different heights from certain large trees in the orchard. In this case two of the largest trees in the orchard, the Rome Beauty and the Mammoth Black Twig, were selected. After an exposure of 24 hours the slides were taken to the laboratory and examined under the microscope. The following results were obtained:

Showing Distribution of Pollen by Wind.

Slide No.	Distance from tree, ft.	Height of slides, ft.	No. pollen grains.
1	4 feet	On ground	16
2	12 feet	6 feet	9
3	15 feet	4 feet	11
4	15 feet	6 feet	8
5	20 feet	9 feet	6
6	30 feet	6 feet	7

During the experiment a strong north wind was blowing, and the trees were in the height of their blooming period. The conclusion to be drawn from this experiment is that the wind cannot be relied on as an agency to transfer pollen from tree to tree throughout the orchard.

To verify our last experiment the following work was carried on. A 7-year-old tree, containing 1500 blossoms, was emasculated and left exposed to the wind and insect visitation. The object of this experiment was two-fold: First, to determine if pollen was transmitted through the air in sufficient quantities to insure cross-pollination; second, to determine if removing the floral part of the blossom would affect the visits of insects. The tree operated upon was located about 20 feet from another tree that blossomed profusely.

Bees Essential.—It is generally conceded by experimenters that the honey bee is attracted to the blossom by the inflorescence. The results obtained will be a fair index as to the truth of this statement. Out of the 1500 blossoms emasculated only five set fruit. During the whole period the pistils of these blossoms remained receptive, only eight bees visited the tree. More than twice that number was seen in one-half hour on the tree 20 feet away. Since only a small portion of the emasculated blossoms set fruit, it is manifest that pollen is not transmitted through the air in sufficient quantities to insure cross-pollination. While this experiment demonstrated the fact that bees will visit trees when the floral part of the blossoms is removed, they are not attracted in sufficient numbers to insure perfect pollination. It is apparent that the showy petals of the blossoms aid materially in attracting the bees. The blossom is well supplied with nectar, and the open character of nectary makes it accessible to almost all insects. The bees, in trying to reach the nectar, brush against the anthers and carry away with them, on their hairy legs and abdomen, large quantities of pollen. The insects in visiting other blossoms transfer some of the foreign pollen to these pistils. Since the wind aids a little in cross-pollination, it is evident that the various insects, especially the bees, are carriers of pollen from one variety to another.

As the assurance of a crop depends upon insects as distributers of the pollen, it is necessary that apiaries be established in the different fruit sections. With favorable climatic conditions and proper planting of varieties the bees would insure pollination.

Behavior of Varieties.—Of the many important facts derived by the elaborate experimentation which we have hinted at, perhaps the most directly valuable to planters are those showing the behavior of varieties, as presented in the following summary statement:

1. Out of 87 varieties of apples worked with, 59 varieties were found to be self-sterile; 15 varieties self-fertile and 13 varieties partially self-fertile.
2. Many varieties of apples naturally tend to be self-sterile, when limited to their own pollen.
3. Results indicate that cross-pollination is the rule, and self-pollination the exception.
4. A knowledge of the mutual affinities between the different varieties must be gained.
5. Some pollenizers for the Spitzenberg have been ascertained. Sixteen varieties of apples were found to cross successfully with this variety. A few, such as the Yellow Newtown, Ortley, Arkansas Black, Jonathan, Baldwin, and Red Cheek Pippin (Monmouth Pippin), are very promising.
6. In some instances the immediate effects of pollen on the color of the fruit were perceptible.
7. With an increase in the weight of the crossed apple, there was a proportional increase in the weight of the seeds.
8. The action of foreign pollen on the Yellow Newtown, a self-fertile variety, was very pronounced.
9. Many of the self-fertile varieties of apples, when self-pollinated, were found to be seedless, or devoid of plump seeds.
10. An improvement in the size of the self-fertile varieties can be made by crossing.
11. Out of 18 varieties that we have found to cross with the Yellow Newtown, a few, such as Spitzenberg, Jonathan and Grimes Golden have given excellent results.
12. Wind is a poor agent in transferring pollen from tree to tree. Bees and insects appear to be the principal pollen distributors.
13. The floral envelope serves to attract the attention of bees. They will, however, to a certain degree, visit blossoms in which the floral envelope has been removed.
14. The blooming period is given to 95 varieties of apples, 31 varieties of pears and 17 varieties of cherries. A classification into early and late bloomers is made showing what varieties will blossom together for cross-pollination.
15. Climatic conditions influence, to a certain degree, the relative blooming periods of the different kinds of fruits.
16. In frosty localities varieties can be selected with reference to their time of blooming, thus partially eliminating the difficulty of a failure of fruit.
17. We found that pollen was capable of maintaining its viability for three weeks, provided it was not allowed to ferment.
18. The length of time different kinds of fruits remain in blossom at this station are as follows: Apples 13 days, pears 11 days and cherries 10 days.

Citrus Fruits.

CULTURAL GOSSIP.

Written for the Pacific Rural Press
By Mr. Edgar A. Wright, of Los Angeles.

I asked a grower today if he ever had any foot rot, and he said, "horses or cows?" and I was compelled to tell him that I meant in his trees, and he laughed at me. Said that trees did not have foot rot, but root rot, and I was willing to change the subject, so I said, "well, what causes the root rot," and he proceeded to give me his theory.

This break reminds me of the time I was in the real estate business way back East, back in Maine, in fact. I had a partner who was an auctioneer. A farmer came in and gave the partner the job of selling all the farm equipment and stock at auction, and gave us a list of what was to be sold. I was the one who was to prepare the bills, and so talked the matter over with the owner, who was a French Canadian. Well, when the bills were posted there was much hilarity over the fact that one heifer-bull was offered for sale. I still stick to it that the Frenchman told me that he had a heifer-bull, and, honest, I did not know but what it was all right.

This man said that root rot was the "gum disease," and vice versa. He said that it was more prevalent on heavy soil where the earth packed around the tap roots, and that the way to avoid it was to keep the soil loose around the root-crown. I was getting a little nearer familiar ground by this time. I had recently been in Orange county, and in a sweet orchard had noticed that many of the trees looked very sick and that much of the fruit was puffy. Looking around for a cause I saw that the soil in this orchard was packed around the trees like cement and that the grower, who otherwise appeared to cultivate very faithfully, never touched the soil next to the trees. I asked this grower if he never disturbed the soil around the base of the tree, and he said that he never did, that it was not necessary, as the "feeders," the small roots that conveyed the food to the tree, came out to the cultivated soil and got the benefit of all the water and fertilizer necessary. I don't like to argue, so I passed it up, but could not help thinking that this orchard would look 50 per cent better if he would stir up the soil near the tree.

I rode part way from Covina to Glendora the other day on a wagon that was conveying oranges to the packinghouse. I told the grower, an Englishman named Jackson, that I sometimes gossiped with the fruit men for the purpose of writing up what I heard, and he told me that he was sure he had discovered the cause of the gum disease, and claimed that it was caused by irrigation water settling around a tree, first flooding the roots and then causing a hardpan to form. He said that he had noticed that the diseased trees were always in the lower part of the orchard, or rather on the lowest ground in the orchard, and that since he had discovered the apparent cause he had taken especial pains with these trees, that he never allowed the water to flood the low spots, nor hardpan to form, and that he had cured every tree on his place by this method of being careful.

I have since talked this over with other ranchers, and they claim that gum disease is as prevalent in the highest parts of the orchards as in the lowest and that the flooding could therefore have nothing to do with the matter. I have heard various theories advanced by the experts to account for the ailment, and it struck me when Mr. Jackson was reciting his experience that the explanation was too simple, and that if this had been the cause it would have been discovered long ago. [It has been alleged to be one cause for the last twenty-five years.—The Editor.]

Speaking of hardpan reminds me of what I heard a shipper, who is also an orchard owner in Tulare county, tell of hardpan on his ranch. Up in that country the soil is mostly "dobe," and up there they call it "dry bog." This man stated that he had one-half an acre on particularly hard land that was looking particularly sick, and he determined to adopt drastic means that would either kill or cure. He told his foreman to hunt up a man who was familiar with the use of giant powder, and when he was found they proceeded to dig holes about two feet deep on all four sides of each tree, and in each hole they inserted a charge of powder and let her go. This shipper is authority for the statement that he cured every last one of his trees by this method. Sounds like blowing the head off to cure the toothache.

A man, who claimed to know, tells me that in one of the most successful lemon orchards in California they dig out around each tree and fill in the hole or depression with straw. I remembered that I had seen this method practiced up in Tulare county in orange orchards, though at the time I was at a loss to account for the saucer-like depression around each tree. The straw acts as a mulch and prevents the soil from packing and thus choking the tree to death.

I write this on my return from Rivera, where I went to render an expert opinion on a certain piece of soil that a friend thought of buying. My friend is not unknown to fame, and was George Wheeler, of the Los Angeles baseball team, who thinks that he would like to settle down on a ranch after his ball days are over. A local real estate man, also a friend of Wheeler's, took us to the ground in an automobile. Now this real estate man had nothing to do with the deal other than to act as a friend, but the farmer on a neighboring piece of ground thought he had, and acted in a very friendly way by encouraging our ball player to buy. The soil was very light, and though it looks as though it might be very productive for vegetables, was

hardly strong enough for orchard, but, according to our neighbor, it was the finest land in the world and easily worth $400 an acre. This, until he was told that the real estate man had nothing to gain, and then how he switched and condemned the ground. He said that it would not grow oranges and that the price was too high.

Very good of him all round. In my experience I have found that it was always the neighbor who either knocked the land in his vicinity or else condemned it with faint praise. This man wanted to please, and was willing to switch to do it. His own soil was very light, yet he had a fine looking stand of trees. I asked him how much fertilizer he used, and he said ten pounds of commercial to the tree per year; that he tried barn-yard manure, but that it did not do the work. I asked him if he had ever sown a cover crop, and thought from his answer that he had never heard of it. He irrigates every twenty days and cultivates in from two to three days after each irrigation.

I examined his navel trees, and, though he said that he had experienced a very heavy drop, I found that he had more fruit than other orchards I had been into. This led to the inquiry as to whether the quality of the soil had anything to do with the drop, but it was not answered satisfactorily, and I should like to have further information.

ORANGE TREES IN FROSTY PLACES.

Some enthusiastic Californians who have had experience in Texas have written us in condemnation of that State for citrus growing. We do not print such direct imputations, for we have no idea of getting into a discussion over matters of opinion about a sister State. We can, however, present what seem to be facts as related by a Texan, and if there is any horticultural suggestion in them for experience in the colder parts of California, our readers in such places may take it for their own experimentation. Mr. John A. Smith of South Bluff received a call from a writer for the Corpus Christi Caller, and was found to be "somewhat provoked at the loss of most of his orange and lemon trees by the freeze of last January." Notwithstanding his loss, Mr. Smith is not much discouraged, having gained some valuable experience which will, he believes, prevent a repetition of any great loss to his trees in the future. Mr. Smith had occasion to remove a number of his lemon trees, transplanting them Thanksgiving day. Every one of these lemon trees was found green and beautiful, the freeze not having affected them. Another lemon tree which was not affected had its top roots cut, having to be laid down on the ground to enable a building to be moved over it. This tree was not injured a particle, while all the other trees, not transplanted, were, with two or three exceptions, either killed or badly injured.

Mr. Smith is thoroughly convinced that the cutting and exposing of the roots of the trees is what saved them, making them dormant or putting them in a dormant condition. At least he is satisfied enough of that fact to experiment a little along the same lines next fall, not, however, by transplanting any of his trees, but by exposing the roots, opening up the little tender roots or fibers which mostly lie near the surface, which quickly checks the growth of the tree for a short time and puts it in a dormant condition. After Washington's birthday, or very early in the spring, he will water his trees, when young twigs will shoot forth and the trees will soon be growing rapidly again. Mr. Smith does not advise heaping up the earth around the trunks of the tree in the winter; thinks it does them harm; he does not believe grafting on the trifoliata stock will save the trees; if the cold catches them in bloom or full of new life, most of them would have to be cut nearly to the ground, whereas if the tree is in a dormant state the whole tree may be saved. Mr. Smith says, while he does not wish to be set up as authority yet for what he believes to be the proper thing for saving orange and lemon trees from a hard freeze, still he proposes from his past experience to have his trees in a dormant condition next winter—not full of blossoms and putting out young and tender shoots.

He will expose the top roots of his trees next winter. He has been convinced. While not all the lemon and orange trees in this section were killed or injured, most of those in the black land were, especially where they suffered for the want of water last summer and put out young twigs and blooms in the winter on account of the fall rains, instead of being in a dormant state.

I asked about lemons in this vicinity. I am interested very much in lemons and always have been. I think that the orchardist who goes into lemons will win out in the end, though it is very discouraging at times. So many people do not know how to handle lemons that the poor fruit they produce makes the whole lemon situation look bad when this fruit is sold. Certainly those who have followed scientific methods in handling lemons have won out, and their fruit always sells way in advance of the common run of the commercial pack. I was told that the local exchange would be willing to make arrangement to pack lemons provided 100 acres were planted, of which the product must be shipped through this local association.

Up to this time the Rivera lemon acreage is small, the most of the land devoted to citrus fruits being in navel and Valencia oranges. Rivera is also a great walnut country and produces some of the best walnuts raised in the southern section of the State. There are now great inducements for growers to plant lemons. The tariff duty of 1½ cents a pound on imported fruit is practically assured, and with this duty lemon culture is a safe proposition. Just now lemons are the king-pins in the citrus world, and shippers are so pestered with orders that they are very independent. The scarcity of California and Sicily lemons and the hot weather in the East is responsible for this.

I am not in the fruit business myself, but am extensively known as being connected with the business, and this week I have received five telegrams from Eastern jobbers asking me if I could find some lemons for them and to quote prices. I have done all I could for these folks, but the lowest price I could get for them was $5 a box cash California. Some shippers wanted up to $6 and $6.50 a box for their stock. Of course this is an abnormal condition, and could only be brought about by a combination of extremely hot weather East and a shortage of lemons all over the country. This shortage may be relieved by importations and by a let up on the part of the weather man, but there is nothing in sight that would cause any one in touch with the situation to predict a low lemon market for the balance of this season. Lemons are good property and will be good property in the years to come.

The Vineyard.

REMOVING ALKALI FROM A FRESNO VINEYARD.

Prof. F. T. Bioletti, of the University of California, was recently in Fresno, in pursuit of his investigation of vine growers' troubles and their remedies, and while there gave a local journal the results of his observations upon washing out alkali as undertaken upon the vineyard of Mr. John S. Dore of West Park:

"For several years," said Professor Bioletti last night, "the vines on Mr. Dore's place had been dying, and the crops on the vines had been getting smaller. The reduction in the size of the crops was probably due to the rise of the water-level to near the surface, and the dying of the vines due to alkali in the land.

"Mr. Dore installed a system of tile drains, about seven feet below the surface, with a central station at which is installed a centrifugal pump. During the winter the land has been flooded to a depth of about two feet, and left flooded for a fortnight or so, with the pump all the time running, drawing the water through from the surface and out by the drains, and thus carrying off the alkali by a sort of leaching process. This has succeeded so well that he has a growth of new vines now which are doing exceedingly well. This is the more marvelous because old vines can stand alkali better than new vines, and while the old vines have been in the past dying from alkali, these new vines now show a fine vitality.

Water-Level Aids Crops.—"During the summer also the pump has been kept going, with the idea of keeping the water-level down. This has been reduced to seven feet in this way. The effect of the reduction of the water-level has been to increase the crop of the vineyard, especially in those parts where the alkali did not previously exist, as the new growth of vines is in those parts of the vineyard where the alkali did exist. This shows that the increase in the production is due to the decrease in the water-level.

"There is no reason why this system should not be used on the east side of Fresno. It has increased Mr. Dore's crop very materially, and the expense of installing this system has been well repaid him. The land was deteriorizing so that it would in a few years have been good for nothing except for raising Burmuda grass, and would have been worth only a few dollars an acre in that condition. As it is now, it is worth $100 per acre raw, and worth $250 per acre with the vines on it.

"He has been working on this system about three or four years, and has spent about the first year in preliminary work. He says that the cost has been about six times what it would have been if he had had experience before he began to put it in.

For a Drainage District.—"The scheme would be entirely practicable for small pieces of land on the east side, but it would be even more practicable if the people would get together and form a drainage district. The effect of Mr. Dore's experiment has been to improve the lands adjoining his place to some extent also.

"The idea is not new here. It has been practiced in France successfully for a long time. It has been Prof. E. W. Hilgard's idea to introduce this system into the State here. The U. S. Department has worked out the idea, and has installed an experiment station near Mr. Dore's place which has led to satisfactory results.

"I think that the whole of the vineyard lands at least should be under this system, especially on the east side.

Here to Study Methods.—With Professor Bioletti at Fresno was Mr. G. B. McMillan, a student in the Berkeley College of Agriculture, who has a scholarship from the Cape Colony Government to study horticultural methods in foreign lands, and he is in California for three years in pursuance of this work. This is his second season, and he will put in his time watching the raisin industry right through the year, from the time work in the vineyards begins until the finished product has been put out of the packing house.

The culture of vines has reached a considerable importance in South Africa, the last census of Cape Colony, taken some years ago, showing 77,000,000 vines in all. This does not, however, represent the acreage that it would in this State, as the vines, especially in the older vineyards, are planted much closer together than in California. The newer vineyards are, on the other hand, being planted with the vines much farther apart, so that the average is now probably 2500 to the acre. Changes have been made in the vineyards, but new vines have probably about offset the tearing out of old vineyards, and the number of vines in toto remains about the same. The output, however, is hardly sufficient to meet the home demand there, and some importing is done.

"I admire the business spirit if the California fornia farmer," said Mr. McMillan last night. "You can't say anything too good about this State as I look at it. You might even say that it is almost as good as South Africa."

Methods Good and Bad.—Professor Bioletti, who has paid a visit to the vineyards of South Africa, says that the California farmer might learn much of benefit from the South African in the methods of handling the vines, in pruning, grafting and the like. On the other hand, he declares that the manufacturing methods, in handling the fruit after it is off the vines, in wine making and the like, are much behind those of the farmer in this State, and that in this line South Africa might take some lessons of the people in the western United States.

Though California is growing a few pineapples in an amateurish way we do not have the strictly tropical conditions which warrant the expectation of a pineapple industry. In the possession of such conditions our sister territory of Hawaii is supplementary to the temperate and semi-tropical adaptations of California.

The pineapple growing and canning industry in the Hawaiian islands is rapidly extending. Large shipments are made, especially to the United States proper. The amount of canned fruit (practically all pineapples) thus forwarded here in the calendar year 1908 amounted to $721,859.

AGRICULTURAL REVIEW.

A New Wheat for California.

A bulletin has just been issued by the agricultural department of the State University, in which Prof. G. W. Shaw, head of the department of agricultural technology, makes strong claims for a new variety of wheat which it is believed will be used to displace Club wheat in the Sacramento valley, being superior in meeting conditions there, in addition to being of a better milling variety.

The new wheat originally came from the steppes of Russia, where it is grown without irrigation, and is known as Chul. While the grains are hard, and in this respect resemble durum, yet it is not durum. It can be either fall or winter sown, will withstand drouth, and the test plots grown show a very large yield. While the new wheat is of the bearded type, it differs from the other bearded wheats which the farmers of the valley have tried, in that it is a strong, vigorous, upright grower and will positively not shatter in the strong north winds which prevail in the valley. In appearance the growing wheat plant much resembles Propo, but the berry is of a much different character, being darker and larger, as well as harder.

Not only has the University made successful experiments in growing the Chul wheat, but farmers around Arbuckle and Williams have grown about 3000 acres this year with good results. The University will have this wheat ready for distribution this fall.

The use of Chul in place of Club by farmers offers a supply of wheat for our milling trade which may, in a large measure at least, be substituted for the Turkey Red now bought at a premium from Kansas. That this wheat can be used has been demonstrated by a prominent milling concern in the Sacramento valley, where very satisfactory results have been obtained by using it in a blend in place of Turkey Red.

Crop Conditions.

The U. S. Department of Agriculture bureau of statistics on July 8 gave the preliminary corn estimates as follows: Area planted, 109,006,000 acres, an increase of 7,218,000 acres over last year. Condition July 1 was 89.3, as compared with 82.8 same date last year, and 84.8 for ten-year average. Illinois leads all States in acreage and condition of crop.

The winter wheat crop is placed at 82.4, compared with 80.6 in 1908, and 79.6 the average for the past ten years. Kansas is the leading winter wheat State, having 21.1% of the total acreage.

The average condition of spring wheat is given as 92.7, compared with a ten-year average of 87.0.

The amount of wheat remaining on farms is estimated at 2.3% of last year's crop, or about 15,062,000 bushels, as compared with 33,797,000 on July 1, 1908, and 43,608,000, the average amount on farms on July 1 for the past ten years.

The oat crop is placed at 88.3, compared with 85.7 in 1908 and ten-year average of 86.8.

Barley is 90.2, compared with ten-year average of 88.3. Rye is placed at 91.4.

Potatoes will be a heavy crop, as now estimated. The acreage is given as 3,452,000, being a gain of 195,000 over last year. The crop condition is 93.0, compared with 89.6 last year and ten-year average of 91.0.

The apple crop on July 1 was 54.6, compared with 61.4 last month, and 62.3 the ten-year average.

Mennonite Colony Buys 100 Pumping Plants.

A company known as the Mennonite Colony, with their principal place at Hillsboro, Kansas, has bought a large tract of land, 25 miles long and 13 miles wide, running north of Bakersfield to Famosa, and are establishing their townsite at Martendale.

Mr. Henry Marten is the manager of this company, and has a number of colonists located on the property at the present time. He will have another trainload of 200, which will arrive on the 20th of this month.

They have placed an order with the Samson Iron Works of Stockton for their entire pumping machinery to irrigate this tract. This will consist of 100 different-size pumping plants ranging from 25 to 75 horsepower. These plants will be in units of 50 25-horsepower plants, 25 50-horsepower plants, and 25 75-horsepower plants, and all will be gas engine driven centrifugal pumps.

This colony expects to have from 5000 to 10,000 people located on their property within the next year, and will be one of the largest colony schemes that has so far been developed on the Pacific Coast.

Horticultural Notes.

The fruit men of Vacaville had trouble in making shipments last week owing to a shortage of fruit cars.

Red spider, a damaging pest, is reported to be in large numbers in the hop fields near Sacramento.

The melon growers of the Lodi country formed a Farmers Union last week and pledged most of the 1300 acres planted to melons to the pool controlled by the California State Union.

About 3000 acres of celery is being set out in Orange county. The plants are said to be in fine condition, and if the season proves to be a good one the crop will be about 2000 carloads.

Up to July 8, Riverside had shipped 4447 cars of oranges and 438 cars of lemons this season, as against 4232 cars to July 1 last year. Redlands had shipped to the same date this year 4092 cars of citrus fruits.

According to the report of the secretary of the Horticultural Commission of Kansas, that State will produce a very light apple crop this year, the estimate placing the total yield at only 21% of a crop, as against 39% last year.

The opening price for Tuscan Cling peaches by the canners at Fresno is announced to be $17.50 per ton. No price has yet been made on later varieties. Grape shipments from that locality will commence about July 20.

A correspondent from Ventura county says that the apricot crop from Piru to Saticoy will average about 25% above last year. Buyers are offering 8 cents and furnish sacks. Most of the growers are holding for a higher price.

Apricots will be a heavier crop in Orange county this season than last. The crop last year in that county was 2,800,000 pounds of dried cots, and the price was between 5 and 6 cents, while this year the growers will receive about 8 cents per pound.

The cantaloupe shipments from the Imperial valley for this season are nearly completed. Over 800 cars have been sent out and not more than 200 cars remain. The quality of the melons has been good and the prices received have been quite satisfactory.

Nearly all the orchardists south of Gilroy have sold their crop of Imperial prunes to the Armsby Co. at a flat rate of 7½ cents up to 30s, and from 30s to 40s on a 3-cent basis. The same company has purchased French prunes in that locality on a 2⅜-cent basis.

Citrus growers of La Verne district, Los Angeles county, have taken steps to organize a new fruit association, to be composed of groves located entirely in the frostless belt. The members of the new association except to be able to pack and receive better prices for frostless foothill fruit.

In his report for work done during June, County Commissioner Pease of San Bernardino reports soft brown scale and Florida red spider as being unusually troublesome. He also states that orange dropping in his district is not as bad as first reported.

The cantaloupe crop of the Turlock section is to be largely sold through the Farmers Union. Watermelons are proving to be a good crop all through the San Joaquin valley, and large shipments are being made. The first cars sent out brought $30 per ton, but from $16 to $18 is now the prevailing price.

The annual meeting of the Sutter County Almond Growers' Association was held in Yuba City last Saturday, when the crop of almonds of its members was sold under bid to Guggenheim & Co. The association controlled about 100 tons, and while the price was not announced, yet it is stated that 3 cents more per pound was received than a year ago.

General Agriculture.

The tomato acreage around Healdsburg is reported to be less than half that of last year.

The grain crop in the Ducor country, Tulare county, is reported to be very large. Counting both wheat and barley, it will be about 80,000 bags, while last year the crop was only about 23,000 bags.

H. L. Vinnik and Ole Nelson are harvesting and baling 600 tons of tule hay on Grisley island, Solano county. The hay is to be delivered to a San Francisco

REX FOR MILDEW

The famous Rex Lime & Sulphur Solution has proven to be the best means of clearing vines from Mildew. It is much cheaper than dry sulphur, remains on the vines and plants longer, and not only kills the Mildew, but invigorates and stimulates the growth of the vine.

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crockery firm, which uses it for packing dishes.

A big crop of spring wheat is predicted for the Alberta and Saskatchewan Provines, Canada, this season, prospects being better than for 20 years.

The 600 acre crop of sweet peas of the Morse Seed Co., growing near Gilroy, will soon be ready for harvest. The crop will be much lighter than last year. Four new varieties are being grown for distribution the coming season.

Prospects for a good hop crop around Wheatland, Yuba county, are splendid. The price is now strong at 15 cents per pound, some growers holding for a higher price. Picking will commence in that district in a few days.

A large acreage of land around Redding has been signed up for experimental planting of beets. If the growing of sugar beets in that locality is proved seccessful, a large sugar factory is to be erected there.

News from Kansas City states that the largest crop of potatoes ever raised in the Kaw valley is now being harvested and shipped. An average yield of 125 bushels per acre is claimed, and the total crop is placed at 2000 cars.

The yield of barley in the Island district near Stockton will be the heaviest this year ever produced, and without a doubt a new record will be established. The fact that the grain is bringing the unusual price of $1.37½ to $1.42½ will result in the growers making the largest profits ever known in grain in California. Martin Lund, of Union island, has just finished harvesting 3400 acres, and the yield averaged a little over 40 sacks to the acre.

Stock and Dairy Notes.

J. R. Murphy of Fresno has been appointed a member of the State Dairy Bureau, in place of John A. Bliss of Oakland, whose term had expired. For years Mr. Murphy has been at the head of the Danish Co-Operative Creamery of Fresno, one of the largest co-operative creameries in the United States.

Santa Clara county fanciers will have a large exhibit of poultry at the Seattle show in September. The number to be sent North it is now estimated will reach 200. Entries close August 27.

Miscellaneous.

The Bruck Grape Juice Co. has been organized at Napa, capitalized at $10,000, with principal place of business to be at St. Helena.

A Farmers Union has been organized in the southeastern part of San Joaquin county, which will handle the melons and milk products of its members.

A new railroad, to be built and owned entirely by farmers, is soon to be constructed, to run from Duluth to Hudson's Bay, crossing Saskatchewan, Canada.

The alfalfa mill at Proberta, Tehama county, is proving very successful. A carload of alfalfa meal is being shipped each day, mostly to the southern part of the State.

The announcement is made that the Chico plant of the California Canneries company will not be operated this season. A large stock of left-over fruit is given as the reason.

It is announced that the Government Experiment Station near Tulare is to be discontinued and the apparatus moved to the Kearney lands, near Fresno, where a station will be maintained.

At the recent meeting of the Water Conservation Association, held in Riverside, a corporation was organized to carry on the work of spreading storm waters over gravel beds and by underground storage keep it for summer use.

Another big eucalyptus deal was started in the upper Sacramento valley last week, when 5100 acres of land was bought by a syndicate, headed by L. M. Culver, for $153,000. It is stated that the whole tract is to be planted to eucalyptus trees.

Preliminary surveys are being made for the construction of a dam to be built in the Mojave river near Victorville. Thousands of acres of rich land are to be irrigated from the water impounded in the district east of the San Bernardino mountains.

News from Washington confirms the granting of a patent on the Elliott raisin seeding process, which it was contended was an infringement on the seeder owned by the packers of Fresno. Now that the Elliott process has been patented, it is stated that the "big five" packers of Fresno are endeavoring to buy the rights, which are owned by the Selma Fruit Co. As the new patent would be out of reach of growers if the combine should get control, and as the Selma Fruit Co. is owned by raisin growers, it is thought they will not sell.

The Botanist.

MEDICATING TREES THROUGH THE SAP CIRCULATION.

This is a question which has always charmed the agricultural mind and has given opportunity to many to profitably peddle processes which were claimed to "hold to reason," and were therefore accepted without demonstration of facts. A New York journal recently published an article entitled "Making Trees Preserve Themselves," in which it is claimed that dilute solutions of zinc chloride or copper sulphate are introduced into holes bored into the trees thus treated during the late summer, the statement being that at this period "the evaporation from the foliage of a tree is at a maximum, the result being that a partial vacuum exists," which results in the solution being "automatically forced by atmospheric pressure into all parts of the tree." If this be true, it would seem to lend some color to the claims of those tree doctors who profess to ward off diseases from orchards by inserting certain remedies within holes bored into the trunks of the trees.

NOT YET DEMONSTRATED.—Commenting upon the foregoing in the Rural New Yorker, Mr. Haven Metcalf, a plant pathologist of the U. S. Department of Agriculture, says: "The entire proposition is practically a fake. This idea in one form or another has been cropping up for the past fifty years at least. It is about on a par with the idea of treating typhoid fever by giving injections of corrosive sublimate—unquestionably the typhoid organisms would be killed, but the patient would die first. In other words, there is every reason to believe that if a solution of chloride of zinc or sulphate of copper could be got into the wood strong enough to prevent decay, it would be so strong as to interfere with the life of the tree itself. It may be that ultimately some substance can be found which can be taken up by the heartwood, making it more resistant to decay than it is at present, but so far nothing of the kind has been found, nor have the details of making the tree take up any such substance been worked out."

WHAT HAS BEEN DONE.—Mr. Howard F. Weiss, of the wood-preserving branch of the Forestry Service gives fuller specifications in this way: "I believe there are some patents in the market for naturally preserving trees according to the method outlined in your letter. I do not know, however, of any case where such treatments have proved economically feasible and beneficial. It is true, however, that a solution of a salt such as chloride of zinc or chloride of copper will be drawn by a living tree to a considerable height above the ground. This is analogous to the transportation of the liquid matter in the sapwood of the tree. Perhaps the most exhaustive test along this line was conducted by Mr. Strasburger, who sawed through a large oak at the base, then plunged it into a tub filled with an acid fatal to protoplasm and mixed with a dye. He found traces of coloring matter as far as the very twigs of the tree. Of course, you realize that such an action of the tree is possible only in the living cells. Hence, you would expect no permeation of the liquil in the heartwood.

"A modification of this principle has been practiced to a considerable extent. For example, Boucherie clamps a plate upon a butt of green poles from which the bark has not been removed. He then connects this plate with a barrel filled with copper sulphate elevated to a height of 30 or more feet. Copper sulphate is thus forced longitudinally into the wood. This method has succeeded in prolonging the life of timber treated by it."

EXTERNAL APPLICATIONS BETTER.—Prof. L. R. Jones, botanist of the Vermont Experiment Station, writes:

"The injection of chemicals into the trunks of trees has been recommended frequently, and often put to a practical test. Theoretical considerations unite with practical experience in indicating that there is little if any hope of benefit from this treatment. The less chemical we inject into the normal tissues of plant, as well as animal, the better will be the health of all concerned, as a rule. The healthy juices of trees are sterile, and need no preservative admixed with them, any more than the healthy blood of the animal does. If, however, a spot in the trunk of a tree has, through bruise or improper pruning, begun to decay, then the decayed tissue should be promptly removed and a surface application of sulphate of copper or other disinfectant (I regard formalin as best) will be helpful if followed by an application of paint or cement, which will prevent reinfection."

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Forestry.

EUCALYPTS IN CALIFORNIA.

Written for the California Weekly by GEORGE W. PEAVY, United States Forest Service.

When once the prospective eucalyptus planter has definitely decided upon a location, having determined that the temperature, moisture, and soil elements are correct for the species he wishes to plant, the next step is to procure suitable seedling stock for planting. Considerable mystery has, for various reasons, shrouded the growing of eucalyptus plants, but it is safe to say that any person with sufficient resourcefulness to grow the ordinary tomato and cabbage plants for the garden can produce eucalyptus plants in sufficient numbers for small plantations. This does not mean, of course, that the skill of the nurseryman is to be discredited or that it may not often be expedient to go to the expert when an extra large amount of nursery stock is required for putting out large plantations.

Naturally, the little eucalyptus grows under the shade of the parent tree and, as a result of forest conditions, endures considerable shade. From this fact the conclusion has been drawn that shading in some form is necessary for the eucalyptus nursery, and seedlings have usually been propagated under lath houses or shade screens of some kind. At the present time, however, some of the most progressive nurserymen in the state have abandoned the shade idea and are growing the seedling in open beds.

THE SEED.—Usually the best method of obtaining eucalyptus seed is to purchase it from some reliable dealer, for the reason that seed of different species is very similiar in appearance, and it is very important to obtain it true to name. Otherwise, after several years, the planter may find himself with an undesirable or valueless species planted out, with the consequent loss of time, money, and the use of the land covered by the plantation. Where well-known species exist, seed can be collected by cutting the seed cases from the low hanging branches of open grown trees or from young seed bearing trees. The seed cases should be placed upon canvas and exposed to the heat of the sun until they begin to discharge the seed. Then they can be placed in tight sacks and vigorously shaken. By this method a large amount of seed can be quickly and cheaply gathered.

The usual price of the common species at the dealers ranges from $4 to $8 per One pound of fairly fertile seed should, with proper handling, produce 10,000 seedlings ready for planting in the field. Under favorable conditions, an inexperienced person can gather a pound of seed in two or three days.

THE NURSERY.—The eucalyptus nursery should be situated in some place where there is a good circulation of air and a good surface and subsoil drainage. The soil for the nursery beds should be composed of sand or sandy loam. A good mixture for nursery purposes is made up of three parts of brook sand and one part of rich loam. Some nurserymen still sow the seed in shallow boxes or flats, as they are called, for the purpose of checking the development of the tap root, but, since the little seedlings should be transplanted before they have made any considerable root development, this expedient is not necessary unless, as is sometimes done, it is proposed to weed out the surplus seedlings and leave the desired number in the flat until field planting time.

If the area which can be devoted to seed beds is comparatively great, as is usually the case when a moderate number of seedlings are to be produced, the seed should be sown thin enough to produce about 100 seedlings to the square foot of surface, but if extensive operations are proposed and intensive nursery practice is desired, the seed may be sown thickly enough to produce from 400 to 500 seedlings per square foot. The seed should be covered with sand to a depth of one-fourth inch.

THE SEASON FOR SOWING.—The common blue gum, E. globulus, makes a much more rapid growth from the seed than other species, consequently the seed should be sown later than the slower growing species, taking it for granted that all species are to be planted in the field at the same time. As a general rule, in those situations which are not liable to severe frosts, planting should be done as early as possible in the fall after the first soaking rains. If it is planned then to plant early in January, the blue gum seedlings will usually make sufficient growth if they are planted early in July. Other species should be sown a month or six weeks earlier in order to secure satisfactory plant stock.

There is no advantage in attempting to plant large stock. In fact, within certain limits, a large tree is much less liable to grow than a very small one, since the larger one has a comparatively well developed root system which suffers to a greater degree in transplanting than the smaller one. The best results have been obtained from planting seedlings from five to eight inches in height.

The seeds will germinate in from four to ten days, according to temperature. During the period of germination, great care should be taken to keep the seedbed surface moist but water in excessive amounts should not be applied. A piece of loosely woven burlap laid over the surface of the seedbeds will be found to be of great assistance in maintaining proper moisture conditions during this period. It should be removed as soon as the little plants begin to break the soil surface.

CARE OF THE SEEDLINGS.—During the early stages of the seedling growth, the plants should be watered very carefully for the reason that they are subject to a fungus attack called "damping off." This disease attacks the plants at the surface of the soil and the first intimation that it is present appears in the wilting and falling over of numbers of the seedlings. As soon as this condition is observed, all watering should be stopped and the surface of the seedbeds should be sprinkled with dry sand. Occasionally, during the hot dry winds, the surface soil is dried and the little plants begin to dry from drought, a condition which must not be confused with damping off.

For the purpose of checking the development of the root system and of getting the plants in suitable shape for putting out in the field, the seedlings should be transplanted to the flats when they are from one to two inches high. A convenient size for a flat is 18 by 24 inches and four inches deep. Good loam soil should be used. About 150 seedlings can be transplanted to a flat of this size. Practically the same care should be taken of the seedlings while they are in the flats as was given them while they were in seedbeds.

FIELD PLANTING: SPACING.—If the prospective eucalyptus plantation is to be placed upon tillable land, the soil should be prepared for planting with much the same care that is given to getting the soil ready for any agricultural crop. Heavy adobe soils should be plowed to a depth of eight or nine inches. In nearly all cases it will be found advisable to plow the land in spring and leave it follow until the next planting season.

There is considerable diversity of opinion concerning the proper distance at which to place the trees in the plantation. Some insist on close spacing while others believe that the best results are obtained by planting as wide as 20 by 12 feet or even more. The width of spacing however, is a matter which depends upon the quality of the soil, the degree of moisture, and the nature of the material which it is desired to produce. In poor soil or in dry situations, the spacing should be comparatively close in order to secure as soon as possible shade enough to protect the soil, and thus prevent rapid evaporation of the soil moisture. Where moisture can be applied by irrigation or where cultivation is possible or desirable, a wider spacing may be employed. With most of the rapid growing species, under favorable conditions, cultivation will not be possible much after the third season unless the trees have been planted more than 10 or 12 feet apart.

Those trees which tend to develop a crooked trunk should be planted close so that there will be no room for the development of lateral branches and the main stem will be forced to grow upright. This method of treatment should be employed wherever the common red gum is planted, since this tree has a very bad habit of developing a crooked or forked stem. The general tendency of the blue gum under anything like favorable conditions is to develop a straight trunk so that very close planting for the purpose of securing a straight pole is not necessary for this species.

It is commonly supposed that height growth can be stimulated by very close spacing. This idea doubtless arose from the fact that trees in close plantations have very straight trunks, are clear of lateral branches, and in appearance seem to have grown much more rapidly in height than they would have done had they been planted in the open. It will be found, however, that such eucalypts as the blue gum and the sugar gum will make practically the same height growth planted in windbreak form or quite alone as they will if placed in forest form. It is very certain that too close spacing will have the effect of injuring rather than stimulating height growth. In actual practice, the forester often plants trees closely for the purpose of producing the form desired and then stimulates diameter growth by thinning out a large part of the plantation, thus giving the individual trees more light and a greater measure of the available soil and moisture.

Owing to the very rapid growth of the trees and production of lateral branches, it is seldom advisable to fill in foul places on a plantation for the reason that the older trees are very apt to suppress the smaller ones by shading.

CARE OF THE PLANTATION: FIRE.—During the first two or three years of the life of a commercial plantation, it will be found as much a matter of financial consideration to give the trees good care as it is to bestow attention on a walnut or citrus orchard, and exactly the same reasons exist for cultivating the one as the other. Of course, if irrigation is possible to supplement cultivation for the purpose of producing proper moisture conditions, much better results can be procured.

The greatest enemy of the artificial as well as the natural forest in California is fire. Plantations of eucalyptus are especially liable to the ravages of fire for the reason that the leaves and twigs are exceptionally inflammable. Since the bark of mature trees is comparatively thin, a very moderate fire may kill them. As soon as the branches of young trees close in, thus rendering further cultivation impossible, the plantation should be protected by an outside fire lane 20 to 30 feet wide. This lane should be cultivated frequently enough during the dry season to keep it clear of any form of inflammable material. If the plantation is a large one it should be divided into blocks of 40 acres, each separated by fire lanes at least 20 feet in width. These lanes will serve, in the later history of the plantation, as roads on which to haul the product to the mill or market. The area devoted to the fire lanes is not a total loss, for the reason that the trees bordering it will develop a much larger diameter than those in the interior of the plantation.

The litter coming from the twigs and leaves of the trees should never be voluntarily removed by fire or otherwise. It forms a blanket over the soil surface, protecting it from dry winds. At the same time, it acts like a sponge in holding rain and irrigation waters and keeps the surface soil permeable both to roots and water.

It is a common supposition that eucalypts are not subject to fungus or insect attacks. This is true, perhaps, as far as the healthy trees are concerned, but, if injury results from fire or otherwise, borers quickly enter the wood under the dead bark at that point and decay quickly follows.

It is a common practice among ranchers to allow stock to graze at will in eucalyptus groves. Shade for stock is, of course, desirable, and if this is one of the purposes of the plantation, the practice cannot be criticized, but if the highest possible yield is desired from any grove, stock should be rigidly excluded. In addition to browsing the young trees, they pack the surface soil, thus encouraging evaporation and at the same time materially injuring the surface roats.

The Fresno Scraper

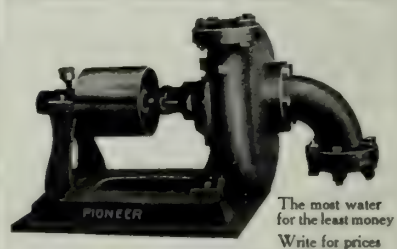


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Live Stock and Dairy.

JOHN BULL SHOULD TAKE MORE AMERICAN BEEF.

Figures issued by the Department of Agriculture, and commented upon by the Drovers' Journal, respecting American beef exports show whither we are drifting in the trade with our heretofore good customers in the foreign countries, and particularly the United Kingdom. Latest statistics regarding imports into the United Kingdom during the past year as compared with 1907 show a big decrease in our trade. In 1908 there were imported into the United Kingdom live stock for food to the value of $31,872,168, a decrease of $7,570,800, compared with the previous twelve months, while a total of $50,165,828 of fresh beef was imported, a decrease of $432,145, and this total decrease in the import trade in fresh beef indicates that a considerably increased volume of cheaper beef was received, as against the year previous, and it came from other countries than the United States.

American exports of dressed beef into the United Kingdom during 1908 in value were approximately $15,906,641, a decrease of $9,256,000 from the year before, while in our exports of live meat animals a total volume of business of $21,704,590 was noted, indicating a decrease of $7,610,232 from the year before. Thus has the United Kingdom in the year just past favored the other countries as against the United States in buying the beef and other meats for food. A great portion of the decrease in American live cattle and dressed beef exports was due to the increased trade with the Argentine Republic enjoyed with England and also the favor with which the Canadian beef found sale.

The Crop Reporter of the Agricultural Department gives interesting statistics relative to the export beef and cattle trade for 1908, as against 1907. Our total exports of fresh beef are shown to have been 156,133,985 lbs. for 1908, against 269,411,737 lbs., while the canned beef exports were 17,455,000 lbs., against 22,145,993 lbs. in 1907. Our exports of domestic beef and products for 1908 were 579,303,000 lbs., against 689,752,000 lbs. in 1906, in which year American exports were the largest on record.

Falling export trade means much to American cattle growers, and every little factor tending to strengthen our business with European countries must be thoroughly appreciated. Recently England contracted for a few million pounds of canned meats for army rations, and that helped some, but the American producers and slaughterers must continue boosting their foreign outlet as a stimulus to home prices. It is upon the strength of the foreign demand for our surplus that largely depends the prosperity of the market at home.

ATTITUDE OF HOLSTEIN BREEDERS TOWARD AGRICULTURAL ADVANCEMENT.

In his annual address as president of the Holstein-Friesian Association, Mr. O. U. Kellogg made the following broad claim:

Notwithstanding all that has been accomplished by this association, its great work is not finished. There is much yet to be accomplished. We should take part in and encourage the great effort that is being made to conserve our natural resources and to build up and advance the agricultural and dairy interests of the country.

The great blight that today is paralyzing the argricultural interests of this country is ignorance and wasteful farming. It is destroying the fertility and natural resources of the country. What we need is intelligent, energetic, educated farmers and managers. There never was a time when the demand for competent farmers and managers was as great as it is today, nor a time when qualified men could command as high a salary as they can today. We ought to assist, educate and instruct the farmers in the improved and modern methods of farming and of rearing, feeding and improving his cattle. We ought to encourage and persuade him to give his sons a thorough agricultural education. Then they will want to stay upon and manage the farm, instead of abandoning it to obtain some ill-paid position in the village or city. Then they will learn the chemistry of their soils, and will know what to put upon their lands to obtain the best results from the various crops they desire to produce. Then they will increase the production of their farms, and will become rich and prosperous, and as they do, they will endeavor to improve their stock and get the most productive cows for their dairies, and this will create an increased demand for our cattle, and while we are thus benefiting ourselves, we are also elevating and improving the condition of mankind.

WHAT WILL BE GOOD FOR RANGE INTERESTS.

At the time of holding the National Live Stock Association meeting in Los Angeles we gave a comprehensive review of the proceedings, reserving some special features for later publication. One such matter is the report of Mr. Dwight B. Head of Arizona, as chairman of a special committee to study the relations of the national conservation propositions to the advancement of the range interests. We take the following from Mr. Head's report:

"We believe that a large majority of stockmen and settlers throughout the arid West, especially those who are endeavoring to create permanent homes and to improve their lands and herds, are strongly in favor of some form of federal range control, expressed through a reasonable leasing law.

"Equally important with the protection of the grazing lands is the protection and preservation of the great national forests, with which the West is so favored, and which, when properly protected, serve as natural regulators for the streams feeding the irrigation systems in the lower valleys. These national forests, under the efficient and capable management of the forestry service, are today one of our greatest national assets, and we look forward to the day when the public grazing lands may be placed under similar administration.

"In this matter of the conservation of these great natural resources of the West, water, grass and forests, we believe this association should take a far-sighted and patriotic view, looking not only to the selfish advantage to be gained through the immediate use of these resources, but, from a broader viewpoint, looking forward to the perpetuation of these vast natural resources for the beneficial use of this and future generations of home-builders.

"Through a policy of prompt and definite action in conserving these resources, the agricultural and stock-raising industries of the arid West may be put upon a permanent and profitable basis capable of supporting a population greatly in excess of that now located within this section, while, through a vacillating or 'let us alone' policy, the early termination of the live stock industry as a prosperous business is almost certain, and the development of the agricultural valleys served by irrigation will be greatly retarded.

"We do not think it necessary to present to a convention of practical stockmen the many instances of misues now existing on the public grazing lands, as the details of this vital question have been repeatedly discussed, but we believe that this association can best serve the welfare of the live stock and agricultural interests of the arid West by using its united strength in an earnest effort towards the passage of the Curtis-Scott bill, now before Congress, relating to the control of these public grazing lands.

"This bill provides for the establishment of grazing districts from time to time throughout the West under the jurisdiction of the Department of Agriculture; for the issuance of permits to graze live stock thereon for periods of not more than ten years; gives the definite right to fence either in individual or community pastures, and in the granting of leases, provides for a preference at all times in favor of actual homesteaders, recognizes the priority of the present occupants of the range, and provides for a maximum grazing fee of 4 cents an acre and a minimum of 1 cent an acre, or at the option of the local stockmen in the particular district a charge per head of stock, this fee to be fixed according to the value of the land for grazing purposes.

"While the proposed leasing measure is perhaps not perfect, it is, we believe, reasonable, just and equitable, and certainly a step in the right direction, and, in our judgment, an earnest and organized effort should be made to educate public opinion as to its merits.

"A most important feature, in our judgment, in any movement to conserve the natural resources of the West should be the complete and earnest co-operation of the various State governments with the federal governments, as it is only with such co-operation that thoroughly successful results can be obtained and the best development of the Western country secured."

HARD MILKERS AND STOPPAGE OF MILK.

By Dr. David Roberts, Wisconsin State Veterinarian.

This trouble is due to an abnormal contraction of the sphincter muscles at the teat, and oftentimes reduces the value of what might otherwise have been a valuable cow, as no one wishes to purchase or own what is termed as a hard milker, but if stock owners knew how easily this trouble could be overcome they would never think of disposing of a hard milker at a sacrifice, as is now being done by many.

The mere fact that a cow is a hard milker does not indicate that she is not a good milker, but owing to the fact that she is a hard milker she is oftentimes neglected at milking time by a disgusted

H. H. H. LINIMENT

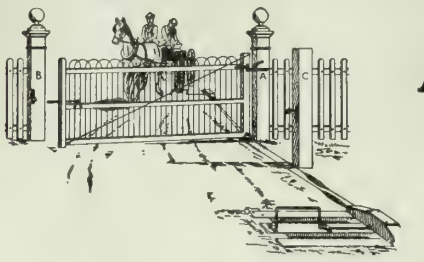
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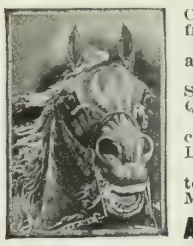
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milker who leaves a large quantity of the milk in her udder that should have been drawn out.

Stockmen who know how to handle such cases oftentimes buy valuable cows owing to the fact that they are hard milkers, and by the use of a teat plug and a few treatments for hard milking, cause them to become splendid, easy milkers, thereby increasing their value many more times than the cost of the treatment. A milking tube should never be used in such cases, as there is too much danger of infection and the results are not as good as from the use of the teat plug.

STOPPAGE OF MILK.—Stoppage of the milk in a cow or heifer is usually brought on by abnormal conditions or infection. If a cow or heifer has a sore at the point of the teat so that it is difficult to get the milk from the teat, it is advisable to wash the teat with an antiseptic solution, then by dipping a teat plug into the antiseptic solution, then into a little healing ointment and passing it into the point of the teat, permitting same to he retained from one milking to another. This should be continued until the teat is entirely healed up and in a normal condition. (Never use a milking tube if it can be avoided.)

If the milk is retained in the quarter and does not come down into the teat, this will indicate that there is a closure in the milk duct at the base of the teat. This trouble can be overcome by washing the teat with the antiseptic solution, then dipping a teat splitter or bistuary in the same kind of solution and passing it up into the teat through the contracted sphincter, permitting the milk to pass down into the teat. The blade of the bistoury is then drawn into the bistoury and the bistoury removed, in this way without cutting the point of the teat.

This operation should be performed within a few days after freshening. By this method a valuable cow's quarter can be saved which otherwise might be lost, but precaution must be used in washing the teat and the bistoury in an antiseptic solution to prevent infection.

MILKING SHORT-HORNS.

As Short-Horns enter so largely into the foundation of California dairy cattle, the discussion of dairy quality in the breed is always interesting. According to the London Farm and Home, at a meeting in connection with the Irish Short-Horn Association at Dublin recently, Mr. F. S. Wrench, the vice-president, dealt with the utility properties of the Short-Horn breed. He contended that, in view of the importance of the milk product, milking qualities were deserving of still greater consideration, and suggested that there should be on the part of the breed's supporters a higher appreciation of milking functions and more systematic effort to raise them to a higher level. Assuming that more liberal milking is desirable, even if it should be attained at a sacrifice of grazing qualities, it would be important if breeders could be placed in possession of information which would enable them in a reasonable time to evolve the type of animal desired. It is an ancient truth that breeders can by selection modify the utility properties of their stock, but it is a slow process, and in the ordinary course of procedure they have some time to wait for the result. Mr. Wrench made an important suggestion bearing on this point. He was aware that the theory was widely held that in order to produce cattle that will milk well the bull used must himself be descended from a good milking strain. He did not reject this belief as unsound, but pointed out that there were no trustworthy data to prove that a male animal can hand on such essential feminine characteristics as milking properties. The bull may transmit increased vigor, which will find increased expression in increased powers of reproduction and all that goes with it, but it had yet to be established that a bull descended from a good milking strain could, if crossed with cows of bad milking families, materially improve the milking properties of the offspring. It may happen that the powers of milk production and beef production may be latent in the same animal, and that in the one case early breeding and attention to the udder will develop the first quality, while in the latter early feeding for show purposes will encourage beef to the detriment of milk. In support of the doubt he holds regarding the theory that it is to the bull that breeders have to look for the improvement of milking properties, he mentioned that he had in his own herd eight cows of the Orphan family, each by a different bull, and all of them good milkers. His own experience, therefore, led him to think that milking capabilities were inherited from, or transmitted by, the female line, and that the influences of the bull were generally over-estimated. He suggested that the point raised might form a fit subject for investigation, and that the Department of Agriculture should take the initiative in such an inquiry.

[We think Mr. Wrench is wrong in his doubt about the value of sires with milking ancestry. If he will look closely into records of the distinctive dairy breeds he will find that milking qualities are clearly transmitted through the male offspring of deep dairy dams. His contention may, however, lead to more thought about the selection of Short-Horn cows with dairy points rather than beef points, and this in itself is very important.—EDITOR.]

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ALFALFA HAYING.

The alfalfa season is now ready for business, says the Colorado Field and Farm, and it will be hammer and tongs with most of the growers for the ensuing three months. We would just like to mention, in a preliminary sort of way, that every 160-acre farm in this country has a bull rake, if not two or three of them. The bull rake, or go-devil, as we call them, is pushed by two horses, and one man or a strong boy can operate it easily and bring to the stack a ton of hay at one loading. Properly made, the rake will load itself almost, and by lifting the lever but a few inches and telling the team to go ahead the load can be dumped on the sweep at the stack. After cutting the hay and dump rake should be used to make long windrows, so as to necessitate as little turning of the bull rake as possible. Make the windrows straight and big, as this saves time and expedites the work. When ready to begin stacking the hay, select the site for the stack, taking care that it has good drainage, and where the windrows of hay are numerous enough to make one good-sized stack. From one to three men should be on the top of the stack, with one man at the guy and a boy for the sweep horse. Four or five windrows will form the base of the stack, dumped right from the rake on the spot where the stack is to stand. After this the bull rake will dump its loads on the sweep, preferably on the side where the ground is highest, and on the windward side. To operate the bull rake the team is driven to the extreme end of a wind row and made to straddle it, the heads toward the stack. The horses will learn in an hour or so to go without being urged when astraddle of tne windrow. The bull rake will work flat on the ground, and the driver has only to see that the teeth do not catch in the ground and dump the rake. As a rule, when a windrow has been picked up and the start made for the side of the stack, no attention will be necessary unless the teeth run into a ditch or some unevenness in the ground. Should this happen, it may snap off some of the teeth before the driver is aware of it, and on this account it is advisable to always have extra teeth on hand. In our meadows, however, the ground is made pretty even, to facilitate irrigation. When arrived at the stack the driver need only direct the team squarely up to the stack and dump the hay thereon, back out and go for another load. Instead of working from the windrow, unless the hay is very heavy, such as an extra good cutting of alfalfa, it is better to throw the hay into cocks, for then the go-devil can pick up one of them as a load and walk off with it. The cocking is done with a dump rake, and alfalfa generally dries better in cocks than in windrow. The theory of making alfalfa is to have it air-dried rather than sun-burned, for it comes out as better hay and is not so likely to be bleached. Alfalfa hay well cured in the cock will keep perfectly in the stack, while that cured in the swath and windrow is often stacked in such condition that it will burn or spoil in the stack, and moreover the leaves are not shattered so much by a long ways to come.

THE HORSE IN HOT WEATHER.

Horses have as little trouble as men from the heat in California, and yet it is only humane to make it as comfortable for the horse as the man does for himself. Mr. W. H. Underwood gives the Farm and Fireside some suggestions as to ways in which this can be done:

As a general thing it will be noticed that the horse which most quickly becomes a victim of heat exhaustion is one that has not been given the proper care and attention. He is one that is in a bloodless, debilitated condition as a result of poor nutrition and the surroundings incident to a badly ventilated and filthy stable, or else he is one that through overfeeding and a lack of proper regular work is in a state of obesity, with flabby muscles, impaired circulation and excretory organs which are not sufficiently active. If a horse is to withstand the effects of hot weather he must be kept in a stable always clean and well ventilated.

The water he drinks must be pure and cool, and he should be allowed to drink at frequent intervals. His feed should be nutritious and of a cooling nature, and his skin should be kept healthy and the pores open by being groomed. Giving him a nice bran mash twice a week will assist in keeping the system cool.

In extremely hot weather I allow my work teams two hours instead of one for dinner, and do not feed them until they have somewhat cooled off. I also take the harness off while dinner is being served; it pays to do this.

When the horses are working hard in hot weather I feed very lightly of hay at noon, and do not feed green grass that has been cut and allowed to sweat in the heaps.

Each horse has its respective collar, which is properly fitted. Collars that fit too tightly are an aggravating cause of heat exhaustion. A sunshade for the poll or crown of the head will add to the horse's comfort immensely, if it is arranged so that the air will circulate beneath it. A sponge fastened on the poll is positively injurious, unless it is kept wet and cool, which is practically impossible. It is the continuous work while exposed to the direct rays of the hot sun that leads to heat exhaustion and sun-

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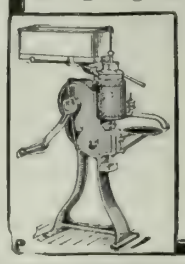
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stroke, therefore short rests should be allowed at frequent intervals in a shady place if possible, and a few swallows of cool water should be given as often as possible.

The above suggestions if followed closely, will lessen the danger of heat exhaustion, but in extremely hot weather, when the work on the farm is pressing, a case may occur, and the driver should know what to do under such circumstances.

When a horse begins to lag, droops his head, pants hard, or ceases to perspire, he should be stopped at once, for if he is kept going he will surely go down.

As soon as the horse shows himself to be suffering from heat exhaustion, unhitch him and remove the harness. Spray him along the back with ice-cold water and apply it freely to the poll with a hose or a sponge. Let him stand out of doors in a shady place, and with such treatment a recovery will usually come quickly.

I believe too many of us give little heed to the increased tax on the powers of our horses brought on by hot weather, and it frequently happens that we pay the penalty in the loss of a good horse.

THE VETERINARIAN.

Answers by Dr. E. J. Creely of the California Veterinary College, 1818 Market street, San Francisco.

To the Editor: I have a horse that is growing thinner daily. I had a veterinary dentist fix his teeth about one month ago. I have noticed lately that he is passing long white worms.—Subscriber, Arcata.

This horse has a loose molar or one that projects into a cavity below. An examination of the faeces will reveal portions of hay untouched by the teeth.

Give the following prescription for the worms: Santonin, 2 drachms; powdered male fern, 2 oz.; powdered areca nut, 8 oz.; powdered and dried iron sulphate, 8 oz. Mix well and give one teaspoon daily in the morning feed.

UNTHRIFTY CALVES.

To the Editor: Will you kindly instruct me as the the proportion of oil meal to be used in separated milk for calves. I have been using it, but the calves do not seem to be doing as well as they should and have suffered greatly from scours.—Reader, Napa.

Care should, of course, be taken not to feed too much oil meal—four ounces per day in the several feeds which a young calf should have ought not to be too much. Very good suggestions on feeding calves are given in the Pacific Rural Press of March 13. There is more danger that you are feeding the milk too cold or too hot or that perhaps you are not careful enough to have all vessels scrupulously clean than that the oil meal is at fault. Coldness, acidity or lack of cleanliness in the milk are most frequent causes of scours.

UNIVERSITY FARM DAIRY INSTRUCTION.

(*Continued From Page 33.*)

verysity Farm very accessible to all parts of the State. Buildings and improvements have already been provided and several new buildings are now under construction for purposes of instruction in agriculture. The dairy building is a two-story structure, 60x80, with rooms on the first floor for separating, churning, cheese making, market milk and cold storage of butter and cheese. There is also a power room containing an engine, motors, compressor and a 40 horse power boiler which furnishes steam for heating and power to operate creamery machinery and the eight-ton refrigerating machine. On the second floor are two class rooms, a laboratory for testing milk and dairy products, and several offices.

The University Farm Creamery has been in operation since September 1, 1908. It is a very important help in creamery instruction. Cream and milk are received from local patrons exactly as should be done in a private or co-operative creamery and payment made for same according to market quotations. The maintenance of a well organized creamery run upon commercial lines is a necessary adjunct to effective instruction in butter making or creamery management. With an assured local supply of milk and cream, the University Farm Creamery will provide occasion for studying many of the vexed creamery questions of California, and in turn impart what may be thus learned to those taking certain courses of instruction at the University Farm.

Patrons of Husbandry

WASHINGTON, GREAT GRANGE STATE.

In his address to the twenty-first annual session of the Washington State Grange, recently held at Ellensburg, Master C. B. Kegley reported 75 new subordinate and two Pomona Granges, an increase in membership of 3000 for the past year. He states:

We have paid to the National Grange for the same time over $1000 for dues, charter fees, sixth degree fees and supplies. Washington again leads all States both in the actual number of Granges organized and in the percentage of increase in membership. Shall Washington continue to lead? It is for you delegates, deputy masters and all patrons who have assembled here to say. Let me urge you to carry the inspiration of this session to your home Granges and Pomonas, and to use all your influence to make the coming year the banner year in Grange growth.

Good Roads.—Good roads are essential to farm property, and as we have now considered the matter of highway improvement quite fully in our State organ and in the local Granges during the past two years, this session should formulate a definite policy for the Grange to adopt. The first step necessary to insure the farmers securing a square deal in the building of good roads is to give the counties the same power over their roads that the cities have over their streets. Control over the public roads with a county belong to that county, and each county must have the right to build its own roads, the same as the town or city has to build streets.

We want the best roads. Not the best for automobilists or land speculators, but for the farmers and for commerce, and we want to be sure that the taxes to build and maintain good roads shall be paid fairly by those who should justly pay them.

As the most certain way to insure these things, I urge that there be formed a "Washington Good Roads Association" to be composed only of delegates from "Road District Good Roads Associations." This association in the election of officers and in all important matters should be under the complete control of the membership through initiative and referendum. All resolutions should be referred back to the local associations to be voted upon before they become official, and the election of officers in the State association should be by direct vote of the members of the district associations. This would insure placing the power over good roads in the hands of the farmers. It would quickly put an end to the infernal speculation in the interests of the land speculators who hold millions of acres of cut-over timber land, which they want increased in value by the building of good roads at the expense of the farmers and of the State. I would also eliminate the automobile State road boosters as factors of any importance in influencing legislation. I therefore recommend the Grange at this session to take such action as will in your judgment most quickly and effectively lead to the organization of such a State Good Roads Association.

Farmers Banks.—The maximum of farm prosperity is unattainable until rural banking has been established on lines that will keep the money at home to provide an abundance of cheap capital to aid in rural development, and farmers can hasten that happy time by organizing their own banks and retaining control of them. The Patrons of Pennsylvania during the last two years have been very successful in a movement to establish Grange banks, and there are now some twenty National Grange banks in that State. I believe a similar movement is most desirable in this State and one worthy of your consideration.

Postal Improvements.—Modern parcels post and postal savings bank acts were not passed for want of organized effort to push these measures through, but they are to be taken up by the farmers and pressed for final action in the near future.

STANDARD FARM WAGONS

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It will pay you to call on the International agent in your town and arrange to buy one of these wagons. He will show you the wagon he handles, and supply you with illustrated wagon booklet and lithographed hanger. Or, if you prefer, write nearest branch house for full information.

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The Poultry Yard.

THE SEASON FOR PROFITABLE HATCHING.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

An Eastern correspondent writes: "From a study of the Pacific coast climate it would seem that hatching might be done in any month of the year."

So far as climate is concerned this is true. For chick growing the best months are September and October. In these months the trade winds have lulled and the weather is calm and warm, while the rains have not begun. But there are two important factors other than climate that go to the making of profitable hatches. These are strong chicks and chicks that will come to maturity at the most profitable season. The time for profitable hatching is when fertility runs highest in the eggs with the corresponding greater stamina in the chicks, and the season which will hatch the chick that will produce the pullet that will lay the nickle egg. This time and season correspond and cover the period between the middle of February and the middle of April. Laying breeds of fowl, that come to maturity in from five to six months, may be hatched in the last half of this period, and those of slower maturity in the first half.

Pullets belonging to the first class that are hatched the last part of March will begin to lay in September and be in full laying by October when eggs are close to maximum quotations. With proper care such pullets, in the next four months, or from the first of October to the first of February, will average $2 profit each above cost of feed. Or to put it differently, each of such pullets will have cleared $2 by the time that pullets of the same class but hatched in May, June and July have began to lay; and this profit lost can never be made good on these later pullets, for in the golden egg harvest of the next autumn they will be molting like old hens. Commercially, then, the poultry raiser loses in the neighborhood of two dollars on each of the pullets hatched in the wrong season.

Again, during the period mentioned, eggs run more fertile, chicks hatch better, grow larger, mature quicker. Why? The weather is not in it; in fact, the weather of the spring and summer on the coast is not very salubrious for the chick. It is nature's hatching season and the generative forces are strongest; the hen is not down with a long stretch of laying, as is the case later. She comes fresh to her work, and this function is at flood-tide, not at the ebb-tide. This is the profitable season for hatching—and the secret of the winter egg!

For fall hatches the climate is particularly suited. August is a cool month for incubation, while September and October, as before stated, are the best months for chick growing. By giving the breeding pens a rest in May and June, and eliminating the debilitated breeders, as outlined in a former article, strong and fertile hatching eggs may be produced at this season. Chicks hatched the last of August and the first of September will come to laying as soon or sooner than those hatched the last of May anad in June and July. When late hatches are desired this will be found the most profitable season for them.

Questions and Answers.

TICKS ON FOWLS.—L. H. P., of Ceres, Cal., writes: "In the PACIFIC RURAL PRESS of June 19 you gave considerable information regarding vermin in the chicken houses and how to treat them. I have a pest in my chicken house, on the chickens and in the nests, that you did not mention. They are ticks—big, flat, bluish-black fellows. I found some that were at least a half inch across in the house, although only the smaller ones on the hens. If you can give your readers any information through the RURAL PRESS that will make a finish to them, I for one will be more than obliged."

The coast is exempt from ticks, but in the warmer sections where there is timber, or chaparral particularly, they are a dreadful pest. Coal oil is the best application for ticks. The treatment with coal oil outlined for the houses, nests, etc., to exterminate and keep free of mites is equally effective for the tick. If your fowls are yarded, scatter a mixture of carbolic acid and lime over the ground, and spray any bushes therein with a pint of coal oil in each bucket of water necessary. If your fowls range, the only thing that could be done to keep off ticks would be to spray them in the house, before letting them out, with coal oil through a spray atomizer that reduces the oil to a mist, which scents the feathers and keeps away the insects. A sponge wet in coal oil may be used to wipe the infected fowls; this makes the ticks drop off and keep off.

PROLAPSUS OF THE OVIDUCT IN HENS.—"A Reader," of Haywards, writes: "Some of my hens are troubled with a falling or protruding of the egg bag. What is the cause and cure?"

The above disease is a weakness and inflammation of the oviduct, and may come from a number of causes—continuous laying, being harrassed by male birds, constitutional weakness, etc. Hens that have been heavy layers through the fall and winter and spring are very liable to this disease at this season. To treat, first trim away the feathers with a pair of scissors, then bathe the parts with warm water and a soft clean cloth till thoroughly cleansed; then wipe by pressing with a soft cloth. Hold the hen up by the feet and pour into the organ a spoonful of sweet oil, then gently press it back into place. Put the hen in a clean, comfortable coop, without perch, where she may be quiet; feed only wheat and greens, and let her remain till sound. I have just had a case with a hen where the egg membrane had adhered to the oviduct as tightly as a skin; this had gathered dirt, which had dried in a hard mass. The patient was set in a small basin of warm water and her feathers protected from wetting, until the mass was softened; then with oil it was gently worked off. The hen is coming on well in hospital.

Poultry Notes.

SAVING THE MILLIONS.—To save the millions of dollars which are carried down our sewers in the shape of bad eggs we must have, first a campaign of education among egg producers that will show every farmer's wife that when eggs are allowed to remain in damp nests, under broody hens, or in hot kitchens, there is a loss of quality which means an actual loss of money to herself and to her neighbors; and, secondly, a system of buying eggs that will as nearly as possible recompense every producer who sells eggs exactly in accordance with what those eggs are worth.

Requisites for the production of good eggs:

1. Hens that produce not only a goodly number of eggs of moderately large size (weighing two ounces each on an average). Plymouth Rocks, Wyandottes, R. I. Reds, Orpingtons and Leghorns and Minorcas that are used on egg farms are varieties that may be expected to do this.

2. Good housing, regular feeding and watering, and clean, dry nests.

3. Daily gathering of eggs, and, when the temperature is above 80 degrees, gathering twice a day.

4. Confining of all broody hens as soon as discovered.

5. Rejection as doubtful of all eggs found in a nest not visited the previous day. Such eggs should be used at home, where each may be broken separately.

6. The placing of all summer eggs as soon as gathered in the coolest place available.

7. The prevention at all times of moisture in any form coming in contact with the egg shells.

8. The disposal of young cockerels before they begin to annoy the hens. Also the selling or confining of old male birds from the time hatching is over.

9. The using of cracked and dirty, as well as small eggs at home. Such eggs, if consumed when fresh, are perfectly wholesome, but when marketed are discriminated against, and likely to become an entire loss.

10. The marketing of eggs at least once a week, and oftener when convenient.

11. Keeping eggs as cool and dry as possible while on the way to town and while in country stores.

12. Keeping eggs away from musty cellars or bad odors.

13. The use of strong, clean cases and good fillers.

14. The shipping of eggs to the final market at least once a week and as much oftener as possible.

ROSTAND'S FARMYARD PLAY.—And now the Hen, or rather, the Cock, is to take the leading part on the Stage. Coquelin the elder was to have taken the role of the Cock in the play which was to have given him and Edmond Rostrand even greater fame than "Cyrano de Bergerac," says the New York Sun. Dressed as a cock, Coquelin would deliver the lines with all the vocal expression of which he was the master, to the great delight of his intimates. The matter of dress delayed the part for a long time, but was finally overcome by Clarkson, the great costumer and wig-maker of London; then Coquelin died. Since then the question has been who should play the part of the Cock. Now it has been decided that M. Guitry shall play the role, and Mme. Simon that of his love, the guinea fowl.

The story has to do with the conceit of the Cock. He being already a person of great consequence, wishes to increase his reputation among the birds, and to that end makes the announcement that the sun can not rise without him. His bluff succeeds. Every morning dawn is heralded by his clarion call. In up-to-date style, he falls in love with a gay female, the guinea, and deserting his lawful wife, flees with Miss Guinea to a near-by forest. She proves his Delilah by causing him to oversleep, and he fails to salute the morn. The sun rises as usual. The play is full of amusing incidents, as the tea party of the night birds, etc.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

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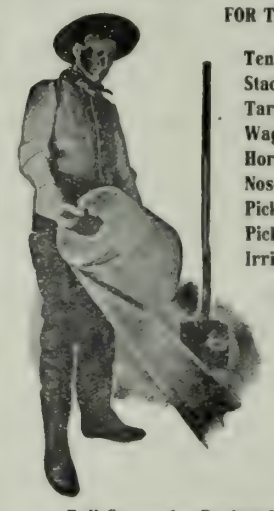
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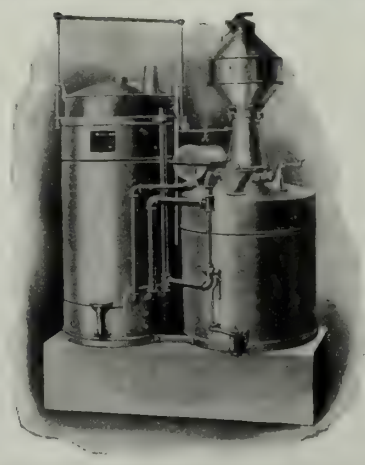
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The Home Circle.

In the Country Places.

In the highlands, in the country places,
Where the old plain men have rosy faces,
And the fair young maidens
Quiet eyes;
Where essential silence cheers and blesses
And forever, in the hill recesses,
Her more lovely music
Broods and dies.

Oh, to mount again where erst I haunted,
Where the old red hills are bird-enchanted
And the low green meadows
Bright with sward;
And when even dies, the million-tinted,
And the night has come, and planets glinted,
Lamp-bestarred!

Oh, to dream; oh, to awake and wander
There, and with delight to take and render
Through the trance of silence,
Quiet breath.
Lo! for there among the flowers and grasses
Only the mightier movement sounds and passes,
Only winds and rivers,
Life and death!

—*Robert Louis Stevenson.*

The Household.

CHILI PEPPERS.—These grow gild in hot climates, and by the Mexican are considered an essential article of food. In the far Southwest one may see the Mexican children, with grain sacks thrown over their shoulders, industriously searching in sheltered canyons and rocky woodlands for the winter supply of chili berries. The pepper bush is exceedingly pretty in itself. It grows from a foot to three feet in height, with dainty foliage of light green interspersed with tiny white blossoms and green peppers in all stages of development to the perfect berry, red and hot as a glowing coal. One of these no larger than the tip of the little finger will give snap to a large kettle of soup, but the Mexican will mash several of them in his bowl of soup and swallow it without blinking. The chili is said to be the finest of liver tonics, and in moderation it is gaining on the American palate. The berries are picked ripe and used dry by the ordinary Mexican; but the green peppers and fresh ripe ones pickled and used to make sauces are considered a relish for the epicure.

PICKLED CHILI PEPPERS.—Make a brine with one pint of salt to one gallon of water by boiling and skimming; put full grown green peppers and plump red ones into a jar, after carefully picking over and stemming; pour the hot brine over them and keep down with a plate or saucer. The next day drain the peppers out of the brine and let stand in a colander till all moisture has dried off of them; then pack them in bottles and fill the bottles brimming over with strong cider vinegar just brought to a boil. Seal and set in a cool dark place. In about a month they will be pickled, and may be used with meats, etc., or a bottle may be kept for sauce and re-filled with hot vinegar when used off.

MUSTARD PICKLES.—The excellent family recipe for making this pickle is contributed to the PACIFIC RURAL PRESS Household by Mrs. M. E. Painter of Berkeley.

In a large preserving kettle put 2 quarts of large green cucumbers and tomatoes cut in small pieces; 2 quarts each of small cucumbers and small onions, whole); 1 large cauliflower and 12 green peppers, cut small. Sprinkle a pint of salt over these and cover with cold water. In the morning set the kettle on the stove and let brine come to the boiling point; drain out the pickles and fill the jars with them; carefully drain off all brine from the jars and fill the jars with a paste made as follows, and seal:

PASTE.—12 tablespoons of mustard, 2 of tumeric powder, 3 cups sugar, 2 of flour, 4 quarts of best vinegar. Mix smooth together with a little of the vinegar all the ingredients except the vinegar, which scald. When the latter begins to boil, stir into the mixture, and allow it to cook well, stirring constantly; when it is ready for filling the jars.

TEMPERANCE WINES.—Every hostess whose conscience bars even light wines from her household feels the need of some refreshing beverage to serve with a slice of white cake to her caller. Here are some old Colonial recipes which are not objectionable:

RAISIN WINE.—Boil 2 gallons of pure water for half an hour; into a stone or granite vessel put 2 pounds of stoned raisins, 2 pounds of sugar, rind of 2 lemons and juice of 4 lemons. Pour the boiling water over these and let stand covered for four or five days; strain and bottle for some 15 days, when it will be ready to drink. This is a very cooling and pleasant drink for a hot day.

RASPBERRY WINE.—Bruise the raspberries, or other berries, and let stand till morning; squeeze out the juice and strain; to every gallon of juice put 3 pounds of white sugar; heat to the boiling point and bottle. This is nice served half strength with icewater and a slice of lemon in each glass.

APRICOT WINE.—Boil together 3 pounds of sugar and 3 quarts of water, skimming well; then put in 6 pounds of stoned apricots and let simmer till tender. Strain out the fruit and bottle the liquid. The fruit is good for marmalade by adding more sugar and boiling.

Hand towels for rough usage may be made out of burlap. Choose sacks containing the best quality of burlap; open the sack down each side, leaving it joined at the bottom; this makes one long piece which may be sewed together to slip over a roller, or tapes sewed to the ends after hemming. It is just the thing to hang up at the back door, where rough work is being done and the children are running in with mussy, fruit stained hands. The rough surface is excellent to clean the hands in such cases, and the burlap is easily washed, thus saving the regular towels and much heavy washing.

To wash linoleum, oilcloth or painted floors, allow a teacup of coal oil to each bucket of water necessary, and use a clean, soft cloth. This cleanses thoroughly and at the same time leaves the surface fresh and bright as if newly painted, instead of dulling the colors and drying out the oils, as washing with soap or suds does.

Poison Ivy and Oak.

While some persons are immune to their effects, others are so susceptible that they are poisoned by merely passing to the windward of these pestiferous vines. The worst cases of poisoning are said to come from the smoke and dust when burning brush where they abound. There are many remedies which will kill the poison if applied before the latter gets into the blood; afterward it will surely run its course of from three to nine days. Some of the remedies are so poisonous in themselves as to be dangerous in careless handling. Simple remedies are just as effective, and have the added recommendation of being safe. Extract of grindelia is good, also many simple washes and salves to be had at any drugstore. Usually, though, one has nothing on hand, and by the time it is obtained the poison has got in its work and the remedy is of little use. However, every household has always on hand a remedy quite as effective as any, and beyond question of harm, viz., soda, either baking soda or salsoda. Bathe the face and exposed surface with a strong solution of soda and it will kill the poison without injury to the skin.

These poisonous vines are often mistaken for the Virginia creeper. There is one unfailing means of identification that should be impressed on the memory, and this is the difference in the leaf cluster. The leaves of the Virginia creeper are digitative or five-fingered, like the human hand, while those of poisonous vines are trifoliate, or in clusters of three. Some such jingle as the following taught to children will serve to fix the points of difference in their moids:

"Berries purple will not hurt you;
Berries white, poisonous sight.
Leaves three, quickly flee;
Leaves five, pluck alive."

Universal Ownership.

"I am a Socialist," said the man with a large voice. "I believe in a universal ownership in which a man's needs and his ability to use shall take precedence over our preconceived notions of arbitrary proprietorship."

"That system is now being tried," answered Miss Cayenne, "with most unsatisfactory results."

"In what way?"

"With umbrellas."—Washington Star.

A little girl was greatly interested in watching the men in her grandfather's orchard putting bands of tar around the fruit trees, and asked a great many questions. Some weeks later, when in the city with her mother, she noticed a gentleman with a mourning band around his left sleeve.

"Mamma," she asked, "what's to keep them from crawling up his other arm?"—Everybody's Magazine.

Blobbs (trying to think of clairvoyant)—What do you call the person who is a medium through whom we commune with the spirits?

Slobbs—A bartender.—Philadelphia Record.

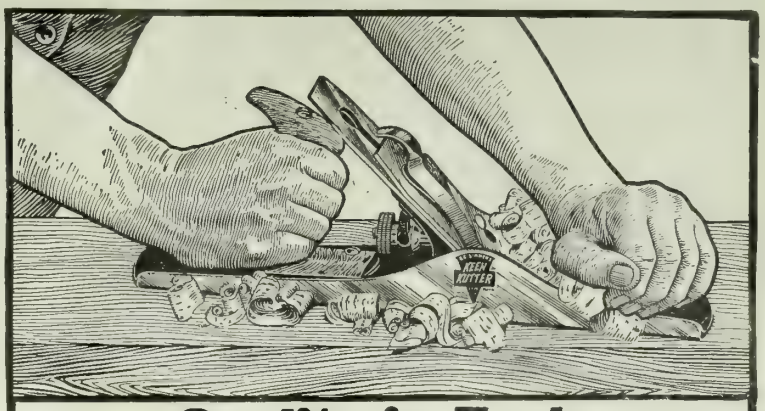
Pat—An' phwat the divil is a chafin' dish?

Mike—Whist! Ut's a fryin' pan that's got into society.—Boston Transcript.

Rose That Changes Its Color.

White in the shade, red in the sun, such is the twofold character that has given a name to the chamelon rose. At night or when it is carried into a dark room it assumes a waxlike whiteness. This does not occur abruptly, but the petals first pass through a bluish tint, which rapidly changes into a very pale rose, and finally ends by becoming the purest white. Then, if it is taken into bright sunlight, with the greatest rapidity it resumes the scarlet tint of the most brilliant peony.

This horticultural phenomenon comes from Japan, that country of magic gardens and wizard horticulturists.



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Tools for the workshop, farm or home must be tools of quality. A plane, for instance, to smooth a board properly, must have a keen blade, carefully adjusted—its surface must be true and it must fit the hand.

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San Francisco Business College
733 Fillmore St., San Francisco, Cal.

THE MARKETS.

San Francisco, July 14, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

All grades of wheat have declined considerably this week, and the market is weak at the present figures. There is a fair supply of ordinary grades, but the choicer varieties are still scarce, and the quotations are little more than nominal. New wheat is not yet offering freely, but is slightly lower. All the Coast markets are extremely dull, but millmen are said to be buying up small lots of choice grain in the country at prices slightly in advance of those current in the local market.

California White Australian	$2.10	@2.12½
California Club	2.05	@2.07½
California Milling		2.10
California lower grades	1.90	@2.00
Northern Club	2.05	@2.07½
Northern Bluestem	Nominal	
Russian Red	2.00	@2.05
Turkey Red	2.05	@2.07½
New California Wheat	1.95	@2.05

BARLEY.

The market has been fairly steady, though brewing grain is a little lower than last week. Feed barley is firm, with a fair demand. The local market is by no means active, and arrivals are now quite liberal, but sellers are inclined to hold out for high prices. Chevalier is steady at the decline of last week. There is nothing doing in shipping grain, though there has been some movement to the North.

Brewing		$1.47½
Shipping	Nominal	
Chevalier	$1.60	@1.70
Good to Choice Feed, per ctl.	1.45	@1.47½
Common Feed	1.40	@1.42½

OATS.

There are few old white oats left, and the movement is at present entirely in new reds, which are coming in freely and meet with a fair demand. Prices are somewhat higher, and the tone of the market is decidedly firm. Heavy damage is reported to the crop in the Middle West.

White, per ctl.	Nominal	
New Red, choice	$1.75	@1.87½
Common	1.67½	@1.72½

CORN.

While there is no great amount of corn coming in, and spot offerings are comparatively light, there is more activity in the market than for some time past. Somewhat higher values are quoted for California grades, but the Western varieties are lower.

California Small Yellow	$1.80	@1.90
California Large Yellow	1.80	@1.82½
Western State Yellow, bulk.		1.70
Mixed, in bulk		1.68
White, in bulk		1.72
Egyptian White		1.90

RYE.

There has not been enough trading on the new crop to establish any definite range of prices in the local market, the quotations given being about the lowest at which offerinfis are made. There is no heavy demand, and some holders are asking considerably higher prices.

Rye, new, to arrive	$1.45	@1.50

BEANS.

The spot market is steady, with no quotable change in prices, though the present volume of business is comparatively small. There is a little inquiry for mixed carloads, but only a small amount of goods is being moved, and the principal inquiry just now is for future delivery. Little change of prices is anticipated in the immediate future, though a stronger demand for immediate delivery is looked for before anything is available from the new crop. An upward tendency is reported in the Eastern market, and there is considerable movement of imported white beans.

Bayos, per ctl.	$5.40	@5.50
Blackeyes	3.40	@3.65
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.75	@7.00
Large Whites	5.40	@5.60
Limas	4.15	@4.25
Pea	6.25	@6.50
Pink	3.00	@3.20
Red	Nominal	
Red Kidneys	3.25	@3.50

SEEDS.

All quotations are more or less nominal, as there is very little movement in this market at present. Alfalfa seed is fairly plentiful, and with no particular demand the price is a little lower. Canary seed is higher.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	4@4¼c
Canary	4¼c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

With the decline of wheat, buyers are beginning to look for some easing off in prices, and are accordingly keeping their purchases down to the minimum. Local business is quiet, and there is no buying of any consequence for export. So far there has been no change in California and Northern brands.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

Prices are still quoted at last week's level, but the local market is described by dealers as weak, and business continues light. Some of the nearby districts have sold most of their hay, but dealers state that buying has been light in most quarters, leaving large quantities in the hands of growers. Buyers in the country are greatly dissatisfied with present conditions, owing to the small difference between prices here and in the country, though outside values in some places have declined slightly. The best grade of wheat hay seems to be rather scarce, and likely to remain firm, but on other grades a further decline is expected, on account of the large quantity to be marked before the rains.

Choice Wheat, per ton	$18.00	@18.50
Other Grades Wheat	13.00	@17.00
Wheat and Oat	14.00	@16.50
Tame Oat	14.00	@17.00
Barley	11.00	@13.00
Wild Oat	11.00	@14.00
Alfalfa	10.00	@12.50
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 75c

MILLSTUFFS.

Some bran and middlings arrived from Japan during the week, but without any material effect on this market. There is a good demand for all descriptions. Bran is quite firm, but unchanged as to price. Middlings and shorts are higher, and rolled barley also shows some advance, but rolled oats are lower. Some brands of alfalfa meal are selling below the former quotation.

Alfalfa Meal, or mealfalfa, per ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00	@27.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	36.50	@37.50
Mixed Feeds	25.00	@30.00
Oil Cake, per ton	38.50	@40.00
Rolled Barley	31.00	@32.00
Shorts	31.50	@33.00

VEGETABLES.

Onions are in fairly good demand, and prices are a little better for yellows, although the excessive supply prevents much advance. Vegetables in general are still very plentiful, and ordinary offerings are cheap. The overstock is hardly as great as a week ago, however, and in most lines a little better prices are the rule for anything like desirable offerings. The better grade of asparagus, however, shows a further sharp decline, as the canneries are no longer taking up the surplus, and the arrivals are in excess of local requirements. Small boxes of tomatoes are doing rather better, and all ripe stock moves off readily. Green peas and string beans also bring better prices, choice lots of the latter bringing more than the general quotations. Summer squash, cucumbers, egg-plant and green peppers are in heavy supply, but most of the arrivals are sold slightly above the last quotations.

Onions, new red, per sack	35	@ 40c
New Yellow, per ctl.	75	@ 85c
Garlic, per lb.	4	@ 5c
Green Peas, per sack	$ 1.25	@ 1.75
String Beans, per lb.	3	@ 5c
Cabbage, per ctl.		1.00
Tomatoes, small box	50	@ 75c
Large box	1.50	@ 2.00
Green Peppers, per lb.	4	@ 6c
Green Corn, per sack	1.75	@ 3.00
Asparagus, per box	75c	@ 1.25
Turnips, per sack	1.00	@ 1.25
Summer Squash, large box	50	@ 65c
Cucumbers, large box	65c	@ 1.00
Egg Plant, per lb.	5	@ 6c

POULTRY.

Two cars of Eastern poultry arrived early in the week, and the supply is about normal. The arrivals of local stock, however, have been very small, and the market accordingly shows much more firmness than for the last few weeks. The demand has improved, and all lines sell readily at the appearing quotations. The demand is especially strong for large hens, young roosters, fryers, broilers, and ducks.

Broilers	$ 3.50	@ 5.00
Small Broilers	2.75	@ 3.50
Fryers	6.00	@ 7.00
Hens, extra	8.00	@10.00
Hens, per doz.	6.00	@ 7.00
Small Hens	4.50	@ 5.50
Old Roosters	4.50	@ 5.00
Young Roosters	7.00	@ 8.00
Young Roosters, full grown	8.00	@10.00
Pigeons		1.50
Squabs		2.00
Ducks	5.00	@ 8.00
Geese, per pair	1.50	@ 2.00

BUTTER.

Butter has advanced quite sharply this week, extras, firsts and seconds being 2 cents above last quotations. The arrivals have been running lighter than for some time past, and the feeling among local traders is very firm, though the movement has fallen off to some extent.

California (extras), per lb.	28 c
Firsts	27 c
Seconds	25½c
Fresh Packing Stock, No. 1	22½c

EGGS.

All grades are higher, extras, firsts and seconds being advanced from 3½ to 4½ cents. The top grades are very scarce on account of the hot weather, but arrivals of less desirable stock have been rather liberal, and a large quantity of Eastern eggs is also on the market, being offered around 25 cents. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	30 c
Firsts	29 c
Seconds	25 c
Thirds	21½c

CHEESE.

A fair movement of local flats is going on at present, and the price has been slightly advanced. Local Young Americas and Oregon flats are lower, but Oregon Y. A.'s are unchanged. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	14½c
Firsts	13 c
New Young Americas, fancy	15½c
Oregon Flats	14½c
Oregon Young Americas	15½c

POTATOES.

Prices on general offerings are a little higher than last week, but the local market is still carrying a larger supply than can be readily absorbed, and there is accordingly little improvement. The local demand is fairly good and the movement is fully up to the average.

New Potatoes—Boxes	$ 1.15	@ 1.40
Sacks	1.10	@ 1.30

FRESH FRUITS.

The local demand is still all that could be expected, and there is some business for shipment, keeping prices in most lines at about the former level or a little higher, though the arrivals of several descriptions have increased. There is a free movement of apricots in bulk at low prices, though packed lots are a little firmer. Peaches in small boxes are as formerly quoted, but the principal arrivals are now in large packages. Bartlett pears are arriving freely, and the best grade is in strong demand, though ordinary lots are hard to move. Choice apples are also firm and comparatively scarce. Figs are considerably higher, and so are nutmeg melons, on account of smaller arrivals. Fresno watermelons are selling at about $2.75 per dozen, southern lots being quoted lower. Cherries are becoming scarce, while grapes are more plentiful and lower. Berries are still cheap, with large lots going to the syrup factories, though loganberries and raspberries are fairly firm.

Melons, Nutmeg, per standard crate	$ 2.00	@ 2.50
Watermelons, lb.	2	@ 2½c
Raspberries, per chest	4.00	@ 6.00
Currants, drawer	40	@ 50c
Loganberries, per chest	1.50	@ 4.00
Blackberries, per chest	2.00	@ 3.50
Strawberries—		
Longworths, per chest	4.00	@ 6.00
Large varieties	2.00	@ 3.50
Cherries, drawer	50	@ 75c
Grapes, crate	1.25	@ 1.75
Apples, Choice, per box	1.25	@ 1.50
Common	75c	@ 1.00
Figs, per drawer	75c	@ 1.00
Apricots, per lb.	2	@ 2½c
Peaches, per box	60	@ 75c
Lug boxes	75c	@ 1.50
Plums, per box	40	@ 85c
Pears—		
Bartletts, No. 1, box	1.10	@ 1.35
No. 2	50	@ 75c
Other varieties, box	75c	@ 1.00

CITRUS FRUITS.

With the deciduous fruits cheap and plentiful, citrus varieties receive little attention in this market at present. Valencia oranges are firm at former prices and fancy lemons are still higher. There is scarcely any demand for lemons here at the present figures.

Choice Lemons	$ 3.00	@ 4.00
Fancy Lemons	5.00	@ 6.00
Standard	2.50	@ 3.00
Limes	5.50	@ 6.00
Oranges, Valencias	2.50	@ 3.25
Grape Fruit	2.50	@ 3.00

DRIED FRUITS.

The market is very quiet in all lines at present, though local packers are taking on a good deal of new crop fruit. New apricots are coming in rapidly, and the crop generally is of very good quality. The demand for apricots, however, has fallen off somewhat, foreign buyers showing less interest than a week ago. Buyers in the East consider the present prices too high, and while they have very little stock on hand they are holding off in hope of some weakening of the market. Peaches are still neglected by outside buyers, though prices are fairly well maintained. The new crop is not yet appearing in this market. Spot prunes are inclined to easiness, but there is a firm feeling in regard to futures, notwithstanding the very conservative policy of Eastern dealers, as supplies there are very low and most of the old low grade stock has been disposed of. The movement in other lines is very small. Spot raisins appear to be entirely neglected, both here and in the East, and there is little buying of futures for other markets, though local packers are offering the prices quoted. The following quotations are for stock in growers' hands, as given by packers in San Francisco. Old stock brings about ½ cent less than new-crop quotations.

Evaporated Apples, per lb		7 c
Figs, black		2 c
Figs, white		3½c
Apricots, new crop	7½	@ 8½c
Peaches, new crop	4	@ 4½c
Prunes, 4-size basis	2½	@ 2½c
Pears	3	@ 5 c

RAISINS.

(New Crop.)

Loose Muscatels, in sweatbox.	2½	@ 3 c
Thompson Seedless		2¼c
Seedless Sultanas		2 c
London Layers, 3 crown	90c	@ $1.00

NUTS.

Prices on almonds are entirely nominal, as the crop has been out of growers' hands for some time, and local dealers have no stock worth mentioning. A sale has been made of the new crop, and while the price paid has not been announced it is supposed to be about 13 cents. The nuts are in good demand, on account of the bare market and the short present crop. Old walnuts are beginning to clean up and are bringing higher prices. A large crop of almonds is reported in Europe.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

The market here is decidedly dull, and so far the quantity offered has been small, with the larger packers keeping out of the market. Shipments of new comb have been particularly light, most of it being sent on consignment. The market is very unsettled, as most receivers are holding for high prices, 8 cents being asked for extracted and as high as 15 cents for water white comb, while sales are too few to establish these prices definitely. The crop is estimated at about half the normal and growers are holding firmly. The quotation given on comb is merely nominal, but some extracted has been bought in the country at the price given.

Comb	10½	@14 c
Extracted, water white		6½c
Old extracted		4 c

HOPS.

Spot hops are practically nominal, as everything of desirable quality has been cleaned up, and the old lots now offered are hardly salable. Full quotations, however, are offered for good stock, and the market remains quite firm for both spot and futures. As high as 15 cents is offered on contracts for the new crop in the Russian river district, but there has been little business for the last two weeks. There is some improvement in the crop outlook in Oregon and also in Europe.

Hops, Old, per lb	6½	@10 c
New Crop	13	@15 c

WOOL.

Wool is comparatively quiet locally, though the market is firm with values as formerly quoted. California stock is still going forward to the larger markets, but a large proportion of the spring clip has been sold, and no great activity is expected until fall.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

Mutton and sheep are not so plentiful as a few weeks ago, and prices show a slight advance. Beef is a little easier, though prices show little change. Medium hogs are a little firmer, and all weights show a little more strength, though the demand is not very active.

Beef: Steers, per lb.	6¼	@ 7 c
Cows	5	@ 6 c
Heifers	5	@ 6 c
Veal: Large	7	@ 8½c
Small	9	@ 9½c
Mutton: Wethers	7	@ 8½c
Ewes	6½	@ 7 c
Lambs	9½	@10 c
Hogs, dressed	9½	@11½c

LIVESTOCK.

Steers: No. 1	3¾	@ 4 c
No. 2	3½	@ 3¾c
Cows and Heifers: No. 1		3 c
No. 2		2¾c
Bulls and Stags		1¾c
Calves: Light		5 c
Medium		4½c
Heavy	3½	@ 4 c
Sheep: Wethers	3¾	@ 4 c
Ewes	3¼	@ 3½c
Lambs	4¾	@ 5 c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs		7½c
250 to 325 lbs.	6¾	@ 7 c
Common Hogs, lb.	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., July 13.—This week's auction market opened low on all the old stock, such as navels, seedlings, sweets and mikes, with fair prices on Valencias and very good prices on lemons in the Middle West, the Eastern markets being rather low on account of the available supply of imported stock.

The last report from Sicily shows that they have on hand and available for sale within the next thirty uays, 267,000 boxes of lemons, as against 200,000 at this time last year and 300,000 boxes for the same period in 1907.

The inquiry for lemons slacked off some during the past week on account of the weather being cooler and the high prices. With the coming of another hot wave, evidenced by the reports in the papers, we can expect another long and insistent call for lemons from the jobbers at almost any old price. Today prices run all the way from $3.50 to $6 for the cured stock and from $2 to $3 per box for tree-colored and inferior fruit.

Valencia prices are still around the $2 mark f. o. b. California. Except on some high-grade fruit, the auctions are not paying up to this price, and an average of all the auctions for the Monday sale of Valencias was only $2.50 per box, meaning that the shipper got less than $1.50 for a packed box of fruit, and not over $1.20 to the grower for fruit delivered at the packing house. As no grower would think of selling his fruit for any such money, it must be that either some of

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the shippers are out or else the grower is taking chances in the auctions, and losing out.

The shipments for the season to date have been 27,888 cars of oranges and 4716 cars of lemons, as against 26,132 cars of oranges and 3603 cars of lemons to same date last season. There are probably about 4000 more cars of citrus fruit, oranges and lemons, yet to go this season; which will total upward of 37,000 cars from southern California alone, being 7000 more cars than were shipped in any prior season and a record that may hold for many years.

SAN FRANCISCO FRUIT AND FLOWER MISSION.

To the Editor: The San Francisco Fruit and Flower Mission requests you to make the following appeal through your paper on behalf of the sick poor in San Francisco.

The Mission is one of the oldest and best known charities, and not only sends nurse, doctor, fuel and provisions, but with fruits and flowers, which the name of the society suggests, tries to cheer the sufferer and help him bear his pain. We always have a long list of needy sick, to whom each little kindness is a royal gift. Will not those who are more fortunate and live beyond the noise and dirt of the city, spare some fruit, vegetables or flowers from their own grounds? Wells Fargo will carry, free of charge, any box not exceeding 100 pounds in weight, addressed S. F. Fruit & Flower Mission.

Thursday is distribution day, so all boxes should be placed in the hands of the express agent in time to reach the Mission Thursday morning.

The Flower Mission acts as a distributing bureau to the poor from the sender, and hopes this appeal will be read by many who want to share in the good and noble work, being well assured their cooperation will be greatly appreciated and bring untold blessings.

META F. THOMPSON.
Corresponding Secretary.

PUBLISHER'S DEPARTMENT.

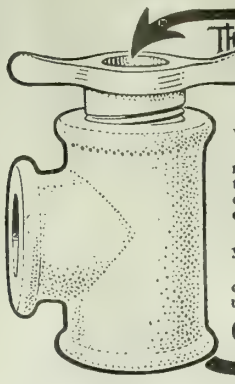
An advertiser in this issue asks for a position as foreman of fruit ranch or general farm. If you want a man to fill such a position, write to Box 11, this office.

To those of our subscribers who have received bills during the past month for amounts owing us, we would like to say that prompt remittances at this time will be appreciated.

The Occidental Life Insurance Company want agents. This is a good Pacific coast institution, and parties wishing to work in that line should read their ad in this issue.

A letter from the Patterson Ranch Co. of Oxnard, Cal., asks for the name of a good, experienced stud-horse man, whom they wish to engage, commencing October 1. If any of our readers want such a position and can fill the requirements, the company will be pleased to hear from them.

"The most complete and most reliable work on California fruit culture is Prof. E. J. Wickson's work on "California Fruits, and How to Grow Them." The author has just published a revised edition of this work that has been the standard for California fruit growers for over twenty years. Prof. Wickson is dean of the Agricultural College of the State University and director of the Experiment Station, and he has been in close contact with the fruit industry of the State for over thirty years. You should have this volume on your table as one of your working tools, if you contemplate engaging in any branch of fruit raising in California."—Prof. D. T. Fowler, in Western Empire.



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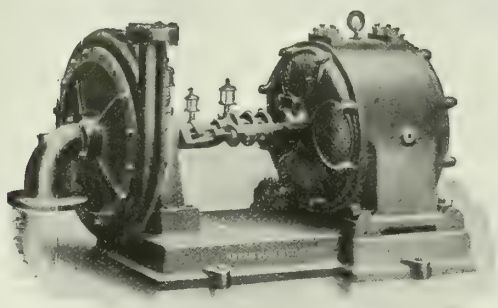
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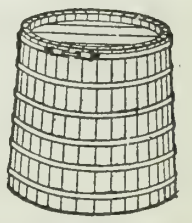
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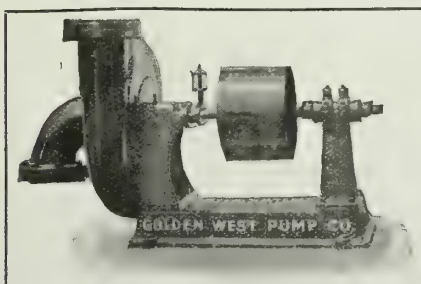
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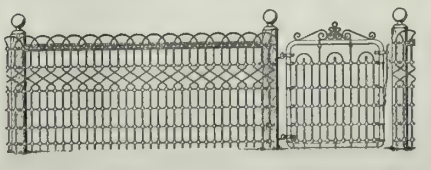
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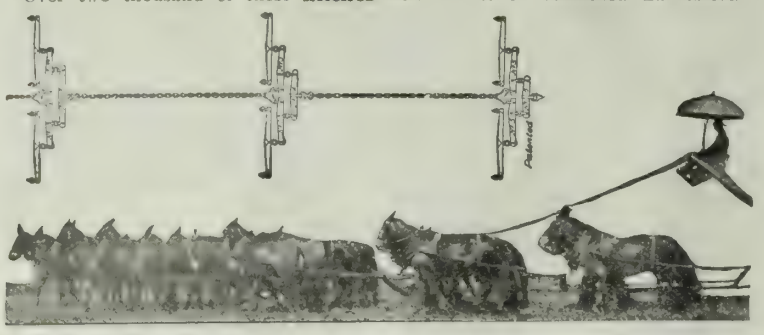
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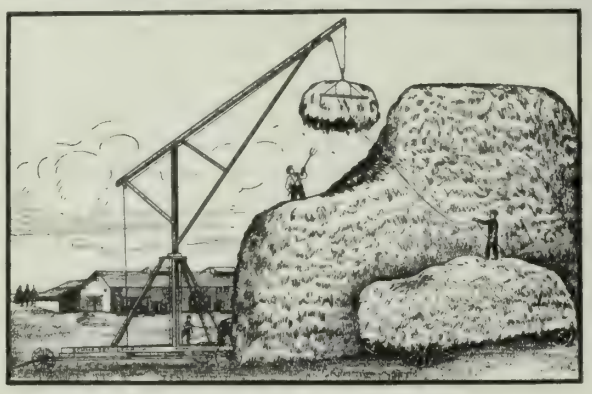


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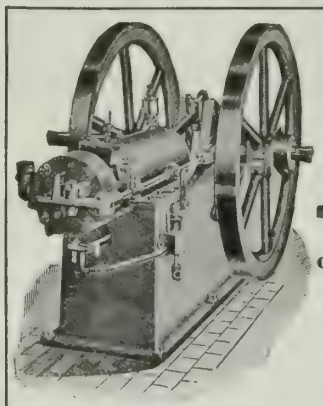
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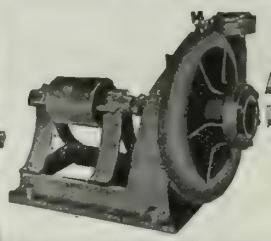
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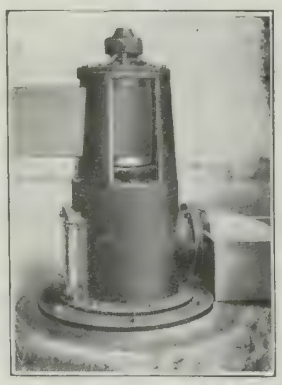
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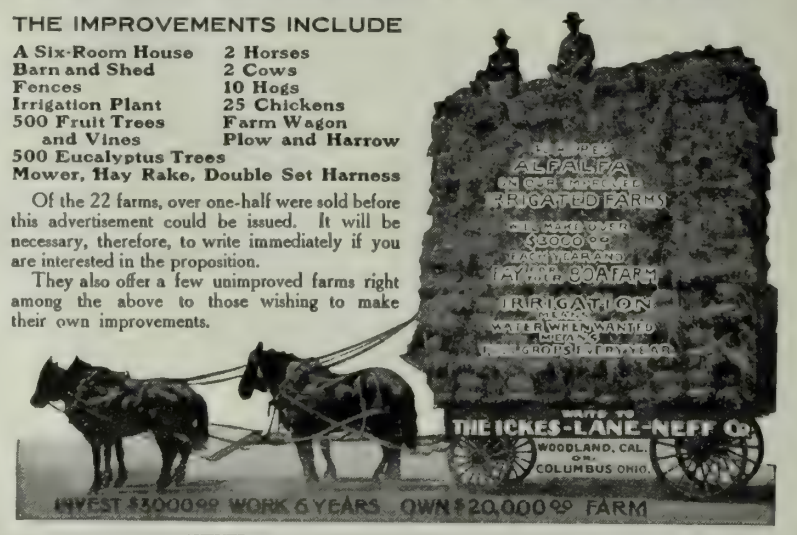
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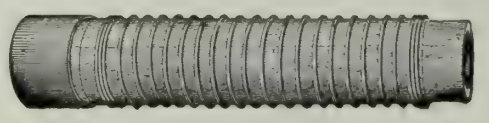
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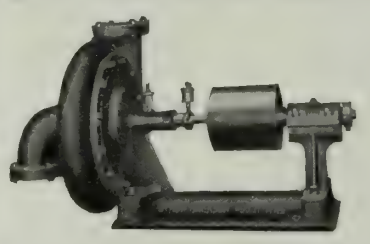


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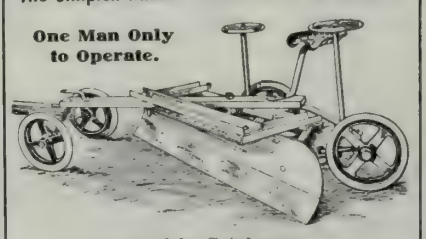
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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 4. SAN FRANCISCO, SATURDAY, JULY 24, 1909. Thirty-ninth Year.

The Beet Sugar Industry.

Written for the PACIFIC RURAL PRESS
By Prof. G. W. SHAW of the University of California.

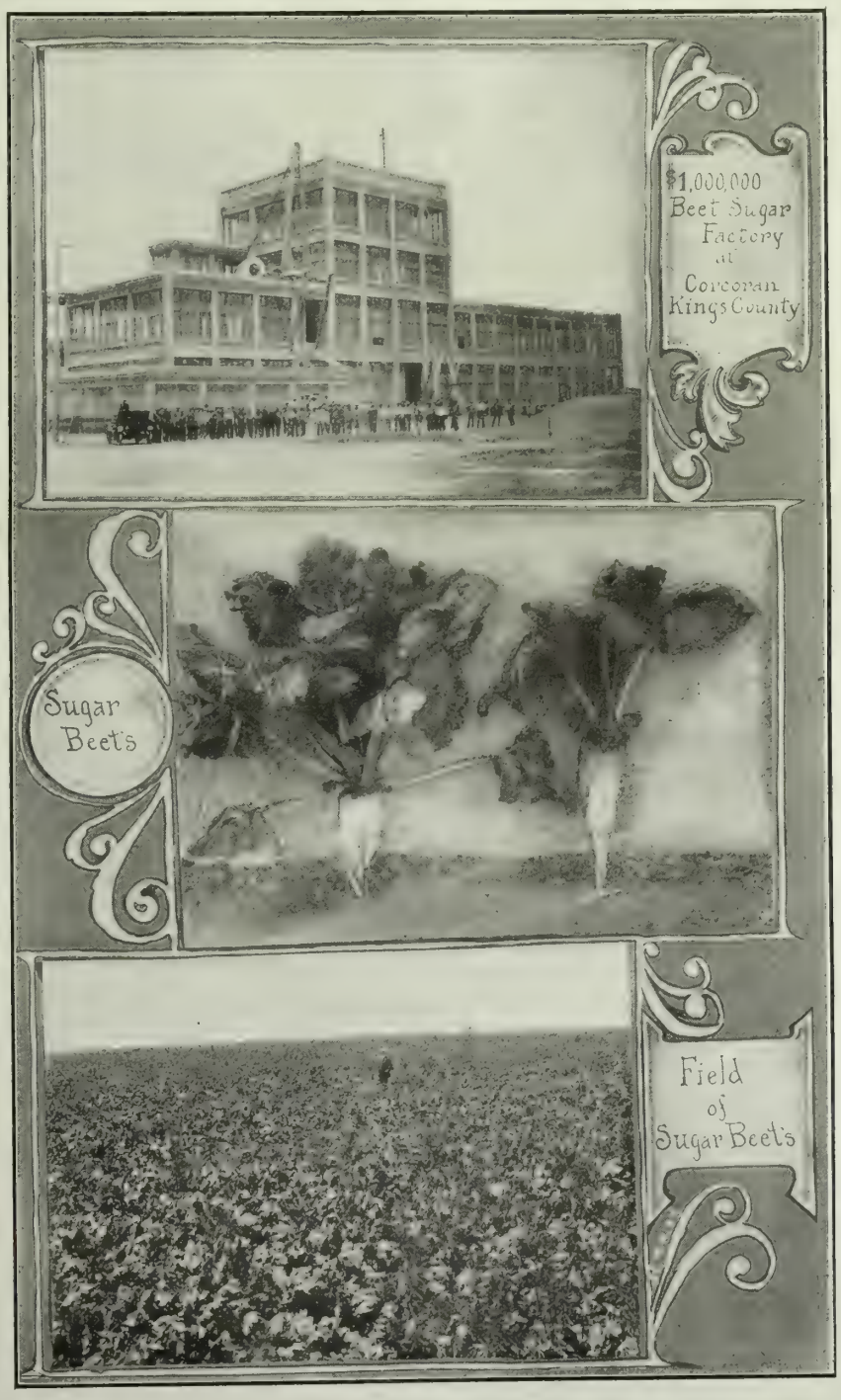
Secretary Wilson is about to issue the annual report of the sugar beet conditions for 1908, which will contain interesting facts and figures relating to this important industry. This industry has had the most wonderful growth, perhaps, of any agricultural manufacturing industry in the world. California was the mother State of the industry in this country, and since 1869 has placed beet sugar on the market every year except one. For many years she was the only State engaged in the industry, but in comparatively recent times many other States have taken to the culture of sugar beets and the manufacture of beet sugar, until it can no longer be called a localized business, for it extends all the way from New York State on the east to the Pacific shores on the west, and from Canada on the north to Kansas on the south.

In 1896 there were but six beet sugar factories in operation, having altogether a capacity for slicing 4000 tons of beets daily. In 1908 the number had increased to 64 factories, with a total capacity of 50,000 tons of beets daily—more than twelve-fold increase. The total amount of money invested in sugar factories in this country is about $70,000,000, exclusive of the money investments by factory owners in farm lands, irrigation works, etc.

In 1898 the farmers had 364,000 tons of beets to sell to the factories, for which they received $1,564,000. In 1906, just eight years later, they had 4,236,000 tons of beets to sell, and received for them $21,604,000—a twelve-fold increase in beets and a fourteen-fold increase in money returns.

In his report the Secretary of Agriculture gives a flattering account of the progress made in developing the industry, and takes a very cheerful view of its prospects. He concedes that some failures occurred among the earlier factories, but shows that the later factories have been quite uniformly successful. He states that wherever factories have been successfully operated the values of farm lands have risen very decidedly, especially lands under irrigation in the far West. The operation leads to the investment of capital in other industries more or less closely allied to beet sugar production. The by-products—molasses and pulp—are fed to stock, and their use has largely increased the amount of live stock kept and fed in most factory districts.

Within the last few years the industry has taken on new life and is being extended into new sections of California. This season will mark the opening of two new factories in the State: one at Corcoran, a picture of which is shown in connection herewith, and one at Santa Ana. The former factory is one of the best constructed factories in the country, and is of the most modern type. It was completed last season, but on account of unfavorable field conditions, resulting in a small crop, did not operate, the beets being handled in the Visalia factory, near by, which is owned by the same company. The crops this season are more favorable, and the new factory is now in operation. The buildings of this factory are all of reinforced concrete, ranging in height from one to four stories. The front elevation is 225 feet, the west elevation is 350 feet, and the east elevation 150 feet. The buildings are entirely fireproof, walls, floors, and stairs being of cement and steel. While some of this machinery was formerly employed in the old Crockett plant, it has been entirely overhauled, and a large amount of new machinery added. It is said that this is the first plant in America to use exclusively electricity for its motive power. The capacity of this factory is 600 tons of beets per day, and is running this year about 325 tons per day.



Suggestions of the Beet Sugar Industry at Corcoran, Kings County.

In the Corcoran district, as in all other districts engaged in the industry, the field conditions will be found the most difficult to solve. As yet the industry on its agricultural side can hardly be said to be out of the experimental stage. It remains to be determined what lands to avoid for beet culture, for there is doubtless considerable land in the region which will undoubtedly be found ill-adapted to beet culture; and the determination of the most favorable time of seeding will also be an important item in the final success of beet culture in the San Joaquin valley generally. The industry is well launched, and with rational and competent management will add much to the material wealth of the locality.

The report of the California State Board of Trade for 1909 gives the California beet sugar product for nine factories in operation during 1908, as 99,613 tons, a gain of 16,724 tons over the preceding year. Valuing the product at 3½ cents per pound, the value of the total product of last year is $7,460,975.

Concerning the sugar industry in general, figures by the Bureau of Statistics show that the average American citizen consumes half his own weight in sugar every year, and Uncle Sam's sugar bill averages $1,000,000 a day. The total consumption of sugar in the United States in 1907, as shown by a report issued by the Bureau, which is the latest year for which statistics are available, was 7,089,667,975 pounds.

The United States sugar record for 1907 was unique, in that the quantity of that imported from foreign countries was larger than ever before; the quantity brought from our island possessions was larger than in any previous year; the quantity produced at home exceeded that of any other year; the quantity exported was larger than in any year of the past decade, and the per capita consumption was the largest ever recorded, an average of 86.6 pounds for each man, woman and child of continental United States. The production of beet sugar for the first time exceeded the production of cane sugar, being 967,000,000 pounds of the former to 544,000,000 pounds of the latter.

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The Week.

With the overland shipments of fresh fruits running something like 500 carloads ahead of an even date last year, there is certainly promise of a record before the season closes. It is announced this week that so many cars of fresh fruit have been forwarded this season that the supply of cars is practically exhausted. Even though the railroads are rushing empties back from the East as rapidly as possible, still the fruit shippers have not been able to get more than enough to supply them from day to day. New cars are nearing completion, but they will not be ready before next month, so will not help the present situation. Troublesome as this is, it looks better from up a tree than did the long lines of idle cars which we have heard so much about during the last two years. Practically none are idle now, and that means that things are moving.

Railroads are forbidden by law to discriminate between persons and places, and it looks as though they might be required not to discriminate between things either. For instance there has been such a rush for fruit cars that the Stockton potato shippers, who planned to catch a nimble penny by rushing potatoes into the Chicago spud vacuum before they can come down from the Northwest, have been scared lest the fruit men should have contracts covering all the best cars. The alarm has fortunately been quieted by the assurance of the railways that the tubers should have a fair chance, and all who desired to move them overland could do so. There is a good lot of them in the Stockton region this year, and they will be quite an item in the State's income.

Speaking about shipping fruits and the constantly increasing demand for California fruits at distant points, it is well to mention a recent observation of Mr. David Lubin, the Californian who is now in Rome as the representative of the United States in the International Institute of Agriculture, of which he was the founder. According to a letter received the other day, Mr. Lubin went to a fruit stand in Rome and asked for the best fruit in the market. He was told that the best fruit came from California and was high priced. To ascertain how much the man knew about California, Mr. Lubin asked him what kind of a place it was. The man replied that it was the greatest place in the world; that the fruit was the best and that the people were all wealthy.

It is interesting to note that California's reputation as the place where everybody is rich is now based upon horticulture, and not on mining, and it is probably quite as true, or false, on one as on the other. It all goes to make attractive repute, however, and it may slip along on oil next, for the petroleum output advanced ten millions last year, and is now nearly thirty millions per annum, or nearly twice as great as the gold output. It all makes for advance in the State's assessed valuation also. The reports from county assessors are being received, and it looks as though the State would be worth somewhere between fifty and a hundred millions more than it was a year ago. Though this does not make everybody rich, it certainly improves the chances of everybody who knows how to connect up with the sources of wealth, and that is all that self-respecting people could ask, probably. From this point of view the Italian fruit vendor's compliment might be acceptable and truthful.

We seem to be able to talk in millions well enough, and we hope readers are giving us credit for trying to talk in billions, even though we do make coarse work of it. Last week we said that millions for irrigation were only one per cent of what the boomers claimed for it. We see now that they were only one-tenth of one per cent—for a billion is a thousand millions, and there are mighty few billions of anything except great ideas. The newer phases of the discussion of billions for internal improvements seem to scout the proposition which we held to that the reclamation of land by national irrigation should proceed as the money comes in from purchasers of the irrigated land at the cost of irrigation without interest. The claim now is that the land and water works should be given to the settler. A writer in the Colorado Field and Farm says:

"No one seems to know what this land will cost the homeless man who is lured here to this land that should be free. The law should be amended, the homesteader should not be called upon to return the money to the fund from whence it came. This money is first taken from the land. Heretofore it went into the general fund and was used for incidental expenses, to dredge harbors and build warships—all for the benefit of commerce and really nothing else. Now, who made this money or the means of getting it? Who made this country what it is? It was no one but the American farmers. And today you may remove all of our coast defenses, sink all of our battleships in the deepest seas, land the army of any nation of the earth upon our soil, and the farmers can and would wipe them off. I will ask, why not let the farmers have the land with water free, that we can build up the very people who are making our country today, as well as in days gone by?

Well, the country has for decades been practically giving the land and the water to those who would take them and bring them together, and is still willing to do that, if anyone can find land and water which someone has not already acquired title to. It is rather a startling proposition that the nation should now abandon the claim that the settler should do something in his own behalf, namely, in a decade of time return to the Government his share of what reclamation cost, without interest on the money used to bring the water to the land. There are, of course, many considerations which could be urged against the view that the Government should put in the works and give them away, to be sold by the owner for his own purposes as soon as he acquires claim or title. It is, however, so unfair to other producers who have earned the improvements on their lands in the arid region, and so offensively unfair to other producers everywhere in the country who have never had any form of government bounty, that probably no one can be found to listen to the suggestion except those who may hope to be recipients of the new bounty in some way. From our point of view, all such propositions of billions for reclamation, and giving away the works with the land reclaimed, make the whole reclamation idea ridiculous and visionary, and the best way to kill the whole movement for development is to push such propositions. It is barely possible that that is the very motive which is leading to their present agitation.

The converse of such an effort to inflate the whole enterprise to bursting is to pinch it to collapse. Such an effort may be involved in the claim which is reported from Washington that the Reclamation Service is to be impeached because it arranged that settlers on the lands reclaimed should be allowed to work themselves and teams on the system and be given credit for such work upon the amount they agreed to pay for their lands. There may be some difficulty in the bookkeeping, but that ought to be capable of adjustment. If an early settler does work in dam construction or ditch making, he ought to be able to get pay for his service as well as a contractor—providing it is work necessary for the completion of the scheme adopted by the proper authorities. This is a perfectly rational proceeding, and there are all sorts of precedents for it, and yet some people in Washington seem to look upon it as an official crime. If regulations do not permit, they ought to be amended, or if such regulations conflict with laws, the laws ought to be changed. The whole scheme is that the settler shall pay for what it costs the Government to store water and bring it upon the land, and if he has more work than money, let him pay in work. Why harrass him to get money and then pay the money to a contractor? It may be the law, but it is not good sense.

We would not have knocked the Wonderberry in last week's issue, perhaps, if we had known that the Massachusetts Horticultural Society was going to jump on it this week. Someone seems to have shown the fruit at a sweet pea show in Boston, and the telegraph says that the judges of the society labeled it worthless. But as the fruit has been condemned, it is only fair to file Mr. Burbank's demurrer, which, according to a dispatch from Santa Rosa, is in these words: "It is far too early in the season for the Eastern people to know anything about the new variety. The Wonderberry is at its best in the fall, and the declaration from Massachusetts that it is a failure come before the fruit there has been given a chance to prove itself. The Eastern people will find the berry all right if they will give it a proper chance to show its splendid qualities, but when they condemn it before it has had time to reach fruition, the berry is simply hastily judged." We shall watch this matter with interest, and, if those Yankee judges have done the fruit injustice, see to it that they are forced to eat their words and a quart of Wonderberries at a sitting.

We believe that a man has a right to shoot any wild game which is actually eating his cultivated crops and thus depriving him of the results of his labor, but there seems to be a question whether he has a right to shoot trespassing animals or tame birds. A man up in the foothills is growing grapes, and his neighbor kept 500 turkeys—or, rather, he did not keep them, he turned them loose and they have been busy of late eating up $500 worth of grapes. The grape grower appealed to the district attorney, who informed him that his remedy was to round up the birds and begin civil suit for damages against their owner, or perhaps notify him if he did not pay damages the turkeys would be sold for them. Such things are sometimes settled more directly, but this seems to be the law against trespassing live stock. It is like the first step in the Frenchman's account of the way to cook a duck.

It looks as though meat stock would bring high prices for an indefinite time to come, and those who have lands for it should not overlook the

prospect in the beef supply. The Mountain States are already drawing away from the Coast by shipments to Denver and Kansas City, which shows that we have to furnish supplies to the Middle West. Beef steers are already quoted a cent higher than last year. Some idea of the general situation can be had in an announcement from Denver that a convention will be held in that city next January, to be officially designated the National Beef Producers' Congress. The call for the convention will have the backing of the packers, live stock organizations and business interests generally, it is said, and the ultimate purpose of the convention will be to awaken the West to an appreciation of its duty in the matter and opportunity for revenue through extension of cattle breeding. Unless something is done in this regard, it is said by experts that the price of beef will advance to a point beyond the reach of the average working man, and he must conesquently deny himself this particular article of food. We do not see any particular reason for putting it in just that way, but there is force in it. More plainly, we should say the various business interests see the necessity for more beef, so that they will have plenty to deal profitably in for export and in local trade, and they think it would be a fairer sound to sing of the workingman. But it does not matter much. The agricultural sense of it seems to be that there is likely to be a demand for beef, and farmers should sense the situation and figure upon how they can profitably undertake the supply. If the cheap range cannot meet the demand, there is a chance for using higher priced land and for growing stuff for stock feeding. California can certainly do vastly more than she is now doing in this line.

Queries and Replies.

Situations Not Quite Frostless.

To the Editor: I am coming to California to live as soon as we can sell out property. I was thinking a good place for a small farm would be in Yolo county near the coast range. I do not like sandy soil. I want a good loamy soil, and believe the soil is right in Yolo county. I want to get in a frostless location. The land companies claim that the climate is the same all through central California and the same as southern California. Now please let me know if I can get a frostless location in the Sacramento valley, and where do native Californians prefer to live, near the coast range or near the Sierra Nevadas?—Intending Settler, Philadelphia.

There are very few strictly frostless places in California, and a strictly frostless place is not necessary for the cultures which we undertake commercially in this State. There is an equality in temperatures at proper elevations in the Sacramento valley, in the San Joaquin valley and in southern California, and by selection one can get most satisfactory conditions in all of these large districts.

There is no great preference among Californians as to whether they live near the coast or in the interior or in the foothills of the Sierra Nevadas. There are content and prosperous people everywhere, and there are people of the other kind also everywhere. Choice of location is not a matter which can be determined by correspondence.

Hill-Top Vines of Eucalypts.

To the Editor: I have 14 acres of land on the summit of a hill about 200 feet above sea level and very dry during the summer. What is the best use I can make of this land? Should I plant it to wine grapes or to eucalypts, and what kind would be the best suited to this land?—Subscriber, Contra Costa County.

This is the sort of question which one has to answer for himself, after getting all the knowledge he can about the requirements of the plants he has in mind and the character of the soil he desires to plant. Not only the plant, the soil, the rainfall, and the character of the plants which grow naturally should be considered, but the growers' idea of how much money and work he desires to put upon the hilltop with the plants. We have not much idea of "very dry" hilltops as places for profit beyond what pasturage can be secured during the rainy season, and we would therefore favor planting blue gum trees, because it will not cost much, and with the rainfall of your county you can probably roll down hill a little firewood bye and bye. Then, too, you may introduce into the landscape a feature which will be gazed upon with delight for miles around.

Of course we do not know much about your hilltop. It might carry vines if you can keep them in moisture enough by cultivation, but we should take every possible way to prove that before planting. We have no proper appreciation of the delight of lathering up that hill to work on a lot of vines which do not have summer moisture enough to give a profitable amount of good grapes.

France Is Not Discounting Resistant Vines.

To the Editor: I enclose clipping from a southern California paper, from which I quote, "there is nothing real in the use of resistant grape stock to prevent the destruction of vines by the phylloxera," and "all France would not now be abandoning the use of resistant vines, nor all California going along blindly in their use," etc. I had not noticed anything to this effect before. Is it true?—A. W. C., Vallejo.

The allusions in the clipping to which you refer, and which have appeared also in other of our California journals, have arisen wholly from a misapprehension of the condition of things in France. There was a consular report sent out some time ago, saying that in the contracts made for vineyard planting in France there was a tendency to reject the new varieties and to insist that the old stand-bys be relied upon. Some thoughtless commentators take this to mean that there was a return to the old varieties on their own roots, but this is not right. The conclusion was that the newer varieties—some of American origin, which were being tried for wine to replace the old varieties because they were supposed to have greater thrift—have not justified the expectations placed upon them, but there has been no change in the French dependence upon resistant roots. These old varieties, a return to which was insisted upon, were then to be grafted upon resistant roots instead of the newer ones, but there was no change in choice of a foundation for the vine, which is still to be such of the French improved American resistant roots as are best adapted to the soil and to take the graft which is placed upon them. The whole thing, then, does not mean at all what certain writers have claimed it to mean, and relates wholly to the top growth of the vine, and not to its rooting.

Vines Failing in Spots.

To the Editor: Old Muscat vines in the best vineyards have in spots made little growth, without apparent cause. Other vineyards adjoining are as thrifty as usual. Some suggest that early pruning may cause the trouble. Is there any ground for such a supposition? If not, what is the matter with these vines? Is the middle to the last of January too early to prune Muscat vines in this locality?—Grower, Kings County.

The pruning has probably nothing to do with the case. January is not early to prune vines unless you are in a frosty place and wish to have two chances to escape injury by not cutting to the limit until the danger is over. Two bad things in a vineyard go in spots, viz: alkali and phylloxera. You should look underground for these troubles first; if both are absent, it will be time to study whether cultural operations have something to do with it.

Chinch Bug and Melon Aphis.

To the Editor: An Iowa man whose word I have found reliable tells me he disposed of lice on cucumber vines by distributing among them diseased chinch bugs obtained from the Government authorities. Lice on his vines all died, while his neighbors had plenty. This was in Iowa. Please comment on this. Is there a difference between the melon louse and the melon aphis?—Reader, Hanford.

Probably your Iowa friend had his experience a number of years ago, when the chinch bug disease was popular and great things expected from it, which were not subsequently realized. The germs of this disease were freely distributed by several experiment stations in the Middle West. The conclusion, after wide trial, was that the disease only struck the chinch bug badly when the weather was moist and cool, and under such conditions the chinch bug also died freely without the germs, while during weather which favored the insect it throve in spite of the germs, which were depressed by the same atmospheric conditions which favored the insect. Unquestionably many insects are kept down by fungus and bacterial growths which create disease among them, but when conditions favor the multiplication of insects in spite of such handicaps, the grower has to take a whack at them himself or lose his crop. The melon louse and melon aphis are two names for the same thing.

Sorghum Hay.

To the Editor: Please advise me at what time it is best to cut sorghum for hay, or fodder. I have a field that was sown broadcast and is now beginning to head, but I have had no experience in growing sorghum for stock feed. I supposed it should be cut when the grain is in the dough, but some say when it is thoroughly headed.—Farmer, Gridley.

Cut between the milk and the dough, or in what is sometimes called the early dough stage. There is great danger of loss in allowing the plant to stand too long, because the stalk hardens rapidly and becomes less palatable and nutritious than good Indian corn stalks.

Bursting Cabbages.

To the Editor: Our cabbages of fine, hard, white heads, good growth and crisp, suddenly split on one side and wide gaps force the point over to one side. Soon the whole thing has turned brown and dark green. What can be the cause? They are on ground moderately fertilized and irrigated in trenches.—Novice, Fresno county.

There may be other things involved, but generally bursting is due to over stimulation and excessive growth. Too much water and high temperatures invite such growth and are likely to burst the head if continued after the head has hardened. It can often be avoided by giving the matured head a pull or a push sidewise which will break some of the roots and thus check the activity of the plant and yet leave contact enough to keep the head crisp and to prevent wilting.

Redwood Ashes.

To the Editor: How can I ascertain if redwood ashes have any value as a fertilizer. They are not considered here to have any from the fact that when a redwood stump has been burned to the ground it is ruined as far as raising anything is concerned.—G. E. W., Mendocino County.

You can count on redwood ashes being about as valuable as a potash fertilizer as other soft wood ashes. The trouble with a stump hole is that the fire has burned the soil down to its mineral contents and put it out of physical condition also and it takes time to restore it. Stable manure, the action of the rains and the growth of weeds will help it back to fertility.

Horticulture.

CHERRIES IN SANTA CLARA VALLEY.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

If the prune be king, the cherry is surely queen of fruits in the Santa Clara valley. Though overshadowed by the commercial greatness of the prune, as becomes a modest spouse, the cherry is the more popular and admired, and takes precedence of him, coming in the June time in all her regal splendor. And this season the cherry has displayed other charming feminine characteristics, such as feebleness and capricious bestowal of favors. It was reported earlier in the season that the Royal Ann seemed shy of bloom, but in due course the fruit set remarkably well, probably owing to the absence of any harsh winds or excessive heat, and an exceptionally heavy crop has been packed and shipped from most localities. At the same time, a curious unevenness in the orchards was manifest, seemingly baffling solution, unless it be that weather and luck come in streaks. While most of the orchards in the district about San Jose and Campbell bent beneath their loads, others had scarcely enough cherries to make a pie; soil and other conditions being apparently similar. These odd deficits reduced the aggregate for the whole county to what may be described as a fairly good crop.

Two notable orchards near San Jose are those of George D. Worswick and W. C. Carlon. The former is the oldest in the valley, a large portion of it having been set out in 1865. These trees are now in their noble prime, many of them with a girth of six feet, the largest the writer has seen in the State, except in the Bidwell orchard at Chico. Mr. Worswick's crop of Royal Anns was the heaviest and finest he has known in fourteen years of successful cherry culture.

These orchards are on a sediment or alluvial soil slightly mixed with clay, and thirty feet deep, as shown in the arroyo near by. This inexhaustible supply of tree food is very thoroughly cultivated and given copious yet judicious irrigation, receiving as much as ten inches of water in the winter whenever most needed, but without regard to the rainfall or to the stage of the fruit development. In cold weather, or if the bloom should be backward, or whenever an appearance of thrips, the water is turned on. Last year irrigation was resorted to before the blossoms appeared, and the previous season not until after the fruit had already formed. Early in July, Mr. Carlon applies fifty inches from an eight-inch stream.

Mr. Worswick's trees that were planted fifty-four years ago are flourishing in full vigor, and never yielded more abundantly nor bore finer fruit than this season. The crop was not only a full one throughout the valley, with the exceptions referred to, but the cherries were very firm for shipping. The three-day hot spell caused some blistering, but not enough to injure them for shipping. At the time of my visit scores of busy hands were packing the fruit, most of which averaged eight cherries to a box-row, this being a diameter of 1⅛ inch to each cherry. The Black Republican makes the best shipper, carrying well at its ripest, while the Black Tartarian is the best eating cherry.

The writer was afforded an excellent object lesson, as to the mingling of black and red varieties in the orchard, in pursuance of the theory that cross-pollination will improve each variety. One experienced orchardist who is a convert to this doctrine, pointed conclusively to his mingled varieties, and certainly the loaded trees and perfect fruit, in rich clusters, like glossy brunettes and blushing blondes, side by side in one family, looked like confirmation; but, alas for theory in the cold light of fact, the adjoining orchard, with precisely similar soil and treatment, save that it is planted in blocks of Royal Anns and Black Republicans, quite equals the intermingled orchard in quantity, size, and quality. Moreover, where the blocks of reds and blacks adjoin, and where pollinization would most readily occur, especially as the prevailing wind would there favor it, there is "nothing doing," no benefit being apparent in either variety.

In all the old orchards the trees are too close together. Mr. Worswick has a thrifty plantation of three-year-olds, in which he has taken care to place the trees forty feet apart. These and similar young trees in neighboring orchards bore eighteen pounds to the tree this, their third season. The largest of the old trees in these orchards bear 600 and 700 pounds, and it was expected that some of them this season would double that quantity.

The age of the cherry tree in California cannot be said to be fully determined, but there is little doubt that decadence before seventy or eighty years is not from senility, but from defective culture, insufficient or injudicious watering, or from the roots reaching gravel or other inhospitable stratum, or from disease such as fungus in the root, which comes beneath the bark, causing rapid failure of the tree. Occasionally a grand old veteran gives up the ghost from some one of these causes, but American California is not old enough to show a cherry tree dead from old age.

The writer saw one very large withered tree, from which the vital spark had fled, but from another cause worth mentioning as a lesson in pruning. It was a case of decay in the heart of the trunk, from rain collecting in a cup-like cavity between four immense branches. If four prongs are left in pruning, care should be taken not to form a receptacle for rain, which will assuredly rot the tree in time.

A famous Black Tartarian in Placer county was planted in 1854, and has a girth of over ten feet and a height and spread of more than seventy feet. Old cherry trees near Chico and at other points in the State bear more than a ton of fruit in one season, and are between fifty and sixty years old. Independent of the large acreage of young trees added every year in the Santa Clara valley, the older orchards should continue their increase, and double their yield within the next ten years.

As said before, the cherry industry is only second to the prune in Santa Clara county. It gives profitable and healthful employment to hundreds of men, women, and children, and would do so for hundreds more if the industry were better encouraged and protected. The canners might number their employes by thousands instead of hundreds. Regarding protection, it certainly seems that a tariff of two or three cents per pound on imported cherries is called for, in view of the fact that French cherries are now laid down in New York at 3½ cents per pound. A two-cent tariff would make all the difference in favor of California, and another great industry would be our own.

AN OLIVE PROBLEM.

To the Editor: I would like to get your advice in the following matter, which is of vital importance to me: I invested $4000 (without extras) in 20 acres of olive land, set out in September, 1897. The trees are planted 25 feet apart and are more or less developed. The location is about 40 miles east of Los Angeles. The elevation is over 900 feet. The ground is sandy, but I found it to be moist a few inches below the surface, even after seven months of continuous drouth. The trees are all green and apparently in good condition. They are bush-like, and average about 15 feet in height. The trees and land have not been attended to for years. In 1903, while I was on the ground in May, the trees were full of blossoms, and the following November I got quite a crop of olives, considering that the trees had been neglected. The years following I was informed that they were full of blossoms in May, but in November no crop to speak of was noticeable. I am told by neighbors that the frosts in spring kill the blossoms.

I should mention that the olives are the Nevadillo blanco variety. My neighbor, not more than 300 yards from my place, has a few Manzanillo trees, and I saw them in the fall of 1907 so full of fruit that some branches broke off from the excessive weight, and he had to prop up the other branches. These trees are on the same soil as mine, have not been irrigated, but the soil was plowed, etc., and the trees were pruned.

There were originally hundreds of acres planted to olives around my property, but the trees have gradually been taken out and grapes planted. There are now about 5000 acres planted to grapes all around my place, and they are doing first class without irrigation. I have invested years of savings in my 20 acres, and don't care to tear out my trees and supplant them with something else unless I am convinced that olives cannot grow in that locality. That is the reason I appeal to you to give me your advice on the following:

1. Would my Nevadillo trees produce if given proper care, such as plowing the land, pruning, and cutting out the large suckers?

2. Would artificial irrigation help them, or is the moisture in the soil sufficient?

3. Are the climate and soil there, and location responsible for their failure?

4. Would Manzanillos thrive there, as my neighbor's trees seem to indicate?

5. What would you advise me to do to make my investment pay?

OWNER.

Chicago, Illinois.

Comments by the Editor.

Your problem has arisen in the experience of others, who will read with interest your minute description. We undertake a few suggestions in answer to your specific questions:

1. The Nevadillo blanco olive is naturally rather a shy bearer, and in some parts of the State has refused to fruit properly, even though the best attention has been given it. Therefore we cannot assure you that the trees would be profitable even if you did give them generous attention.

2. For the same reason we cannot tell you whether irrigation would surely make your trees profitable; but at the same time irrigation would be the most rational treatment to give them, because we doubt if the situation furnishes enough moisture for bearing trees, even though young trees may grow quite satisfactorily.

3. It is true that frost may prevent the bearing of the olive, but there are so many unprofitable trees in places where frost cannot be charged with the injury that frost must be considered only one of several causes. We should think the climate and soil must be satisfactory for varieties which are naturally good bearers, which the Nevadillo is not—except in certain places.

4. The best proof of the satisfactory character of a variety is what it actually does. Therefore we are inclined to think that your neighbor's experience indicates the desirability of the Manzanillo.

5. If you wish to continue efforts to make the olives profitable, the desirability of grafting over the Nevadillo to the Manzanillo seeems to suggest itself. Grafting the olive is not altogether easy, and yet is often very satisfactorily done.

6. We should doubt the desirability of continued efforts to make this property profitable unless you can live upon it and give your personal attention to it. Absentee ownership has many chances of failure and very few of success.

TREES IN SOD OR CLEAN CULTURE.

We can't have trees in sod in many places in California unless we have irrigation to grow grass with, as it is often proposed to grow alfalfa in orchard. But growing a legume with irrigation is certainly more promising than growing grass by rainfall, even in the parts of the country where there are summer rains. The latter method does not seem to be promising at all, and a bulletin by Professor Hedrick of the New York Station at Geneva tells how bad it is. This bulletin is entitled "Comparison of Tillage and Sod Mulch in an Apple Orchard." Some of the conclusions reached are as follows:

Average yield on sod plat after five years, 71.52 barrels per acre, while on a plat that had clean cultivation and tillage, 110.43 barrels, a difference in favor of tilling of 38.91 barrels per acre. He also states that estimates made at blooming and fruiting time showed a far greater number of fruits on the tilled trees. The actual count was 434 apples per barrel on the sod land, weighing 5.05 oz. each, and 309 apples per barrel on the tilled plat, weighing 7.04 oz. each. The dark rich green color of the foliage on the trees in the cultivated plat showed that these trees were in the best of health. On the other hand, the yellow color of the leaves on the sod land tell at once that something was amiss. The leaves on the tilled trees came out three or four days earlier and remained on the trees a week or ten days longer than on the sodded trees. During the dormant season there was a striking difference in the appearance of the new wood on the two plats. The new wood on the tilled trees was plumper and richer in color, indicating better health. The average cost per acre of the two methods of management, not including harvesting, was $17.92 for the sodded and $24.47 for the tilled, giving a difference of $6.55 in favor of the sodded. However, the average net income per acre from the sodded plat was 71.52 barrels, while the tilled was 110.43,

a difference of 38.91 in favor of tillage. In other words, in the net returns there is an increase of 54% in favor of clean culture under the trees, over the sod mulch method of management.

Professor Hedrick also goes to some length in showing the great amount of moisture in the soil in the tilled plats, as compared with the plats left to sod. Connected with the moisture question is also the question of plant food, the greater availability in the tilled plats.

Nearly all plants are improved by tillage; the apple is not an exception. The results of the experiments were so positive that they can apply to all varieties of apples, to all soils and locations.

While the experiment does not show that apples cannot be grown in sod, yet they suggest that apples thrive in sod, not because of it, but in spite of it.

Citrus Fruits.

CULTURAL GOSSIP.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

The great increase in citrus acreage that is now taking place, particularly in Tulare county, the Imperial valley, and in Salt River valley, Arizona, again brings up the old question of whether the production will not soon reach a point above the demand. We learn that one nurseryman in southern California sold 250,000 young trees this past season, and this quantity alone will represent over 2000 acres of citrus fruits, mostly navels and Valencias.

We will remember that the cry of overproduction has been raised nearly every year since the industry became of any importance. At the time that Los Angeles county, then the greatest and almost the only producer of citrus fruits, of seedling varieties, raised upward of 100 cars of oranges, it was thought that we were raising more fruit than could be marketed, thought at that time the markets were wholly local and no one of course had any idea of the magnificent future of the industry. This season is really the first one in which the quantity of fruit has affected prices, and has brought home the important fact that there is a limit, and that sometime it will be reached.

Not only in California and Arizona is the production rapidly increasing, but in Florida, Porto Rico and Cuba. The largest crop of oranges that Florida has heretofore produced has been 10,000 carloads, but this year the reports are to the effect that they will have upward of 25,000 cars. The planting in Cuba and Porto Rico has been extensive since the Spanish-American war, the fruit for Porto Rico coming in duty free, that from Cuba at a low tariff, and from both countries in steamers, at a low charge for freight.

There is no cause for immediate alarm, but it is a situation that must be faced at some time in the not very distant future. For relief we have on one hand the expansion of markets and on the other the elimination of orchards that are not bearing the best fruit. Both of these features will help solve the problem, and in time, among growers, it will come to a question of the survival of the fittest. There are hundreds of acres of bearing orchard that have been planted in soil and where climatic conditions are not the best. For instance, I believe that in the course of time Orange county will produce but few navels, but that it will raise the greater part of the lemons produced in California. There are places in the interior of the State that are not fit for Valencias or lemons, but where navels do well. There are places that cannot raise good citrus fruit of any kind, and there are others that might raise good fruit if the frost did not strike them every year.

There will be a gradual shifting about, and only the fruit adapted to certain soils will be raised on that soil, and other soils will be found to produce citrus fruit that cannot be marketed profitably and so will lose value as a citrus producer and be planted to something for which it is more adapted. This has been a test year to the extent that it has been shown that the buyers place different values on oranges from different districts and of different packs. There never before was such a wide range of values, and the range will become wider as time goes on and the supply increases, and while the best stock may not go higher, the poor well surely go lower, and it will only be a question of time when it will not be profitable to ship such stock.

I also believe that our growers can raise better oranges than they have in the past, and I believe that a few men are very far ahead of the general run of growers in that particular. This whole train of thought was brought about through a conversation with a grower who is also a thinker, and who says that intelligent cultivation, irrigation and the use of fertilizers will make a great difference in the quality of the fruit grown on a given piece of ground.

For instance, this grower believes that excessive irrigation in the past three years has brought about a larger and coarser orange. He states that we were never troubled so much with large-sized fruit up to three years ago; that prior to that time the rainfall was light and that the ranchers were obliged to be sparing of water. That with full reservoirs and the sinking of new wells, water has become plentiful and much of it has become worse than wasted.

Where growers own stock in a water company and are entitled to so much water every month, and on a certain day of the month, they are tempted to take their quota of water, whether the orchard really needs it or not. Our grower buys his water from a public concern, and gets it just when he wants it, and in just the quantity he wants—that is, when he thinks the orchard has had enough, he shuts off, and is not tempted to take more, like the rancher is who can run to a certain limit without increase of cost.

This man says that he never applies water until the trees begin to show that they need it, and he says if it took six months he would wait for that sign. When the tree is really thirsty it shows it by the curling of the leaves, and that is the time to apply the water, not before nor very long after. This man claims that he never has had over-sized or coarse fruit, and so of course he claims that both these defects are caused by the excessive use of water.

To those growers who can only get water on certain days and at given periods, he suggests that they gradually cut down the water supply each month until they reach a point where the leaves on the trees begin to curl just about the time the water is due. Different soils absorb water more or less quickly, and it will take some experimenting to find just the proper amount to use to carry the trees over to the next drinking time.

I shouldn't wonder if there is much in what this man says, though he himself claims that it is far from being a new theory, and says that all growers do not agree with him. That some folks drown their orchards is a fact, however, and I saw an example of this on a recent visit to Orange county. I was riding with a Mr. Barstim, a grower with a reputation at Orange for having one of the very finest orchards in the vicinity, a man who has intelligent ideas regarding orange culture, and who carries out his ideas with his own gnarled and calloused hands. We were just outside of Orange, and I pointed out an orchard near the railroad that lacked that beautiful glossy green that denotes health, and asked him what was the matter with it. He replied that the owner was drowning it, and even then the water was running through it. He said it was a case of too much water and too little cultivation.

Think this over. If you can raise a finer fruit of better texture, sweeter and less watery, of better keeping qualities and of more merchantable sizes, and at the same time save water and labor by so doing, why there surely is much of value in the idea. To reiterate, the grower who can raise fine fruit will make it pay, and the one who cannot will have to go out of the business and give way to someone who can.

Right in line with the ideas set forth in this article comes the news that the Government is to send an expert to California to study the question of building up better strains of the different varieties of citrus fruits. Mr. A. D. Shamel is the man, and his work along this line, with corn and tobacco, have given him a national reputation. If Mr. Shamel can do as much to benefit the citrus industry of California as has the work of G. Harold Powell along other lines, we shall indeed begin to fully appreciate the value of the Bureau of Plant Industry of the Department of Agriculture.

I have found one orchard where there has been very little drop this year, and the owner claims that this was because he got through irrigating just two days before the hot weather came, and thinks that the fact that he put out two pounds of nitrate of soda to the tree just two weeks before might have helped some. Mr. E. P. Buss of Ontario is the fortunate grower who will have a full crop of navels at a time when his neighbors and the whole citrus producing country will be short. As was stated in this column two weeks ago, there are growers who do not agree with the theory that an irrigation just prior to a hot spell has anything to do with the matter of drop, but it certainly does look plausible to suppose that the trees would be in better shape to stand the strain put upon them if they were in the right condition to meet it, and why not when they had just been invigorated with water and possibly strengthened with plant food?

Even if it became a thoroughly established fact that a prior irrigation would stop drop, it might be questioned as to whether it would prove of any benefit to the grower in general. Of course he might have a private wire connected with the weather bureau office at Los Angeles and thus find out two weeks in advance just when the hot wave was coming, and so hastily set out some dainty dish before each tree that it might feast and become strong, but when it came to the day before the hot wave was due, how could all get the water they wanted? All could not, certainly, where they are using community water, which is the case all over southern California. In Tulare county, where many of the large ranches have their own supply of water, and where every ranch probably could have it if they would go to the expense of digging for it, this might work out. But my, I pity that weather bureau man.

[By an error in last week's issue the last two paragraphs of Mr. Wright's article were attached to the article on "Oranges in Frosty Places." As the frosty places were in Texas, and as Mr. Wright was discussing lemons, we presume he does not care to stand for his favorable view of the lemon outlook when it is transferred to Texas.—EDITOR.]

The Vineyard.

VITICULTURE ABROAD.

In a report by Vice-Consul Leute upon the German vineyards it appears a comparison of the year 1907 with previous years shows that the amount of production was below the average, while its value was considerably above the average. There was a production of 65,654,540 gallons, with a value of $27,255,756, for the 293,114 acres of bearing vineyards in the German Empire in 1907, the average value being $93 per acre. In 1906 the area of productive vineyards was 4,017.9 acres greater than in 1907, while the amount of grape juice produced was but 43,211,110 gallons, of a total value of $16,700,366, an average of $56.26 per acre.

Consul Solomon Berliner, of Teneriffe, states that with the replanting of vines in the Canary Islands, the exportation of wine will probably again become a leading trade. During the first half of the nineteenth century the annual exportation was 20,000 to 40,000 pipes per year. Vine growing and wine presses are still primitive. After fermentation and when the wine is clear it is taken to Santa Cruz in small coasting steamers, and there undergoes a special preparation for export, being fortified with a little grape brandy and exposed to the heat of the sun in a building which has a glass roof. The finer wines are placed on the ground and the commoner ones directly under the roof. This matures the wines rapidly, and is the same system as that employed in Madeira, except that no artificial heat is used.

The application of motors for agricultural purposes, and especially for viticulture, is attracting considerable attention in Europe. In view of this fact the international competition for motor machinery for viticulture to be held at Palermo, Italy, the coming autumn is interesting. A royal decree sets forth that the machine adjudged the best will be awarded the diploma and about $2000, and that the Minister of Agriculture will purchase two of this class. The second prize consists of a gold medal and about $600. Application for admission must be sent to the Minister of Agriculture at Rome not later than August 15, and the machines or apparatus must reach Palermo by October 16.

AGRICULTURAL REVIEW.

Horticultural Notes.

The fruit cannery at Hanford commenced the season's run this week by putting up peaches.

The apple and pear trees near Alta, Placer county, are well loaded, giving promise of a large crop.

Over a car of prunes a day have been shipped this week from the Earl orchard near Cottonwood, Shasta county.

The Santa Paula Chronicle says that last week there were 1500 people in that valley helping dry the apricot crop.

The "old cannery" at Visalia commenced operations the first of the week. Only a light pack will be made this season.

The Lemoore Leader states that the muscat grape crop will be about 40 per cent short of last year in many vineyards throughout Kings county.

Cantaloupe shipments from the Kerman district in Fresno county commenced last week. About 250 acres there will produce about 20 cars this season.

The Highland Exchage Company is a new marketing association of orange growers recently formed in tne Highland district, San Bernardino county.

A vineyardist in the vicinity of Sanger has contracted to sell his crop of Malaga grapes, delivered to packing house, for $20 per ton, September delivery.

The Selma cannery expects to make a record run on fruit this season. It commenced work on peaches last week and is now running overtime with a full crew.

The Limoneira Company of Santa Paula shipped 16 cars of lemons to market in eight days recently. Prices secured are reported to have been from $5 to $7 per box.

In Orange county last week the cool weather caused the apricots to dry slowly, forcing the dryers to order more trays. The quality of fruit is reported to be extra good.

The Earl Fruit Company will ship apples from the Sebastopol, Sonoma county, section this fall. They are erecting a packing house of their own at that point.

A big grape crop is now practically assured in San Diego county. Growers are expecting to ship the fresh fruit in larger quantities than before and anticipate good prices.

A syndicate has been formed to take over big tracts of land in the southern part of the State, on which it is announced date culture will be carried on in a large way.

Owing to the canneries not buying as heavily as usual, the apricot growers of Niles are drying the biggest part of the crop. From $25 to $30 per ton, orchard run, has been paid for the ripe cots.

The Modesto Canning Co. last week completed its run on apricots, having made a fine pack. Work will soon commence putting up peaches, which will continue till pears and tomatoes are ripe.

The prune growers of Geyserville have formed an association to market their fruit. The directors are: George H. Larkin, E. Moody, F. A. Cook, C. R. Miller, Victor Seeman, S. H. Young and W. S. Vaughan.

H. Clay Blake of Vacaville, named by Governor Gillett several weeks ago as a member of the State Board of Horticulture, has failed to qualify, and the governor has filled the position by naming State Insectarist E. K. Carnes.

The C. C. Morse Seed Co. has moved its nurseries from Livermore to a tract of land near Haywards. At this place the company has erected greenhouses, office and other buildings necessary to conduct the business of propagating and handling the large quantity of berry plants and ornamental stock they have.

Fruit growers around Yuba City are offered from $15 to $20 per ton for peaches. One cannery there will not operate this season, but the Armsby Preserving Co. will, while several outside canneries have buyers in the field there.

The Highland Protective Fruit Association is a new marketing association composed of citrus growers of West Highland, Del Rosa and Arrowhead. The new association proposes to buy the packing house of the Independent Packing Company at Del Rosa.

Watermelons from various sections in the San Joaquin valley were shipped out in large quantities during the past two weeks. One day recently eleven cars were shipped from Dinuba, and as many more melons would have been sent out if cars had been available.

A dispatch from Sacramento states that fruit shippers have fears that a refrigerator car famine will retard shipments. The larger volume of shipments than was expected is the cause of the car shortage, though the railway company is returning cars from the East as fast as unloaded.

Santa Clara county has just finished shipping its big cherry crop, which owing to climatic conditions was fully two weeks late this season. The crop was a large one and good prices were received in the East. One firm shipped 85 full cars of cherries from the Santa Clara valley this season.

This week will about see the end of the cantaloupe season in the Imperial valley. The total shipments from that valley this season will be about 1200 cars. During the whole time shipments have been made the prices have been good, the end being as good as the beginning. It is stated that the entire shipment will average a dollar a crate to the grower, which means over $400,000 for the melon men.

General Agriculture.

The farming section around Klamath Falls, Ore., has produced a good crop of potatoes this season.

Farmers are reported to be planting spineless cactus in wholesale lots around Button Willow, Kern county.

H. T. Metzger raised on a 12-acre tract in Orange county this season 309 sacks of barley, averaging 120 pounds each.

The bean crop along the river in Sutter county is looking fine and a bumper crop is expected. Harvesting will begin about the middle of August.

Alfalfa growers around Orland are contending against dodder, the parasitic plant which is so obnoxious and hard to kill when once established in a field.

The warehouses at Meridan, Sutter county, are receiving barley at the rate of 1000 sacks per day. The grain crop over the State is fast moving to market.

While the hop market around Ukiah is reported to be quiet, yet growers are holding for higher prices for the coming crop. Quotations on the new crop run from 13 to 15 cents.

The grain crop around Ducor, Tulare county, is being rapidly bought up. Last week $50,000 worth was bought, and the whole crop in tnat district is figured to go over $200,000.

At a meeting of directors of the old Sonoma and Marin Agricultural District Fair Association held last week it was practically decided to hold a district fair at Santa Rosa about August 1.

A largely attended meeting of bean growers was held at Oxnard last week, at which time an association was formed. The association will have practically all the beans raised in Ventura county in control. Charles Donlon was chosen president; A. Camarillo, vice-president, and Clarence Chrisman, escretary. The next meeting will be held July 24.

According to the U. S. Department of Commerce and Labor, the shortage of harvest hands all over the grain sections is becoming a serious question. Fully 50,000 men are wanted at once to help save the big crops now commencing to ripen.

According to reports gathered of the hay crop from various parts of the State, it seems that the yield will be much larger than first estimated. Imperial valley and other parts of southern California have raised a good crop. The San Joaquin and Sacramento valleys will harvest larger crops than expected, and in San Benito and Monterey counties the crop yield has been extra large. In Monterey county, from Salinas to Kings City, the tonnage is immense. In that district there are many stacks of baled hay containing 2000 tons each.

Stock and Dairy Notes.

A. Morris & Son of Woodland, owners of the famous Juliana De Kol, expect to show some of their fine Holsteins at the fairs this fall.

The recent improvements to the Lucerne Creamery at Hanford are now complete, giving a capacity of 5000 pounds of butter daily, which the factory is now producing.

At the Maple Grove Creamery near Hanford 2500 pounds of butter are being produced daily. In addition to the butter output the creamery also manufactures a large quantity of ice cream.

Claiming that the milk did not contain the required 3 per cent of butter fat, the milk inspector of East Oakland dumped a wagon load of milk belonging to the Union Dairy Farm one day last week.

Thomas H. Scheldwachter of Compton, Los Angeles county, last week bought a large lot of cattle around San Jacinto and has shipped them to his home feeding yards, where he will fatten the stock on sugar beet pulp.

The first shipment of cattle over the Klamath road, from Midland, Oregon, was made last week, when a few cars of fat stock was sent to the California market. Heavy shipments of stock will be made from that locality the coming fall.

At a meeting of the State Dairy Bureau held last week several changes were made for the future conduct of the work. F. W. Andreasen of Humboldt county was

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chosen secretary and agent of the bureau, becoming the executive officer. William H. Saylor was chosen as chemist, and it is expected that the present dairy inspector will be retained.

The Holtville Tribune says that the Imperial Valley Bee Keepers' Association has been offered 10 cents per pound by a firm in Germany for all the honey it has to sell. As 5 cents has been the ruling price, the bee men of Imperial valley will doubtless sell to the foreigners the remaining five cars they hold.

The story comes from the southern part of the State that Henry Schultz, the bee inspector of Los Angeles county, found a cave of honey in Encino canyon, overlooking the San Fernando valley, last week. Mr. Schultz estimates the honey will amount to $300 and about half as much more of wax. A rancher living near says he has noticed bees in the vicinity for the past ten years, which are supposed to have stored up the large amount of honey found.

A Chicago company has announced the manufacture of paper single-service milk bottles in three sizes—quarts, pints, and a half pint size for cream—says the Utica (N. Y.) Press. They are made of pure fiber paper and refined paraffine. The manufacturers say that they can be placed upon the market for a half cent each, and the milkman will be likely to consider these cans at that price a measure of economy, for it means that there will be no cans to wash and scald, no breakage, no second trip back for the bottle, and they are light to transport.

Miscellaneous.

The California Vintage Company is preparing to erect a crusher and necessary buildings at West Cucamonga, San Bernardino county.

The new beet sugar plant at Corcoran commenced operations last week, and is now using about 325 tons of beets daily—about half its capacity.

The Geyser Peak winery at Geyserville is to have 60,000 gallons more cooperage capacity added this summer, giving it a total capacity of 225,000 gallons.

The big winery at Rosedale, Placer county, is preparing to handle a large tonnage of grapes this season. The full capacity of the winery is 600,000 gallons.

The Los Alamitos sugar factory in Orange county commenced the campaign for the season this week. Sugar beets in that section promise a yield of 9½ tons per acre, which will give the largest output the factory has yet had.

The Farmers' Union has closed a deal for the use of a packing and seeding plant at Fresno. This plant is to be the central house to handle the seeding of raisins from the territory around and from smaller Union packing houses in the valley.

A SUGGESTION ABOUT FARM HELP.

To the Editor: Frequently I have applications from men, worthy and reliable, who are anxious to go to the country to pick fruit. We make a very great effort to secure work for this class of men, and I would ask that you kindly lend us your co-operation. Will you kindly state in your very valuable publication that any of the fruit growers or general farmers desiring worthy help might apply to us, and thus render great assistance to us. We should be glad to give careful attention to such correspondence.

CORINNE COOK.

Secretary Information and Employment Agency of the Associated Charities of San Francisco.
1597 Jackson St., San Francisco.

We trust Miss Cook's letter will commend itself to our readers.

Apiculture.

WARNING AS TO BLACK BROOD.

Dr. E. F. Phillips, in charge of apiculture in the Bureau of Entomology, writes to Gleanings as follows:

"Samples of a new outbreak of European foul brood in Fresno and adjoining counties in California have been received at this office. I think you would benefit the beekeepers of the infected area by calling attention to this in Gleanings. This disease is new to that part of the country, and it will be well for the beekeepers to know the danger. Any suspected samples may be sent here for identification."

Accepting the suggestion of Dr. Phillips, Gleanings remarks as follows: California beekeepers, especially those in the adjoining locality, should bestir themselves at once, for unless European or black brood is checked it will nearly wipe out the industry before it can be brought under control. Ordinary foul brood, bad as it is, in our judgment is mild in comparison, and the sooner California beekeepers recognize its awful virulence the better it will be for them. It spreads with tremendous rapidity, and, what is more distressing yet, it will sometimes come back after it has been cured.

It will be the part of wisdom if the beekeepers of Fresno and adjoining counties will practice "shook" swarming. Hive the bees on frames of foundation, and melt up all the old combs as soon as the brood is hatched out.

If black brood should once get started in a yard of ours, we would treat the whole apiary, irrespective of whether individual colonies showed the disease or not. To that end we would put every brood-nest on the top of another body containing frames or foundation, separating the two stories with a queen excluder. Of course we would put the queen below; and as soon as the brood was all hatched out above we would extract the honey, if any, and melt up the combs.

The plan outlined will sacrifice no brood, honey, nor even wax. It will involve, of course, some extra labor; but in many cases, and perhaps all of them, there would be a corresponding gain in honey alone, and the prevention of swarming, to say nothing of the benefits to be derived in killing the germs of any possible black brood that may lurk in the combs. With the modern methods of wax-rendering one can secure practically all of the wax out of a set of combs. When the work is done right the wax will pay for the foundation.

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Over 200 Recent Graduates of the Polytechnic Business College of Oakland Take Commercial Positions.

One of the best possible indications of returning prosperity is evidenced by the unusual demand for stenographers and trained office help in the various departments of commercial activity.

The report of the Polytechnic Business College, 304 Twelfth street, Oakland, Cal., for the term ending June 30 shows that over two hundred young men and women have been sent to commercial positions in the vicinity of Oakland and San Francisco during the past six months. Within two weeks after the graduating exercises were held every graduate of the full course had been placed in remunerative employment. This is not only an indication of the improvement in general business conditions, but it clearly shows the trend of the times and the growing popularity of commercial education.

This institution, established but ten years ago, is today the largest and most effective business training school west of Chicago. Its plan and policy is to maintain the highest standards in business education and to offer a more thorough and practical training than the ordinary business college.

The college is planning for the accommodation of a large enrollment of students the coming year. On account of its high standing and practical work many young people of the various Pacific coast States are being attracted to Oakland.

The Polytechnic College is generally conceded to be the leading school of its kind in the West and has the endorsement of leading educators, including high school principals and university professors. Parents who cannot send their sons and daughters to a four-year high school course and university, should consider well the opportunities afforded by this institution.

Many of the graduates are receiving from $50 to $75 per month to begin with, and are located in positions where promotion and advancement may be steady and sure. It costs no more to attend the Polytechnic than it does the average business college and its advantages are many times greater.

Students are coming from all sections of the West, and the college will open with a very large attendance beginning the first week in August.

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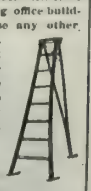
Office—624 CALIFORNIA ST., above Kearney, San Francisco, California.

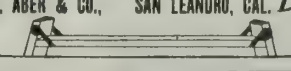
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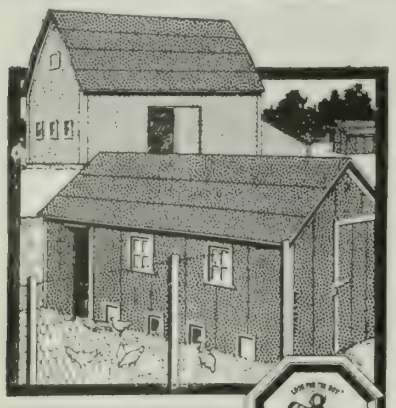


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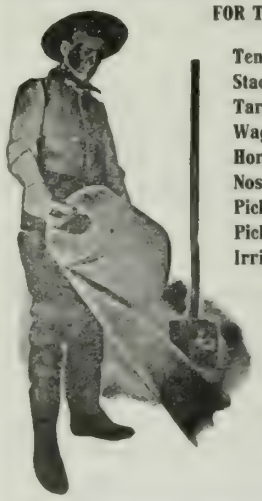
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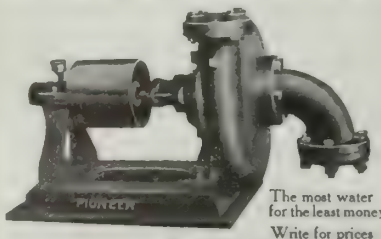
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ROBBING THE BABY.

Written for the PACIFIC RURAL PRESS
By Mr. D. I. DUNCAN.

It is not considered good form to rob a baby, yet it is done most wantonly every day. There is no question but that your son, born day before yesterday, is the most remarkable example of human progeny that ever happened. Only this morning he sat up in bed and said—well, never mind what he said. It is more important to inquire what he would say if he should sit up in bed and look you straight in the eye fifty years from today. Why all this concern about the infant who today has so many luxuries? But let us see how he is being robbed of his heritage.

According to Mr. James J. Hill, fifty years from now we shall not have by millions of bushels wheat enough to supply bread for us all to eat, let alone having any to export. This statement may not interest your newly born son, but it may fifty years from today. We have a daily waste of a million dollars by preventable fires, some of which destroy hundreds of acres of timber that your boy thirty years hence will need when building and furnishing his house. Two million dollars a day is the tribute paid to ravages of insects, and one million and a half is daily lost by soil erosion, all of which comes out of your boy's pocket, or will by the time he grows old enough to have a pocket.

You might say that there is a plentiful supply of sea food, and that a fish diet is more wholesome than meat, but unless Congress appropriates more money for the Department of Fisheries, and is more watchful to prevent piracy upon the finny tribe, the only kind of lobster and crab your boy will see fifty years from now will be the preserved ones in the museums. There was a time when the great coastal plantations of Virginia and the Carolinas got much of their wealth from the sea, the great seines scooping in the countless millions of shad and herring. One seine alone in the Potomac river is reported to have taken 126,000 shad in one season. Not long ago the year's catch fell to 3000 shad, which is less than used to be taken at one haul by that seine. The shamelessness of the Western Salmon Fishers is fit to go hand in hand in general unholiness with the American lumbering operations. Last year the salmon hatcheries on some streams could not get any eggs for their hatcheries. This means that each such stream is going barren, barren forever, because the salmon return only to the stream which bore them. Your baby will pay for all this in due time.

What are you doing for him on your own farm? You chuckle him under the chin, swell with pride when you say, "My son, my heir!" and then go out and practice a system of farming that will impoverish the soil to the extent that it will not produce enough wheat to supply him with bread fifty years from now. The National Conservation Commission says in its report: "Neither increase in acreage nor yield per acre has kept pace with our increase in population." This statement is nothing less than a formal notice that the people of this country must adopt better agricultural methods or suffer the prodigal's fate. It is up to you to do your individual part by selecting better seed, by a more perfect rotation, by increasing the humus content, by maintaining the supply of potash, phosphoric acid and nitrogen. It is absolutely impossible to do the last named by using barnyard manures alone. Commercial fertilizers must be resorted to, purchased in an intelligent manner and used at the proper season. Your weak straw, your scabby potatoes, your undersized, poorly colored and poorly flavored fruit is a warning that your potash supply is practically exhausted, and you need to replenish your fields by buying more, in the form of muriate or sulphate of potash. When the leaves are pale green and the straw short, your soil is hungry for nitrogen; therefore, if you have no green crop to turn under, you should pay the nitrate or some other agency a call.

Just now there is much talk of the "yellow peril," anti-Japanese legislation, etc., but unless there is a check put on this wholesale robbery of timber, mineral, and especially soil fertility, your son will see China-like conditions here in America.

Again agreeing with you that your son, born day before yesterday, is the most remarkable infant that ever happened, let me ask you the question: "What is he going to eat if you continue this extravagant expenditure of his inheritance?"

EVAPORATION EXPERIMENTS.

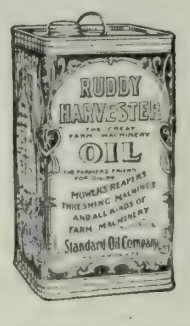
The University Farm at Davis, Cal., is one of eight stations at which the federal government is making a series of irrigation experiments. One branch of the work consists of "tank experiments" so-called, where the soil used is contained in cylindrical metal tanks, 23½x46 inches, set in the earth in such a way that they may be removed and weighed at any time. Given the weight of the tank, the original weight of the soil and the weight of water applied, with proper corrections for temperature, humidity, etc., and very accurate and valuable information may be obtained as to the comparative loss of water by evaporation under different conditions.

Three experiments of this kind have been undertaken; one to determine the effect of cultivation after irrigation in preventing evaporation; one to measure the comparative losses by evaporation when the water is applied at different depths. The first two experiments are being repeated at the University Farm this year. To determine the effect of cultivation, eight tanks are flooded each with the same amount of water; as soon as the soil is dry enough to be cultivated, all are weighed; then four are thoroughly cultivated to a depth of six inches, while the other four are left untouched. All the tanks are weighed twice a week for four weeks; and the loss in weight, with proper corrections, represents the loss of water by evaporation. In the second experiment, also, eight tanks are used, with uniform amounts of water. In two of the tanks the entire surface is flooded; in the others the water is applied at the bottom of a furrow, which in two of the tanks is three inches deep, in two others six inches deep, and in the last two nine inches deep. These tanks are weighed as often as in the first experiment.

The test of soil mulches was so conclusive that it will not be repeated,

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THE CONSTRUCTION AND FILLING OF SILOS.

From a Popular Bulletin of the State Agricultural Experiment Station, Pullman, Wash., by W. A. LINKLATER.

This information is issued with a view to advising dairymen and others who are about to build and use silos for the first time. Silos are practical, and are, in fact, almost essential to successful dairying. The important thing is for the beginner to start right, so as to avoid losses and discouragements.

ESSENTIALS OF A GOOD SILO.—A silo must have walls that are perfectly air-tight, plumb, and smooth on the inside, and strong enough to stand the strain at filling time without bulging. A silo should be fairly durable, wind-proof if built out of doors, and should be built in the most convenient place for filling, and particularly for feeding.

Silos had best be built of either wood or concrete. Concrete silos are the most expensive, but if well built are much the most durable, and may well be built under conditions where the farmer already has permanent buildings. In case the cattle stables are not good, permanent structures and are liable to be replaced in a few years, it would not seem advisable to build a concrete silo, as in such cases the stable would have to be built to suit the silo location. Wooden sheds are especially attractive when the price of lumber is low.

TYPES OF WOODEN SILOS.—Generally speaking, the round silo is most desirable. Such silos require the least material in construction according to capacity, and when well constructed will keep silage better than a silo with corners.



FIG. 3.—LUGS FOR TIGHTENING IRON HOOPS.



FIG. 4.—SPLICING STAVES.

Two types of round wooden silos are in general use. The first type we will consider is what is known as the King silo, shown in Fig. 1. As will be noted, it is constructed with a frame of 2 by 4s set on end at 12-inch centers. The inside wall is composed of two thicknesses of half-inch lumber with building paper between. The outside is sided with shiplap. All wooden silos should have have a concrete, stone or brick base coming at least a foot above the ground, and the inner side of this basement must always be plumb and even with the wooden wall above. Silos may or may not be roofed, but a roof is advised. The roof adds to the appearance of the building, and usually to its strength, but is not absolutely necessary for the preservation of the silage. The King silo described above is a comparatively expensive wooden silo, due to the amount of labor and lumber necessary in its construction.

It is also a question whether the King silo is more durable than a well-constructed stave silo. The factor which works against the longevity of the King silo is the moisture which seeps into the studding spaces from the silage within and rots out the building in a few years, in many cases. For this reason the outer wall is a disadvantage. The condition above may be somewhat remedied by boring a 1½ inch augur hole in each studding space, both at the top and bottom of the silo, to allow a circulation of air and the drying up of the moisture.

Fig. 2 shows a stave silo bound with iron hoops made of ½ inch iron rods. These rod hoops are in two or more sections, held together with iron lugs which allow the hoops to be tightened, much as the hoops of a railroad water-tank. The staves may be the full length of the silo, or made by splicing together shorter lengths, as in the silo shown in Fig. 2. The staves of this silo were sized 2 by 4s, shorter in length than the height of the silo, and were jointed by sawing a cut in the ends to be joined and securing them by inserting a piece of strap iron in the saw cut, as shown in Fig. 4. This type of silo is easily and cheaply built, and when well constructed is durable and preserves silage well. Such a silo, when empty, dries out in warm weather like an empty barrel, and consequently the hoops should then be tightened. It will be noted that this silo shown in Fig. 2 has a roof built on a frame separate from the silo.

Fig. 5 illustrates a very cheaply constructed type of round silo with wooden hoops. These hoops are made by nailing together several thicknesses of green or wet lumber, ¼ to ⅜ inch thick and 4 to 6 inches wide. To these hoops are nailed on the inside two thicknesses of boards, with building paper between. Such a silo will not collapse from drying out, as may

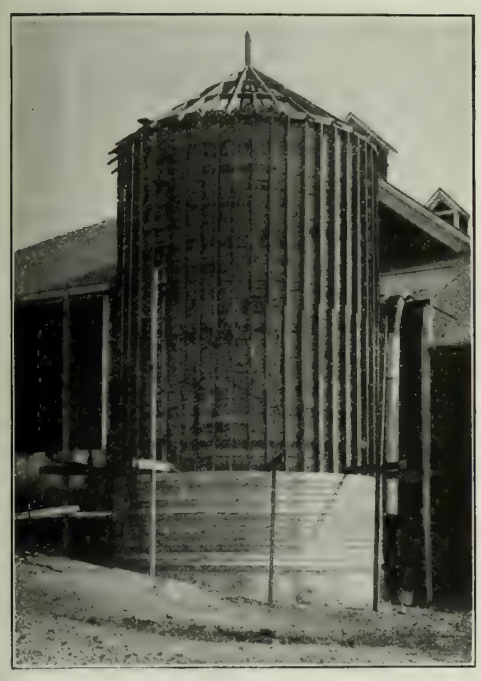


FIG. 1.—KING SILO.

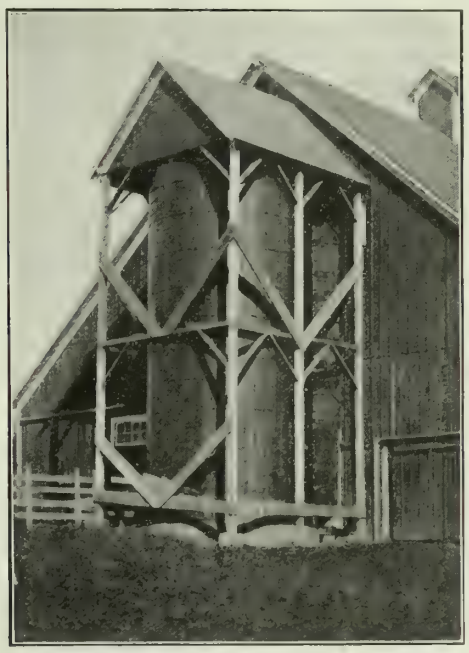


FIG. 2.—STAVE SILO.



FIG. 5.—STAVE SILO.



FIG. 6.—CONCRETE SILO.

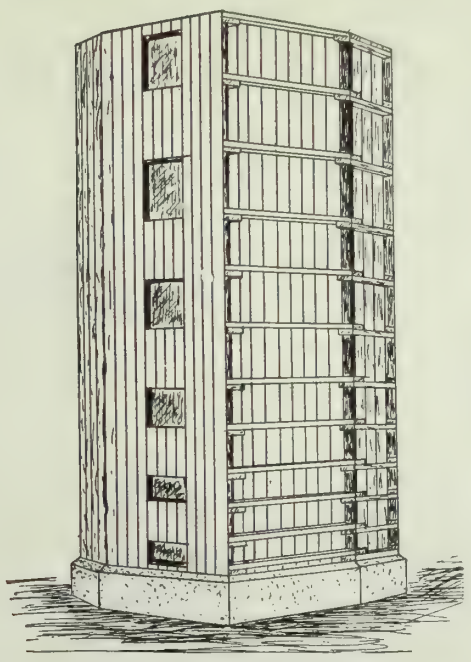


FIG. 7.—OCTAGON SILO.

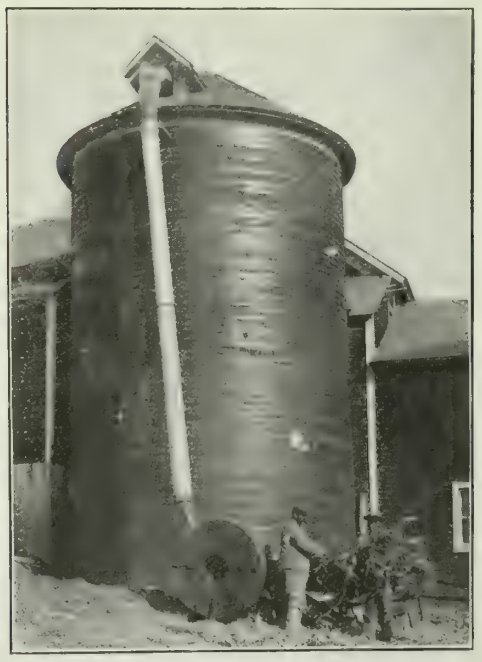
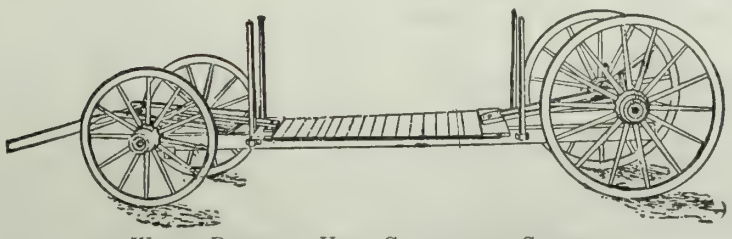


FIG. 8.—FILLING THE SILO.



WAGON RIGGED TO HAUL CORN TO THE CUTTER.

happen in the case of the stave silo with metal hoops. Since there is much more strain at the bottom of a filled silo than at the top, the hoops, whether of wood or iron, should be placed closer together near the base. The first or lower hoop should be 6 inches from the bottom of the staves. The first four hoops from the bottom should be 18 inches apart, the next three 2 feet apart, and the remainder at 3 feet spaces.

CONCRETE SILOS.—If good cement and clean gravel and sand are used for the concrete, in the proportions of 4 parts gravel to 2 parts sand and 1 part cement, an 8-inch wall will be sufficient for the lower half of the silo, and a 6-inch wall for the upper half, provided metal tie material is built into the wall. This tie material may be small iron rods, or even cable or wire, but as much is required as for a wooden stave silo, and the strands of metal should be spaced much as the stave silo hoops.

In Fig. 7 we have shown an eight-sided silo. The frame is made of 2 by 8s running around the silo. It will be noted that these 2 by 8s are placed closer together near the bottom of the silo, just as it was recommended above to arrange the hoops on the stave silos. Such a silo as shown in Fig. 7 is easily constructed. It should be boarded double on the inside, with building paper between. Sheeting on the outside will add to the appearance of the building, and to some extent to its strength, but as in the case of the King silo, the writer believes that the accumulation of moisture which is inevitable between the outer and inner walls will predispose to the early decay of the lumber. Many other types of wooden silos are in use, though the above are believed to be the best. Quite a number of patented silos are on the market, that are sold complete, all ready to erect.

PRACTICAL SUGGESTIONS.—The location of the silo should be such that it will be convenient for feeding the cattle, and generally it can be built to best advantage at one end of the cattle barn. Under Eastern Washington conditions silage is of great value to tide the dairy cows over the droughty summer months. Hence, since the silage can profitably be fed practically the year around—at the Experiment Station Farm it is fed to the cows every month in the year—it is doubly important to have the silo conveniently located for feeding.

Whenever possible the silo should be constructed with a continuous door. Such doors can be used in concrete and King silos, and also in stave silos with metal hoops. The door frame is held together by the bolts, and the silo hoops in turn fasten to the door frame. Lengths of shallow tongue and grooved 2-inch plank ¼ inch shorter in length than the width of the door may be used to advantage as door pieces. The value of the continuous door will be appreciated when it comes time to take out the daily feed of silage.

SIZE OF THE SILO.—In general it is a good rule to have the height of the silo twice the diameter. The following table gives the estimated capacity of five silos of varying sizes, together with the number of cows they will furnish with 35 pounds of silage daily for 180 days:

Height.	Diameter.	Capacity, Tons.	Cows Maintained.
20	10	25	7
22	11	35	10
24	12	50	15
28	14	80	25
30	15	100	30

It is seldom advisable to build a silo less than 12 feet in diameter and 25 feet high.

The height of the silo is the important dimension in determining its capacity, for the reason that the silage at the bottom of the silo, no matter what the depth, is much more tightly compressed and heavier than at the center or top. In a silo 25 feet high a cubic foot of silage at the top will weight 18 pounds, at the middle height 35 pounds, and at the bottom 50 pounds, which shows that the depth multiplies the capacity.

EQUIPMENT FOR FILLING.—Harvesting green corn is at best hard work, and where possible it is advisable to get the most up-to-date equipment for handling the crop. Such equipment would consist of a corn binder, low-down wagons with special racks, and a large capacity cutting box with blower attachment to be driven by engine power.

CORN BINDERS.—Several makes of successful corn binders are on the market. Corn can be cut about as cheaply by hand as with a binder, and, in fact, better when the corn has been badly lodged with the wind. The great advantage of the binder is found when the corn is loaded, and particularly unloaded. The bound bundles are handled with greater ease than loose corn, and a third more rapidly.

CORN CUTTERS.—If much corn is to be cut, a large power cutter with a blower attachment should be bought. The blower is always preferable to the carriers, Fig. 8. The equipment above described will cost, not counting the engine, from $275 to $350. Such an outfit is beyond the means of many, and a small silo can be filled with a small cutter and horse power. The writer has in mind an outfit composed of a second-hand 2½ horsepower gasoline engine and a small hand cutter, that was successfully used by one farmer last season to fill a small silo. The total cost to him did not exceed $75.

FILLING THE SILO.—Corn is the standard silage crop. It can be preserved in a silo with less loss than any other crop, for the reason that it has solid stalks and packs tightly in the silo. Corn makes best silage when cut in the dough stage. Green corn makes sour silage. The corn should be cut up in inch lengths or shorter, and the greatest care should be taken to have the leaves, stems and cobs thoroughly mixed in the silo. If the leaves are allowed to flutter down and accumulate on one side they will always mould and spoil, while the part composed chiefly of cobs and stems will keep perfectly; consequently all parts must be mixed well. The silage must be kept level as the silo is being filled, and the part around the walls well tramped. The center needs little attention.

The silage will settle rapidly as the silo is being filled. It is best not to skip more than one day when filling, except where the silo has been filled and allowed to settle. In such a case, the top few inches that have heated should be thrown out. The greatest loss in a good silo will be at the top. This cannot be entirely avoided. The best system is merely to keep the top level and well tramped for a few days after finishing filling. When it comes time to start feeding, throw out all decayed, spoiled silage, keep the top of the silo level, and feed off of the top not less than two inches daily. Grow corn and use the silo.

THAT ALFALFA PEST IN UTAH.

Concerning the danger of getting an alfalfa pest from Utah, about which we recently gave a paragraph, the extension department of the Utah Agricultural College has issued a very timely bulletin. The alfalfa leef weevil, an introduced European insect, is now causing great damage to lncern in Salt Lake county. The insect spreads rapidly in the weevil or adult stage, but causes the most injury when in the younger stages by feeding on the leaves, buds and flowers.

Eggs are laid on alfalfa in April and May, the larvae or worms becoming full

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Montana Agricultural College and Experiment Station.

Bozeman, Mont., Feb. 8, 1909. This is to certify that the United States Separator that has been constantly in use here at the Dairy Building of the Montana Agricultural College **has given** us **splendid satisfaction.** In light running and durability, the machine is strong and in skimming capacity the No. 5 that we have at the present time has **skimmed as close as .02 of 1 per cent. taking a 35 per cent. cream.**

W. J. Elliott, *Prof. of Dairying.*

Ohio State College.

Columbus, O., April 20, 1907. The No. 6 U. S. Separator in our laboratory with the low milk can is a great improvement. We have required it to take a **thick cream over 40 per cent.** fat and **several times** it has been **over 50 per cent.** The **test** of the **skimmilk** is usually **.01** to **.02 per cent.** fat. I am glad you still keep up the solid frame and fine workmanship on the running parts, as competition with cheap machines is getting keen.

John W. Decker, *Prof. of Dairying.*

Everett, Washington, Jan. 8, 1907. I hereby certify that I tested a sample of cream and skimmilk taken from Geo. Crocker's U. S. Separator some time ago and the **cream tested 66** per cent. and **skimmilk a little less** than **two one hundredths** of one per cent. I will further state that I am not now, nor never was, agent for the U. S. Separator. F. J. Adkins, *Buttermaker*, Everett Creamery.

Subscribed to and sworn to before me this 8th day of January, 1907.

Thomas W. Cobb, Notary Public in and for the State of Washington, residing at Everett.

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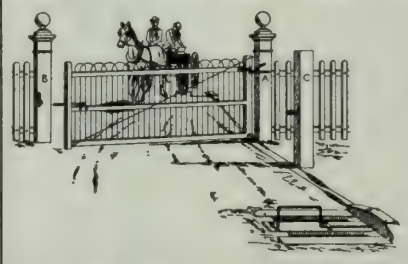
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ABERLOUR, Bishop, Calif.

A. W. LONGLEY, Prop.

grown in the latter part of July, spinning a lace-like cocoon, from which later issues the small, brown, hard-shelled weevil. This weevil hibernates through the winter in any sheltered place—ditch banks, fence rows, alfalfa plants, weeds, etc.

The first crop should be cut as early as possible, the ground disked and cross-disked as soon as the hay is off, and then gone over with a leveler in the same way. These operations will kill a large percentage of the young worms. Then force the second crop as rapidly as possible, and repeat the disking and leveling.

Clean up all the ditch banks, old stack grounds and rubbish early in the fall by burning.

Ship no hay out of infested regions.

THE VETERINARIAN.

Answers by Dr. E. J. Creely of the California Veterinary College, 1818 Market street, San Francisco.

To the Editor: I wrote you some time since regarding a cow which has a swelling between her foreleg and her body. You stated in the Pacific Rural Press that your veterinary advisor pronounced it a deep-seated abscess, and prescribed treatment. We treated her as he advised, but it does not seem to have had any appreciable effect. The swelling is very large, as it measures about a foot from the elbow joint of the foreleg to the body. People who see it think it should be lanced, and we did try to have it lanced, but it did nothing but bleed a trifle. I wish you would reply as soon as possible, as it has been nearly two months since the trouble began, and I am getting anxious to have it cured.—Reader, Booneville.

I think it inadvisable to operate unless the enlargement is growing. If it is necessary to operate, a small flow of blood amounts to nothing. I would advise patience for at least two weeks, following previous advice.

To the Editor: Will you kindly inform me as to methods of procedure on foxtail abscess on cows? I have one that I have lanced once and took out quantities of the foxtail and barley beards. Would like formula for healing wounds, etc.—H. A. G., Morganhill.

The trouble with most amateur surgeons is fear of cutting and blood. I usually remove all hair from the enlargement, thoroughly scrub with a 5% solution of carbolic acid, use a sterile instrument to cut, and make a deep incision through the most dependent part of the abscess. Make an incision large enough to introduce the index finger for purpose of exploration, break down all adhesions, and syringe a large quantity of the 5% carbolic solution, after which syringe in the following: Hydrogen dioxide, 4 oz.; tincture chloride of iron, ½ oz.; water, 4 oz. Mix and syringe twice daily.

Don't let the abscess heal until it is free from pus, otherwise it will return. The following is a splendid formula for healing wounds: Zinc sulphate, ½ oz.; lead acetate, ½ oz; iron subsulphate, 2 drachms; water, 1 pint. Mix and apply several times daily.

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GOVERNMENT EXPERIMENTS WITH ALFALFA LAND.

In connection with the Bureau of Plant Industry of the Department of Agriculture, the Forest Service has been carrying on a series of experiments relative to the reseeding of over grazed areas upon the National Forests in the West.

Among other important forage plants selected for experimental work is the common alfilaria (Erodium cicutarium) of the southwestern desert country. This splendid forage plant grows all over the deserts of southern California, Arizona and New Mexico and furnishes one of the best plants for fattening live stock, especially sheep, known to the stockmen. It grows in the early spring when green feed is most desirable and in a few weeks will cover the desert with a rich green blanket until it looks almost like an alfalfa field. The plant generally reaches a maximum height of from eight to ten inches inside of six weeks and in six weeks more has all died down and blown away leaving the ground as bare as a floor. The seeds of this plant have been carried from California, in the wool of migrating sheep, into the adjoining States, but while it will grow at high altitudes, it does not reach any great height above an elevation of 3000 feet.

The first obstacles the Government experts ran against was the impossibility of obtaining seed in the open markets that would germinate. The seed commands a high price and is hard to obtain but of samples purchased from various seed houses the germinating power was never higher than 13% and the average of several samples was about eight per cent.

In order to determine, if possible, where the fault lay, in the non-germinating power of the seeds purchased, the Forest Service sent one of its plant experts, Arthur W. Sampson, into the field in southern California where alfilaria was known to be most abundant, with orders to gather seed of this plant and make a careful study of the conditions governing its growth.

This has been done and it is very evident that if the seed can be gathered at the proper time and under proper conditions, it will have a high germinating power. Samples of the seed gathered by Mr. Sampson showed a germination of over 91% which is certainly high enough to be satisfactory to any purchaser. Mr. Sampson has been able to outline a method of gathering this seed by which one man can gather a very large amount with very little trouble. Enough of the seed can be easily secured with a high germinative power with which to make experimental plantings on several of the National Forests where this plant would make an admirable addition to the local forage supply. Alfilaria, under normal conditions, seems to be best in a soil composed mostly of decomposed granite, but it is believed it will flourish in most light sandy soils where there is sufficient moisture in the early spring to start the growth

Now that the forest service has shown how to gather the seeds there is no doubt but that the local seed men will avail themselves of the experiment and that in future the grade of seed sold by seed men will be of a much better germinative strength.

KAFFIR CORN FOR BEEF.

"One result of the high price of corn and growing reluctance on the part of cattle feeders to use it will be a vast increase in Kaffir corn production and its use on a broad scale for beef making purposes," said Judge O. H. Nelson, of Amarillo, Tex. "In the Texas Panhandle more Kaffir corn has been fed this year than ever before and feeders are well pleased with results. My own experience in the feedlot convinces me that beef makers do not fully appreciate the value of this grain. It can be raised over an enormous area that never has been feeding territory, but where climatic conditions for putting on gains are ideal. As commercial demand for corn grows stronger production of Kaffir corn for feeding purposes will increase. I believe the time is not far distant when in the Texas Panhandle we will fatten all the cattle we raise."

COMPREHENSIVE STATISTICS ON COLIC.

The veterinarian clinic of Stockholm, Sweden, has records extending over 15 years giving the history of 6078 cases of colic in horses. Altogether 503 of these horses, or eight per cent, died from the affection. The length of the attack in those which recovered was from 12 to 24 horses in 56% of the cases and 36 to 48 hours in 40%. In the fatal cases 61% died in 12 to 24 hours.

Including these and other cases, 834 horses which had died from colic were examined to determine the direct cause. In 31.6% of the cases death was due to twisting or volvulus of the colon; 29.4% to hernias, twisting or volvulus of the mesenteries and to other displacements, and 23% to ruptures of the stomach and intestines. According to the part of the digestive tract affected colic may be classed under two heads—first, chymostase or stoppage of the contents of the stomach and small intestines and second, coprostase or stoppage in the colon, cecum and rectum.

At this time of year horses are particularly liable to attacks of colic. Anything which suddenly affects the action of the stomach and intestines may bring it on. Exhaustion from hard work and excessive heat predispose animals to suffer if they are given large amounts of cold water and feed at irregular intervals. Fortunately colic is not of frequent occurrence when feeding and watering are done at regular times without allowing the horse to suffer for want of either. If besides this, the additional precaution is taken of restricting very hot and tired horses to a moderate amount of water and a little hay until they are partially cooled, the cases of colic are few and far between. Clinical examinations reveal the fact that death from colic finally results from wreck of the digestive tract, owing to its failure to act, as a result of loading it up with material it is not able to handle. Prevention is not difficult; cure is very uncertain.

HOW A HORSE WAS CURED OF A BAD HABIT.

The late Duke of Northumberland, says the London Telegraph, once purchased a valuable horse, but the horse had one very bad trick—that of suddenly lying down when his rider was on his back. This could not be endured, so the Duke ordered his servant to get the horse properly broken in. Accordingly away went the groom to a celebrated horse-breaker in the city of Durham, and without mentioning the animal's particular frailty, left him with a general commission to break him in. The next day the teacher of horses rode out on an experimental trip, and presently found himself rolled upon the soil, and the horse by his side, very much at his ease. "Oh," said the horse-breaker, not at all embarrassed, "is that your custom?" So he provided himself the next day with several strong stakes and plenty of sound rope, and took the unceremonious steed to a large field adjoining Durham Cathedral. The animal, according to his character, soon stretched himself comfortably, rider and all, on the green sods. The horse-breaker, getting up, seized upon his wooden stakes, drove them deep and firm into the ground all around the wilfnl brute, and then, by means of the rope, fastened him down exactly in the position chosen by himself, so that niether legs or body could stir one inch. Of course, after a time the horse was willing to get up, but the teacher was willing he should lie still, and there he kept him, with plenty of hay and water within reach, for three days and three nights, himself sitting on his back most of the time smoking his pipe. The horse never again lay down with his rider on his back.

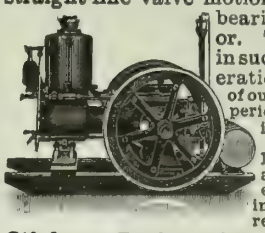
LAMBS ON PEA SILAGE.

In the Pacific Rural Press of June 26 appeared an account of feeding lambs on pea silage in Wisconsin. In answer to a San Francisco inquiry, the Breeders' Gazette gives these additional particulars: The peas used were of the sweet wrinkled variety as they were grown primarily for canning purposes, but for silage exclusively Canada peas would be cheaper and more preferable. The hand feeders used were constructed of two eight-inch side pieces with a board in the center providing a double or reversible trough, each side having a depth of four inches. They swing on a rod so that either side may be used, the object being always to have a dry trough. When feeding in the open one side may fill with water at night, but the underside will be clean and ready for use.

The experience of these feeders is that the latitude of the cornbelt proper does not produce as good crops of peas as that north of the southern line of Wisconsin, and, as stated in the article, the best peas were raised in northwestern Wisconsin.

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The Poultry Yard.

POULTRY NOTES.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

EXPERIMENTS OF PRACTICAL USE.—The State College of Pennsylvania has been conducting some experiments for the past two years upon poultry to determine the points from which the following conclusions are drawn:

The varieties of fowls used in these experiments were: White Wyandottes, White Leghorns, Light Brahmas, Buff Cochins, Barred Plymouth Rocks and Rhode Island Reds.

1. Large breeds in general eat more than small ones during the growing period.

2. Early hatched chicks grow faster than late hatched ones. April 1 seems to be a desirable time for hatching in this latitude.

3. The amount of feed required to produce a pound of gain increases as the chicks approach maturity.

4. Between the ages of six and 13 weeks, it required from 4 to 4¾ lbs. of feed to produce a pound of gain. Between the ages of 13 and 26 weeks, it required from 4¾ to 5 lbs. of feed to produce a pound of gain.

5. Chicks forced when young do not make as rapid growth as they approach maturity as those fed a more moderate ration.

6. Chicks weighing less than one pound seem to grow faster on a wet mash; those weighing a pound and a half or more do best on dry feed.

7. The loss among chicks on wet mash was much greater than among those on dry feed, even when weighing less than one pound each.

8. The slaughter tests indicate that the American breeds dress out better than either the Mediterranean or Asiatic breeds, and that in general pullets dress out better than cockerels. When rather small, weighing less than three and a half pounds live weight, the cockerels of the Mediterranean anad Asiatic breeds seem to dress out better than the pullets.

9. Forced molting seemed to first depress, then increase slightly egg production, but the net results at the end of three months were against forced molting.

10. Eggs set about April 1 seemed to produce the highest per cent of chicks.

11. The eggs of the different breeds in order of their weight were as follows: Black Minorca, Light Brahma, Barred Rocks, White Leghorn, White Wyandotte, Rhode Island Red, White Crested Black Polish, Buff Cochin. A great deal may depend upon the strain, as it is known that some hens of any breed, normally lay larger eggs than others of the same breeds.

12. The weight of chicks when hatched does not seem to be in direct proportion to weight of eggs.

SIX HENS LAY 2624 EGGS IN TWO YEARS.—The seventh annual laying contest carried on by the Hawkesbury Agricultural College of New South Wales, together with the second two-year laying competition, are completed, and the latter has brought out the astonishing results from the leading pen as above. These six White Leghorn hens now hold the world's record on two counts. The same six hens went through the two years, laying 1474 eggs the first year, an average of 245⅔ eggs each. In the second year they laid 1150 eggs, an average of 191⅔ eggs, which equals an average of 437 eggs each for 24 consecutive months. A photo of these hens reproduced in Poultry shows heavily built birds of the largest White Leghorn type. English fowls have the reputation of being more prolific than fowls in this country. The editor of Poultry predicts that if this egg record is ever equaled in this country it will be done by hens bred on the Pacific coast. Five pens of White Leghorns lead in the competition and all made records of over 1300 eggs for the year, being the only pens that reached those figures. A pen of Black Orpingtons came nearest, with a record of 1288. The 114 White Leghorns in the competition averaged a little over 199 eggs each, though the lowest White Leghorn pen furnished but 949 eggs. There was an average of 180 eggs each for the entire number of hens in the contest (300).

In these competitions six pullets are put in one pen with a good sized run attached. No males are kept with them. The eggs were sold in Sydney at market price. The average value of the eggs produced by each hen was $5.60; the average cost of feeding was $1.89 per hen.

MOLTING SIGNS.—Piles of feathers begin to gather in the corners of the poultry quarters. Don't let them pile up. They are soft spots for vermin to breed in; probably some nits are on them when they drop from the fowls. Besides, nothing will give the quarters a more untidy and unattractive appearance than an accumulation of cast-off feathers. Don't let them accumulate.

KEEP THE SHOW BIRDS CLEAN.—The poultry raiser who contemplates entering his young stock in the coming shows might save himself work and improve the appearance of his birds by keeping their yards and houses clean, and taking care in the feeding and watering so that the feathers do not become soiled and drizzled over. Just now the young fowls in white that are getting into their adult plumage are like veritable snowbirds. Keep their plumage unsoiled and unbroken. True, they may be washed, but they will never be as beautiful as now. There are much work and risk in washing fowls, and in the hands of the novice it is likely to prove a sorry job. In our rainless season it is not difficult to keep the young stock in their brand new plumage clean. If possible let them run where the ground is covered with clean, dry grass, but not where there is the foxtail or any such grasses. Keep all sticky food from them, and provide them fountains so that they cannot drizzle the water over their vests.

PROLIFIC PHEASANTS.

It is reported, says Baily's Magazine, that the whole Vancouver Island is now well stocked with pheasants which have long been thoroughly acclimatized and breed freely. The history of pheasant acclimatization in Vancouver is simplicity itself. In 1883 C. W. R. Thompson of Victoria imported 25 birds from China, kept them in captivity till young had been hatched out and set all at liberty as soon as the chicks were strong enough. In 1886 Mr. Musgrove imported 11 more birds and turned them out, and from these 36 pheasants the whole of Vancouver and many of the adjacent islands have been stocked.

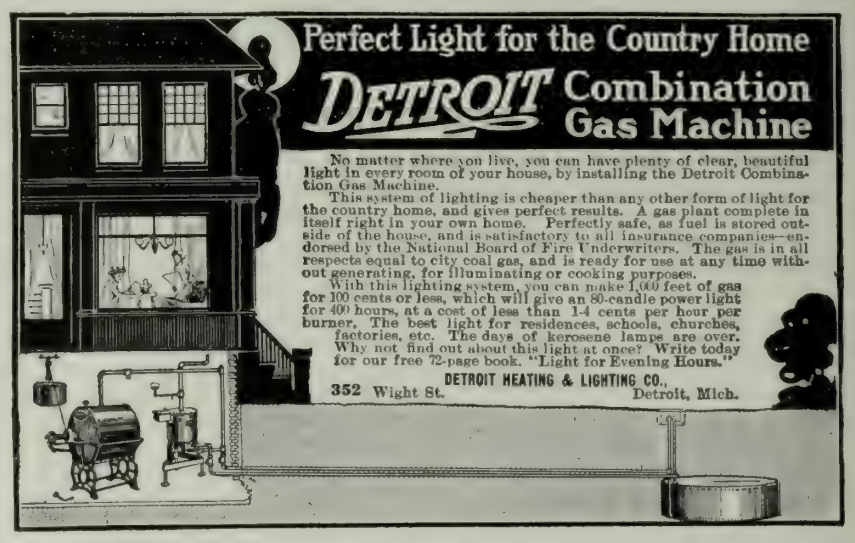
PROTECT THE TOAD.

No more harmless and useful little creature exists than the toad. The active little helper of man in garden and field, its work is all to the good, and not a moiety of root, fruit nor grain does it take for toll. In a Farmer's Bulletin, Professor Kirkland says that the amount of food consumed by a toad is remarkable; that in 24 hours the toad consumes a quantity of insect food equal to four times its stommach capacity. In other words, the toad takes four full meals per day and night, and live insects make up the entire menu. Its tongue is not "hung in the middle," as some people's are said to be, but in front, and swings back, and the lightning-like quickness of this little organ, which is the toad's only means of gathering food, is something amazing. Hard-shelled and vicious insects are whisked out of life by a sort of jiu jitsu of this small organ. In Texas the writer has watched with interest the horned toad catch the big red ants. These ants are more than a half inch in length, hard-shelled, and nearly impossible to kill, for when you cut them in two both parts are alive, and the business end is just as good for a death grip as before—when one of these ants takes hold it never lets go. But they are killed instantly when the horned toad snaps them up. I had wondered how the toad could swallow these red-hot biting ants, until a toad happened to drop his snap, and I discovered that the ant was dead even beyond a kick.

The cutworm and army worm are succulent morsels for the toad, and it soon digests their soft bodies and is ready for more. Snails, caterpillars, sow bugs, thousand-legged worms, grasshoppers, crickets, beetles, flies, wire worms, potato bugs, and all such are used to fill the insatiable demand of the toad stomach, which, like Oliver Twist, is always calling for "more". In one stomach examined, 5 per cent of the contents was made up of snout-beetles, or weevils, such as the plum curculio, the most difficult pest for the orchardist to combat. Many other species of the most injurious insect pests were found in the stomachs of toads; but enough have been mentioned to show the worth of this little reptile. It would seem that every locality would have laws for its protection, and that every teacher and parent would teach children not to harm it. Yet the toad is not only ruthlessly destroyed, but it is too often the victim of cruelty. Professor Kirkland mentions a case that came under his individual notice where two boys in one afternoon multilated and killed 17 toads!

More repulsive even than this evidence of the wanton cruelty of boyhood is the commercial atrocity that will be the extermination of the horned toad, if agricultural departments and humane societies do not intervene.

In the hot sections of the country, where insect life is rampant, nature has placed the horned toad as a check upon that teeming life. These odd-looking creatures have rather a ferocious appearance, owing to the bumps or horns on their leathery hide, a horn of extra length standing up over each eye; but they are entirely harmless and helpless. So much so that children often use them as playthings, and thousands of the toads are tortured and destroyed by this means. To the tourist and health-seeker in Texas these little animals are of unfailing interest. They hop about the by-ways and often the streets of towns, and such cleanly and harmless things are they that milliners used often to put them in their show windows among their ribbons and laces, to attract the attention of the stranger to their wares. The late Judge Richardson of Austin, well known in the history of that section, would always stop and pick up every horned toad that came his way, and put it in his pocket to take home. He had a rose garden that was the delight of his heart, and he said that every toad was worth, at the least calculation, five dollars to him. This is the gentle, useful little creature that it is proposed to "metallize while alive for ornaments for women's hats and for scarf and hat pins!"



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The Home Circle.

While We May.

They are such dear familiar feet that go
Along the path with ours—feet fast or slow,
And trying to keep pace. If they mistake
Or tread upon some flower that we would take
Upon our breast, or bruise some reed,
Or crush poor Hope until it bleed,
We may be mute,
Not turning quickly to impute
Grave fault; for they and we
Have such a little way to go—can be
Together such a little while along the way.
We will be patient while we may.

So many little faults we find;
We see them, for not blind
Is love. We see them, but if you and I
Perhaps remember them, some by and by,
They will not be
Faults then, grave faults, to you and me,
But just odd ways, mistakes, or even less—
Remembrances to bless!
Days change so many things—yes, hours;
We see so differently in suns and showers.

Mistaken words tonight
May be so cherished by tomorrow's light.
We may be patient, for we know
There's such a little way to go!

—*George Klingle.*

Homegoing of Jane.

"Good evening, Mr. Boarder," said the landlady, after she had entered and carefully closed the door behind her with caution.

Mr. Boarder flung on his coat hastily and looked his amazement.

"I want to—ahem!" she began to stammer, "say that Jane is going—going home."

Jane was the upstairs girl; a cheerful, obliging young person, of no importance to Mr. Boarder. His amazement only increased.

"She isn't the first girl I ever had that went home," continued the landlady, rolling the corner of her apron nervously. Then she sat down. "I don't think you've been in a house when the girl went home. Have you, Mr. Boarder?"

Mr. Boarder shook his head.

"So I wanted to tell you to—to sort of look out for—little trifling things in your room."

"What? Jane!" exclaimed Mr. Boarder. "Why, she wouldn't take a pin."

"But she's going home," she supplemented; "ordinarily she wouldn't, and I am not saying you'll miss anything of any real value, but little things like an extra collar or a pair of fancy socks, or postcards—they all admire postcards. And perhaps a collar button, a fancy button. Just little things you won't miss for a long time. Things you'd give her if she asked nicely for them."

"Why, I missed a collar button this morning," declared Mr. Boarder.

Mrs. Landlady nodded again.

"I thought I'd get here in time," she said; "just say to her that you lost it somewhere around the room, and ask her to find it. She'll find it during the day. It's not that she wants to take it, but the old folks at home sort of expect little things, souvenirs from America, and it is really hard on the girls to have to go and buy a lot of little things in the stores. Besides, they don't have time to go around shopping like other folks."

She settled herself comfortably in the chair and looked at him shrewdly.

"I always warn my boarders when girls is going home," she said; "girls ain't all willing to tell us. When you've kept help as long as I have you get to know.

"Now Jane hasn't been good for anything for a month. She's been getting out to parties and things nearly three nights. I know what that means, for Jane hasn't any beau—particularly.

"She's been going to farewell parties at girls' boarding houses. Those houses always give parties when some of their ex-lodgers get the going home fever. They have regular dances and suppers, and everybody talks about the old folks at home, and those that are going across promise to go and see all the other girls' relatives, and tell them how fine they are getting on and when they will be home.

"Every girl has something to send home to the old folks. Sometimes it's pictures, engagement pictures they call them, of themselves dressed up in their day out clothes and their fellow in his best too.

"That's how I discovered Jane was going. She used to come home nights with her arms full of bundles and be packing and unpacking her trunk every few days. Getting out her summer clothes, she said; but I wasn't deceived."

She rose and went toward the door.

"You won't forget about the collar button?" she said wistfully; "for I don't want the new girl who comes in to be blamed for things missing about two or three weeks after Jane goes."

After she had gone Mr. Boarder lit his pipe and sat down to think.

Presently he rose and with a look of profound wisdom dug up a block of paper and a stub pen. On the first sheet he printed with care these words: "I have 24 handkerchiefs. There are 12 in this pile—June 1, 1909. A Boarder." This he placed in his bureau on the heap of handkerchiefs.

"I think those ought to hold them for a while," he muttered at the end of two hours, during which he had labeled all of his movable property excepting his shoes and walking stick.

The next evening his collar button was back in the collar box, and when Jane left last week he took an inventory and smiled. There was nothing missing.

"A guilty conscience is as good as a padlock," he chuckled, being given to the invention of epigrams.—N. Y. Sun.

The Garden.

Ten days of rainless weather in the East during the summer solstice is a different proposition from the rainless summers on our coast. Yet in the late drouth there in the heated term that sizzled around the Fourth of July, it is noted that one market gardener kept his truck patch green and growing by an inch dust mulch over his entire garden through the daily use of the hoe and cultivator.

This fact should encourage our home gardener, who is without means of general irrigation, in keeping the ground well cultivated by stirring and pulverizing the soil into a dust mulch about the plants. By this means a good crop of potatoes, tomatoes, beets, carrots, corn and like vegetables may be obtained without irrigation.

The rule in poultry growing is "Keep the chicks growing," and this same rule applies to plant raising. Keep the plants growing. Steady, regular growth is what produces fruits and vegetables full sized, well shaped, sweet and wholesome; and flowers perfect in form, color and beauty. In neither case can extra care at one time make up for neglect at another. A serious check in the growth of plants, as well as animals, produces stunted, ill-shaped specimens of their kind. In the summer garden keep the weeds down, the soil mellow, and, if irrigation is used, do not let the roots dry out between irrigations. Trim out the sprouts springing up about the stalks of tomatoes, chrysanthemums, and such plants, and nip the extra buds when they start which form side branches and blooms. To have large fruits and flowers, thinning is as necessary as with overladen fruit trees.

PARSLEY FOR HOME USE.—It is both convenient and wholesome to have always on hand plenty of fresh parsley, and this the housewife may have even if she has only a window garden, as it is easily grown and a few plants well cared for will supply a large family, if the leaves are constantly cut, so as to prevent the plant running up to seed. The moss-curled parsley is a most beautiful foliage plant, to say nothing of its culinary virtues. To start a parsley bed that will produce an abundance of this delightful garnish and flavoring, the soil should be spaded deep and pulverized. It is a good plan to remove a foot of the soil and fill in a layer of well-rotted manure or poultry droppings; over this spread a layer of soot saved from cleaning the kitchen stove or pipes. The soot is an excellent fertilizer for this plant, and it also tends to keep away gophers, for which parsley roots have a great attraction. Fill in the bed with sifted soil and sow the seed in drills a foot apart; sift a half inch of soil over the seed and wet down with a sprinkler. The seed of this plant germinates very slowly, and it will be from three to five weeks before you may look for a sprout above ground. Do not let them dry out in the meantime, or they may not appear at all.

TAR WATER FOR INSECTS.—An old gardener says: "For the last five years I have not lost a cucumber or melon vine or cabbage plant. I get a barrel with a few gallons of gas tar in it, pour water on the tar, and have it always ready when needed. When the bugs and lice appear I give them a liberal drink of the tar water from a garden sprinkler or otherwise; when the rain washes it off the leaves, if they return I repeat the dose. It will also destroy the Colorado potato beetle and the old long potato bugs. Five years ago both kinds appeared upon my late potatoes, and I watered with the tar water. The next day all Colorado beetles not protected from the sprinkling were dead, and the others, though their name was legion, were all gone, and I have never seen one on the farm since."

The French Rose Show.

The loveliest sight in Paris this summer was the Roserale or Rose Garden in the Park of Bagatelle, where 50,000 rose bushes were in full bloom. An international jury decided the awards for the finest new species created during the present year. The gold medal was given to a Lyons rose, of large curly leaves of delicate tints varying between pink and orange. It is of the hybrid tea rose variety, and bears the name of Jean Note. The gold medal for the best foreign bred rose of the year was awarded to a Luxembourg rose named Mme. Ségond Weber. It is of salmon color, and is also of the hybrid tea variety. A prize was awarded to a German rose, the Frau Singer, which has undulating leaves, white at the base with pearly pink tips.

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The Deserter.

"Do you desire to have it understood," asked the judge, addressing the lady who wanted the divorce, "that your husband deserted you?"

"Yes, sir."

"Please tell the court as concisely as you can how he deserted you."

"Two months after we had completed our wedding trip he scolded me because he thought I was extravagant in the matter of getting clothes, and I went home to my people."

"Yes. Proceed."

"Well, I waited and waited and waited for him to come and beg me to return to him, and he never did."—Chicago Record-Herald.

He Knew.

A member of the Nebraska Legislature was making a speech on some momentous question, and in concluding said:

"In the words of Daniel Webster, who wrote the dictionary, 'Give me liberty or give me death'."

One of his colleagues pulled at his coat and whispered:

"Daniel Webster did not write the dictionary; it was Noah."

"Noah nothing," replied the speaker; "Noah built the ark."—Illustrated Bits.

Gunner—And now comes a professor who declares that fruit is just as healthy with the skin on as it is peeled.

Guyer—H'm! I'd like to see somebody start him on a diet of pineapples.—Chicago News.

To brighten carpets and drive away moths, after a thorough sweeping, go over them with a clean cloth wrung out of a bucket of the coal oil and water.

THE MARKETS.

San Francisco, July 21, 1909.
(Unless otherwise noted, quotations represent prices paid to growers.)

WHEAT.

Old wheat shows no further decline, but the market is very dull locally, as buyers are looking for a weaker tendency. Some buying is going on in the interior, and so far prices have been very high. A little new wheat is offered here at a slight advance over the first quotation, but little of it is moving. There is somewhat more activity now in the Northern markets.

California White Australian	$2.10	@2.12½
New	2.07½	@2.10
California Club	2.05	@2.07½
New	2.02½	@2.05
California Milling		2.10
California lower grades	1.90	@2.00
Northern Club	2.05	@2.07½
Northern Bluestem	Nominal	
Russian Red	2.00	@2.05
Turkey Red	2.05	@2.07½

BARLEY.

Barley is very firm this week, with advances in both futures and spot grain. There is considerable activity in feed at top quotations, and some shipping grain is being sold, for the first time in several weeks. Chevalier is unchanged, but is in rather more demand.

Brewing		$1.50
Shipping	$1.50	@1.52½
Chevalier	1.60	@1.70
Good to Choice Feed, per ctl.	1.45	@1.48¾
Common Feed	1.40	@1.43¾

OATS.

Red oats are the only line quoted, other varieties being practically out of the market. There is some buying now for seed purposes, and purposes on such lots are very strong. Feed grades, however, are slightly lower, with a narrower range of prices for choice feed. Some sales are reported in the interior as high as $2.05 per cental.

White, per ctl.	Nominal	
New Red, choice	$1.82½	@1.85
Common	1.65	@1.80
Red, seed	1.87½	@2.00

CORN.

A shipment of small yellow corn is reported from the Orient. Arrivals from the Western States have been moderate, but about up to the average of late, and local buying continues rather light. Egyptian is nominal, prices on other grades remaining as last quoted.

California Small Yellow	$1.80	@1.90
California Large Yellow	1.80	@1.82½
Western State Yellow, bulk.		1.70
Mixed, in bulk		1.68
White, in bulk		1.72
Egyptian	Nominal	

RYE.

Under the present very unsettled conditions of the market it is impossible to give any reliable quotations, as the grain is offered at a wide range of prices, without enough business to establish any figures.

Rye	Nominal

BEANS.

With continued dullness and a general desire on the part of dealers to dispose of stock still on hand, prices on several lines have been reduced quite sharply, bayos, pinks, and small and large white beans showing the greatest decline. Very little stock is arriving, and there is little on hand at present. Large inquiries are still coming in for deliveries of the new crop, but as the growers are holding for strong prices, local dealers are very conservative regarding future business. There is some demand for immediate delivery, but the movement is light.

Bayos, per ctl.	$4.90	@5.25
Blackeyes	3.40	@3.50
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.25	@6.50
Large Whites	5.00	@5.25
Limas	4.15	@4.25
Pea	Nominal	
Pink	2.90	@3.00
Red	Nominal	
Red Kidneys	3.25	@3.50

SEEDS.

Prices remain about stationary. There is little movement at this season, and all lines are dull, with quotations practically nominal.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	4@4¼c
Canary	4¼c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

No decline in desirable grades seems likely for some time to come, the present quotations being pretty firmly held. It is believed that some of the millmen are holding back considerable supplies of old wheat, which will last for some time. There is very little business locally, as consumers are keeping their purchases down to the minimum, but there are signs of revival in the Northern foreign trade.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

The local market remains very dull and extremely unsatisfactory to local dealers, as consumers here are unwilling to buy at current prices except for immediate needs. Local prices are unchanged, and it is claimed that they are still unprofitable for dealers buying in the country. There is, however, considerable buying going on in the interior for shipment to this market, though the arrivals are not very heavy. Dealers here are clamoring for a reduction of prices, which they say is necessary in order to dispose of the crop in a satisfactory manner. Good wheat hay continues in rather scant supply, and prices are stronger on this variety than on others.

Choice Wheat, per ton	$18.00@18.50
Other Grades Wheat	13.00@17.00
Wheat and Oat	14.00@16.50
Tame Oat	14.00@17.00
Barley	11.00@13.00
Wild Oat	11.00@14.00
Alfalfa	10.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

More bran has come in from the Orient, but so far receipts from that quarter have had no appreciable effect. Quite a lot of bran is coming in from the North, and all arrivals are readily disposed of. The market for all lines is fairly active, and prices generally are maintained.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	36.50@37.50
Mixed Feeds	25.00@30.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	31.00@32.00
Shorts	31.50@33.00

VEGETABLES.

Red onions are rather unsettled, as there is little demand and they are being pressed for sale at irregular prices. Yellow onions have been in demand for the Northern markets, and are higher, with local supplies cleaning up rapidly. Asparagus was low most of the week, but is now a little stronger, though it is largely neglected. String beans are firmer, but peas have declined. Tomatoes are coming in rapidly, and even at much lower prices there is a lot left over from day to day. Green corn is also lower, with plentiful supplies. Cucumbers have declined sharply, and summer squash is considerably lower, both articles being in oversupply and hard to dispose of, while egg plant has been reduced in order to clean up the receipts. Okra is arriving freely, but still brings fair prices.

Onions, new red, per sack	35@	40c
New Yellow, per ctl.	90c@	$1.00
Garlic, per lb.	4@	5c
Green Peas, per sack	$1.25@	1.50
String Beans, per lb.	3@	6c
Lima Beans, per lb.	5@	6c
Tomatoes, per box	50@	75c
Green Peppers, per lb.	4@	6c
Green Corn, per sack	1.00@	2.25
Asparagus, per box	75c@	1.50
Rhubarb, per box	1.25@	1.50
Summer Squash, large box	35@	50c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	40@	50c
Egg Plant, per box	1.25@	1.50
Okra, per box	1.25@	1.50

POULTRY.

The arrivals of Western chickens were rather small most of the week, and the principal business was on local stock, which cleaned up well under a good demand, with only moderate lots offering. The arrivals of another car of Western fowls, however, has taken attention from local offerings, though the market continues in fairly good shape. Roosters are a little easier, but hens continue in good demand, and the general run of broilers are well taken.

Broilers	$ 4.00@	4.50
Small Broilers	3.00@	3.50
Fryers	5.00@	7.00
Hens, extra	8.00@	10.00
Hens, per doz.	6.00@	7.00
Small Hens	4.50@	5.50
Old Roosters	4.50@	5.00
Young Roosters	7.00@	8.00
Young Roosters, full grown	8.00@	9.00
Pigeons		1.50
Squabs		2.00
Ducks	5.00@	8.00
Geese, per pair	1.50@	2.00

BUTTER.

Butter has been fairly firm most of the week, but buying at present is confined entirely to local requirements, and the market is quiet at the moment, with a rather easy feeling in regard to prices. Fresh extras are ½ cent lower, and with increased arrivals there is considerable stock on hand. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	27½c
Firsts	27 c
Seconds	25½c
Fresh Packing Stock, No. 1	23½c

EGGS.

Eggs continue firm, particularly extras, which are 1 cent higher. There is quite a large supply of low-grade eggs on the market, but all good stock is in strong demand, with increasing scarcity of the upper grades. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz.	31 c
Firsts	29 c
Seconds	25 c
Thirds	21½c

CHEESE.

Exchange prices are about the same as last week, the only change being an advance of ½ cent on local flats. There has been some fluctuation during the week, however, and fancy flats are quoted at 15 cents, owing to large buying by Southern dealers.

Fancy California Flats, per lb.	14½c
Firsts	13½c
New Young Americas, fancy	15½c
Oregon Flats	14½c
Oregon Young Americas	15½c

POTATOES.

Arrivals for the last week have shown a marked increase, and heavy supplies are still coming in from the river districts, while the local market is already filled up and little buying is going on. Prices accordingly show a sharp reduction.

New Potatoes—Boxes	85c@$1.10
Sacks	65c@ 1.00

FRESH FRUITS.

Watermelons are now arriving freely, and prices are comparatively low. The Portland market has been fairly flooded with California melons, according to reports. River nutmegs are also plentiful and low. Strawberries remain steady, but raspberries and blackberries are higher. Several varieties of apples are coming in, fancy Gravensteins bringing advanced prices while the lower grades are dull. Bartlett pears are also easier. Apricots continue plentiful and are pressed for sale at low prices, while peaches have weakened somewhat on larger supplies. Plums are lower, and hard to move as a rule. Figs are scarce and higher. Grapes are arriving more freely, and seedless sell readily at good prices, though other varieties drag.

Melons, Nutmeg, per box	75c@	$1.25
Watermelons, per doz.	$ 1.75@	2.25
Raspberries, per chest	6.00@	8.00
Loganberries, per chest	2.00@	3.50
Blackberries, per chest	2.00@	4.00
Strawberries—		
Longworths, per chest	4.00@	6.00
Large varieties	2.00@	3.50
Grapes, Seedless, per crate	1.50@	1.75
Fontainbleau	1.00@	1.25
Apples, Choice, per box	1.25@	1.65
Common	75c@	1.00
Figs, per box	75c@	1.25
Apricots, per lb.	1½@	2c
Small box	65@	85c
Peaches, per box	40@	65c
Lug boxes	75c@	1.25
Plums, per box	40@	75c
Prunes, per box	75c@	1.00
Pears—		
Bartletts, No. 1, box	1.10@	1.25
No. 2	50c@	1.00
Other varieties, box	75c@	1.00

CITRUS FRUITS.

Prices on citrus fruits are entirely unchanged, and the continued high price of lemons prevents much movement in the local market. The demand for oranges and grape fruit, while much less than a few weeks ago, is fair for this time of year.

Choice Lemons	$ 3.00@	4.00
Fancy Lemons	5.00@	6.00
Standard	2.50@	3.00
Limes	5.50@	6.00
Oranges, Valencias	2.50@	3.25
Grape Fruit	2.50@	3.00

DRIED FRUITS.

The market on fruits shows very little change, either in prices or general conditions. With a considerable stock of spot prunes on hand, the market is a little easier, and slightly lower prices are quoted, though packers have been buying actively in some districts. There is considerable interest in the new prune crop, though most outside buyers are still holding off. In some quarters, however, the market is considered in a stronger position than a year ago, owing to the bare condition of Eastern markets and the prospect of a large export demand. Apricots are still quiet, though the market locally is fairly strong. Crop reports indicate a large proportion of high-grade fruit, with comparatively small production, as little drying will be done in several districts. Packers are quoting 6¾ to 8½ cents for new apples, and a considerable quantity has been secured for future delivery. Local packers are taking some interest in new peaches, but the outside markets are buying very little. Notwithstanding the dullness which has prevailed for some time, the shipments from San Francisco have been rather large of late. There is nothing new in raisins. A large quantity of the old crop is still to be disposed of, and with prospects of large production this year purchases for outside interests are limited.

Evaporated Apples, per lb.		7 c
Figs, black		2 c
Figs, white		3½c
Apricots, new crop	7½ @	8½c
Peaches, new crop	4 @	4½c
Prunes, 4-size basis	2 @	2¼c
Pears	3 @	5 c

RAISINS.

(New Crop.)

Loose Muscatels, in sweatbox.	2½@	3 c
Thompson Seedless		2¼c
Seedless Sultanas		2 c
London Layers, 3 crown	90c@	$1.00

NUTS.

Packers are asking 10 to 14½ cents for the principal varieties of new crop almonds. Quotations to growers are unchanged, and it is expected that the present prices will be maintained for some time. Old almonds are practically out of the market. Walnuts are in fair demand locally, with prices strongly held.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

The market is still rather uncertain, as few buyers are willing to pay the prices asked, and local dealers are generally holding for former quotations. The arrivals so far have been moderate.

Comb	10½@	14 c
Extracted, water white		6½c
Old extracted		4 c

HOPS.

A large proportion of the new crop has already been contracted, and in view of the firmness elsewhere buyers are still in the market. Prices have again advanced, both for old and new crop stock, though the old crop quotations are largely nominal, most of the stock being cleaned up. There is considerable trashy stock on the market, for which there is no settled price.

Hops, Old, per lb.	8 @	12 c
New Crop	13 @	16 c

WOOL.

The market is quiet and nominal, with practically all the spring clip sold, and a large part of it shipped. Full prices, however, are offered for any desirable lots remaining.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20 @	22 c
do (year's staple	20 @	24 c
Middle Counties, free (7 to 8 months)	16 @	19 c
Southern, free (7 to 8 months)	13 @	15 c
Defective wools, 2 to 3c. lower.		
Nevada	18 @	20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

A few changes in price are noted, but most of them are unimportant. Dressed beef is inclined to easiness, while veal and mutton are firm. Hogs are stronger than before, and a few slight advances are noted in dressed pork.

Beef: Steers, per lb.	6½@	9 c
Cows	5 @	6 c
Heifers	5 @	6 c
Veal: Large	7 @	8 c
Small	9 @	9½c
Mutton: Wethers	7 @	8½c
Ewes	6½@	7 c
Lambs	9½@	10 c
Hogs, dressed	9½@	11½c

LIVESTOCK.

Steers: No. 1	3¾ @	4 c
No. 2	3½ @	3¾ c
Cows and Heifers: No. 1	3 @	3⅛ c
No. 2		2¾ c
Bulls and Stags		1¾ c
Calves: Light	5 @	5¼ c
Medium	4½ @	4¾ c
Heavy	3½ @	4 c
Sheep: Wethers	3¾ @	4 c
Ewes	3¼ @	3½c
Lambs	4¾ @	5 c
Hogs: Grain fed, 100 to 150 lbs.	7 @	7¼ c
150 to 250 lbs.	7½ @	7¾ c
250 to 325 lbs.		7¼ c
Common Hogs, lb	4 @	4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., July 19.—Even with light arrivals, the citrus market is in rather poor shape, that is, the auction prices are very low and the demand for both oranges and lemons is very light. The shippers are sticking out for the same prices on the best stock of Valencias, and the chances are that the very best will bring the $1.90 to $2 a box asked, but there is much fruit here that is inferior and that will have to sell a lot cheaper at one end or the other, and the sooner it is sold the better for all concerned. There is now a lot of Valencias turning green, but where the texture is good, even this green fruit is to be prefered to the coarse grained and thick skinned stuff, the production of which does not seem to be confined to any one section, but which is worse in some sections than in others. This coarse stock is mostly the product of the young trees, and is so far below the quality of the usual run of Valencias that there should be a difference of 50 to 75 cents a box in the selling price. This kind of stuff is now being offered down to $1.50 a box and will no doubt go lower.

The call for lemons is not quite so rabid as it was ten days ago, and prices have scaled down somewhat in consequence. The returns from the auctions indicate that dealers are not fighting for a chance to buy as formerly. With an output from California of 40 cars a day it is hardly to be wondered at that the market is easier, though this would not be so heavy if it were not for the fact that the importations have also been heavy, there now being 224,000 boxes of Sicily lemons available within the next thirty days, as against 180,000 in 1908 and 270,000 boxes in 1907. The large quantity of 90,000 boxes, equal to nearly 300 cars, of Sicily lemons were sold in New York city this past week and 70,000 boxes will be offered this week. Prices were very fair, and as high as $5.75 was realized for fancy Maori lemons. Asking prices for California lemons are now from $2.75 to $4.50 and $5.00 a box cash California.

The citrus fruit shipments to this date have been 28,298 cars of oranges and 4969 cars of lemons. Oranges are going out at the rate of 400 cars a week and lemons 200 cars for the same time.

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YOU WILL RECEIVE FAIR TREATMENT 247 CENTRAL AVE., LOS ANGELES, CAL.

Deciduous Fruit Markets.

The sales of California deciduous fruits in the Eastern markets established another record Monday, July 19, when 148 carloads were disposed of. The California Fruit Distributors handled 104 of these, and the balance were sold by companies not shipping through the Distributors.

The next largest sale this season was made July 13, 118 cars being sold.

Prices have been good and the demand exceptional. Shipments are running ahead of those of the same dates last year and the sales are many carloads in advance.

Prices on Bartletts eased off some Monday. Peaches are still strong, while the price on plums is entirely satisfactory.

Following are the average prices realized for the different varieties of fruits in the following Eastern cities:

New York—Bartletts, $2.25; Burbanks, $1; Ogons, 85 cents; Tragedy, $1.10; Eureka, $1.65; Wickson, $1.35.

Chicago—Early Crawfords, $1.10; St. Johns, $1.10; Tragedy, $1.15; Wickson, $1.30; Bartletts, $2.30.

Philadelphia—Tragedy, $1.47; Wickson, $2; Bartletts, $2.30.

Cincinnati—Tragedy, $1.55; Burbanks, 90 cents; sugar pears, 95 cents; Bartletts, $2.25.

Pittsburg—Tragedy, $1.35; Wickson, $1.55; Bartletts, $2.50; German, $1.25; sugar prunes, $1.05; egg plums, $1.15.

Boston—Tragedy, $1.30; Bartletts, $2.70; Crawfords, $1.35; Wickson, $1.25; red plums, $1.30; Hale's peaches, $1.15; Burbanks, $1.25.

A dispatch from San Jose, dated July 20, states that Bartlett pears which last year sold to the canneries for $10 to $16 a ton are now in demand at $30 a ton, with the prospect of prices ranging higher before the pear harvest, a month hence. There is a fair crop in the valley.

California—Resources and Possibilities.

The nineteenth annual report of the California State Board of Trade has just been issued in the form of an attractive booklet. Besides giving the usual statement of the work done by the society, the report contains statistics of the growth and productions of the State that are very valuable.

With its reliable statistical tables and special articles by recognized authorities, the report is replete with information of interest and value to the homeseeker, the tourist and the economist, in fact, to every one desirous of adding to his knowledge of the Golden State and her marvelous resources, their development up to the present time and their future possibilities. Rapid as has been this development in the past, as shown by the report, it is only the beginning as yet.

The California State Board of Trade is recognized as the leading institution in the State in development work, and has the support and co-operation of the bodies interested in work of like character throughout the State. This gives it the fullest means of gathering reliable data and information of general or special nature, as to resources, industries and progress of development.

Letters of inquiry from homeseekers, healthseekers and others desiring information about California, address to the California State Board of Trade, San Francisco, will receive prompt and full answer.

Experimental Dairy Bacteriology.

By H. L. Russell, Dean of the College of Agriculture, University of Wisconsin, and E. G. Hastings, Assistant Professor of Agricultural Bacteriology, University of Wisconsin.

This new book, just published, contains 147 pages, illustrated, is a valuable addition of the list of works pertaining to the new method of dairying. The purpose of the course here outlined is to train the student in those bacteriological processes that are necessary for him to comprehend thoroughly before he is in a position to appreciate the relation of micro-organism to dairy processes. This work is of fundamental importance to the student who wishes to learn the nature of the biological changes going on in milk and its products, whether he is concerned purely with the practical side of dairying or is interested in the cognate work of dairy chemistry or dairy bacteriology. The attempt has been made to keep the scope of this work within the realm of dairy bacteriology, and not to encroach upon the field of dairy manufacturers.

Sent postpaid for $1.05. Ginn & Co., publishers, Boston, Chicago, San Francisco.

Decline of Hop Growing in England.

The British Parliament appointed a select committee, which has been inquiring into the condition of the hop industry in the United Kingdom. The assistant secretary of the Board of Agriculture and Fisheries testified before the committee, and furnished statements relating to the decay of hop growing in England since 1885. In 1878 there were 71,789 acres under hops, and in 1907, 44,938. The average importation of hops increased from 79,992 hundredweight (112 pounds) in 1866 to 202,524 hundredweight in 1907, and have been as high as 262,537 on an average of 10 years. It was stated that the cost of production in the United Kingdom has increased per acre during the last 50 years, and that brewers could do without British hops by importing.

Animals Slaughtered for Food in Germany.

Consul-General Richard Guenther, of Frankfort, furnishes the following information covering the number of animals slaughtered for food and officially inspected in Germany in 1907: Oxen, 575,671; bulls, 427,732; cows, 1,611,366; heifers, over 3 months, 938,936; calves, up to 3 months, 4,384,842; hogs, 16,382,983; sheep, 2,186,113; goats, 489,743; horses and other solipeds, 135,239; dogs, 6472.

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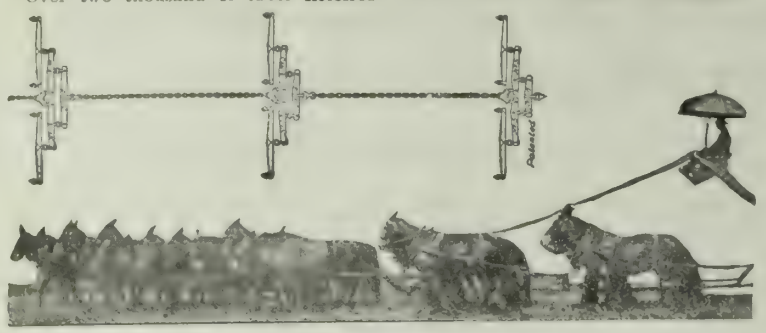
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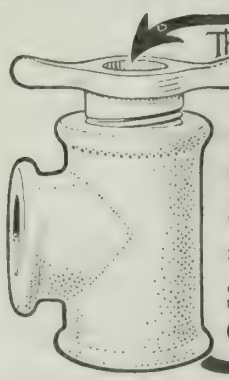
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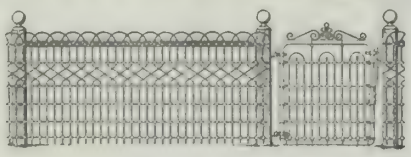
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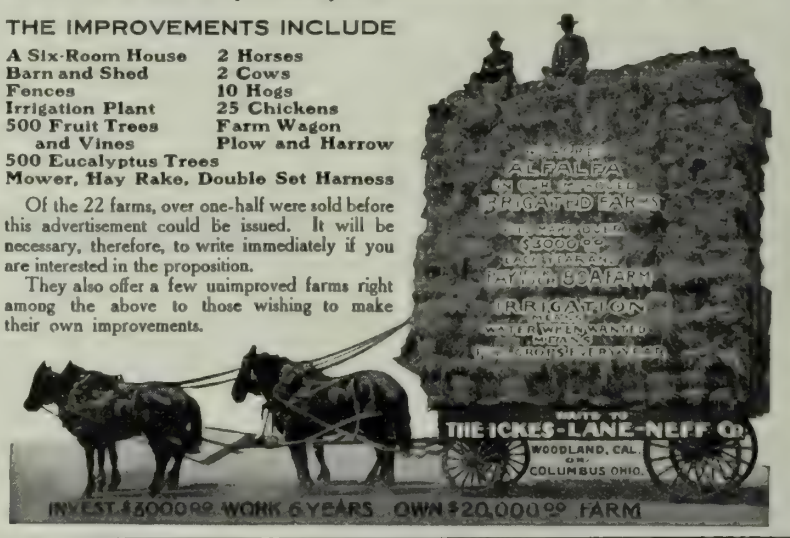
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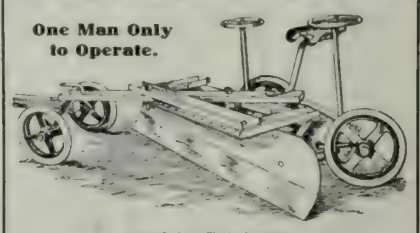
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 5. SAN FRANCISCO, SATURDAY, JULY 31, 1909. Thirty-ninth Year.

California Prune Industry.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

For two decades California has led the world in prune production, and in the best seasons the Santa Clara valley has produced more prunes than the entire State has averaged in occasional years. It may therefore be said that this one valley of California outranks the countries of the earth in this fruit industry.

The dried prune is something more than a fruit or delicacy. It is an important, long-keeping food staple with a steadily increasing market demand. The highest California grades are pronounced equal to the product from the valley of the Loire, in France, long reputed for fine quality.

But that great alchemist, the California sun, not only transmutes the soil chemicals into the prune its wealth of sugar, but his generous rays effect as well a perfect curing of the fruit. The prune is only recognized commercially in its dried form, and outside of a few districts in Europe and portions of the Pacific Coast, there are few areas where it has been both successfully grown and cured. Attempts have been made in other regions, but although the trees have grown and yielded abundantly, excess of moisture or other climatic conditions have prevented perfect curing. Artificial drying may give as good a quality, and its flavor is sometimes preferred, but sun-drying is the most economical and profitable, and the prune country par excellence is one whose climate permits the natural process. The sunshine of the Santa Clara valley takes the whole contract. It produces the fruit in all its saccharine perfection, and when gathered and spread, continues the work, extracting the superfluous moisture and manufacturing the firm and sweet commercial product. Whenever Santa Clara prunes have shown imperfect keeping quality, the fault has not been with the sun, who is never parsimonious with his beams in this valley. Imperfect drying can only arise from haste and carelessness, and can always be avoided. The fruit should remain on the trays until thoroughly cured, if it is to reach the consumer in good condition, and to allow for storage and delayed market. Thorough washing after the lye dip is also very important. Where the lye is allowed to remain it continues to eat into the skin, and injures the fruit in quality and appearance. Let the packer reject all improperly cured fruit, and thus help to build up and sustain a worthy reputation for a great source of our prosperity.



Sequoia Gigantea in Fresno County—Said to be the Largest Tree in the World.

These facts emphasize one of California richest gifts. The same soil and sun, with the penetrating rains in season, do other things while they are growing prunes. They grow and ripen a vast variety of other fruits in perfection, but these cannot be dried and sacked, and handled and stored, and shipped to far distant markets, like the prune, so it is the prune that was elected in the Santa Clara valley by a large majority as its main industry.

But it is an industry that has been built up, so far, by the gradual evolution of industrial effort. The need of scientific system in production, and of the organization of the growers in placing on the world's markets, have been felt more and more year by year, and now bid fair for accomplishment.

As regards planting and culture, mistakes in former years were only human and inevitable. The most general error, and the most difficult to rectify, is the planting of the trees in the older orchards at too close intervals. Many growers in past years made the mistake of planting as close as 16 and 18 or 20 feet apart, whereas time and observation have demonstrated that 24 feet is the best distance that should intervene in each direction, and another two feet of space would scarcely be wasted. After ten years growth it is now apparent in many orchards that there should be a wider area of soil sustenance for each tree, and more space for the sunlight, and for convenient tillage and handling of the crop. This is so true, not only of prunes, but of other fruits as well, that some orchardists are now digging out the alternate trees, satisfied that they will eventually be compensated many fold for the temporary loss. Closer and more upright pruning has been found necessary because of close planting, and more or less loss is involved in any event.

The thrips seriously affected the last two seasons' crops, but this insect pest is not entirely responsible. Short crops will come from time to time with all the fruits, and indeed with every product of the soil.

The prune crop of 1906 was abnormally heavy, reaching 200,000,000 pounds, and a decline or reaction for a season or two might naturally follow so heavy a yield. For twenty and thirty and forty years these orchards have been constantly productive, with little or no soil renovation—scarcely any fertilizers, and no green crops or even weeds returned to it. Season after season it has responded with those chemical factors so largely drawn upon for the formation of sugar in the prune, and, generous as the soil has proved, it may be that the limit is approaching when there is a demand for renewing elements of some kind or other. It may be a warning from the goose that lays the golden eggs, lest we slowly starve her to death.

The thrips, even in the absence of expected remedies, will in all probability run its course and die out, perhaps succumbing to some other parasite, in accordance with a law of nature. Climbing cut-worms, once so formidable, were at length attacked and destroyed by certain flies. The brown day-flying moth once worked heavily on

(Continued on Page 68.)

Pacific Rural Press

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The Week.

The fruit-car shortage does not seem to be as easily made up as was hoped in our last issue, and this week there are complaints covering shipping points from Marysville to Fresno, with others still to hear from. The only explanation seems to be of the telephonic sort, that "the line is busy" and there are not cars enough to go around. It is the farmer's usual luck, when everything else is all right for a good trade, transportation troubles are apt to arise—the train men strike or there are not cars enough, or something else. The last legislature made an attempt to insure cars by charging the companies demurrage when carriers were not furnished after due notice, but there was something the matter with that method of cure. The only thing to do is to keep trying and see if some improvement cannot be obtained. As it is, the California growers will lose something of the advantage which properly belongs to them in the large Eastern demand and the good prices which it entails.

There is also as a rule a shortage of help where it is sharply needed for harvesting. The announcement from Washington is that 50,000 men are wanted in the harvest fields of the West to take care of the crops. Farmers are literally begging for help, according to the Department of Commerce and Labor, whose functions in part are to find employment for the throngs of aliens who come into this country. The officials are almost powerless, because of the almost penniless condition of many of the emigrants. Assistant Secretary McHarg of the Department of Commerce and Labor suggests that the railroads transport the aliens west at actual cost, as their profit would come in hauling back the tremendous product of the aliens' labor. This seems a bright suggestion, but is it practicable, even if the roads are willing? The Interstate Commerce regulations are pretty sharp on free transportation, and it is possible that in guarding against it for one purpose they have made it impossible for another, no matter how wide the benefits would be.

Talking about moving immigrants who are short of cash to parts of the country where their labor is most needed, we wonder why the very rational proposition to land immigrants in the interior instead of on the Eastern seaboard has just been thought of. It is reported that Secretary Charles Nagel of the Department of Commerce and Labor went from Washington to Chicago last week to look into the question of establishing a full-grown immigration office in Chicago. The proposed plan for establishing a great inland immigration office in Chicago is one which the Secretary feels is likely to develop along sweeping lines, involving the laying down of a new principle of administrative government and revolutionizing the work of the bureau. That will be all right. We do not care what happens to the bureau. It is out of style probably, but to get a bright idea in motion which will take immigrants out of the slums of Eastern cities and make them more widely useful as farm laborers is worth while. There is probably a chance for some of them on the abandoned farms we read about at the East, but a wider distribution would certainly be desirable, and it might settle a number of Western troubles. California is likely to experience a sharper labor shortage in the next few years than ever before. The millions of money which are said to be coming for all kinds of industries will require thousands of men to pursue them, and the farmer will either be out of help or compelled to bid for it against other industries which can afford to pay more than he, because the cost can be added to the selling price—a thing which the farmer, in his present state of industrial development, cannot do. Agriculture needs more help at more reasonable wages.

In connection with these great enterprises that are promised there is one which seems as though it may be in some measure a realization of very old hopes. It is reported from London that Mr. Eugene de Sabla has succeeded in floating $5,000,000 of the bonds of the Natomas Consolidated at a good figure on the English market. This is a 25 million dollar corporation which has secured first option on about 90,000 acres of land in the reclamation district of Sacramento and Sutter counties. This land will be drained and put on the market for sale after $5,000,000 has been spent by the corporation in building levees, draining, and the construction of roads and a trolley system. It is reported the company will begin at once to push the work in the reclamation district. Nine millions of bonds have already been disposed of to buy the various properties included in the consolidation. It is a part of the plan to dredge streams and crush rock for gold and run the debris upon these low lands to lift and reclaim them, and not let the stuff destroy the rivers. This was the theoretical aspect of the case 25 years ago, but the farmers did not take kindly to it, because it was hopeless then to invoke any agency to handle the matter that way. These waiting millions give it a little different look now, and they may advance the whole question of reclamation and river improvement. The fact that the city of Marysville is going to make a suburb of the sand waste south of the city, which people used to deplore from perches on the levees, also creates the impression that old questions may take on new aspects.

Still the question of water out of place remains in the courts. A fruit grower in eastern Sacramento county has sued the Folsom Development Co. for $17,000 injuries sustained to the Ingleside Fruit Farm, near Fair Oaks. The plaintiff owned a fruit ranch, which was improved with 1700 fruit trees, valued at $10 each. The defendant company built a pond adjacent to the land. The water in the pond rose until it broke the banks and overflowed. The water stood on the farm for ten weeks, killing the 1700 trees. The company refused to pay the damages, and the suit comes on the ground that although it may be natural for water to run down hill, you have no right to pile it up and watch it run down.

California is disposed to look calmly upon the tariff fight which is keeping Congress in session in Washington all summer. The issue is over staples in which California has less interest than in her protected specialties, which there seems to be no disposition to uncover. This week the issue is upon hides, which our stockmen would certainly like to see protected, but we do not have hides enough to cover even a small fraction of our acreage of other things. Our California representatives think they have done pretty well and are lying low. Last week they gave a dinner in honor of Senator Flint and Representative Needham, whose labors for the tariff on California products have been signally successful. Senator Flint feels assured that the conferees have already agreed to hold the duty at 1½ cents per pound on lemons, and there seems to be no reason to anticipate any figurative use of that fruit in connection with California's protected industries this time.

We have often claimed notable service to Eastern fruit growing from demonstration of new methods of cultivating, pruning and commercial handling developed west of the Rocky Mountains. Recognition of this fact is found in the calling of experiment station men who have worked in horticultural lines on this side of the country to positions of higher pay on the other side. A number of such movements have taken place. The last to reverse the course of empire and go East is Prof. Wendell Paddock, who for several years has been the horticulturist of the Colorado Agricultural College. He has resigned to accept the chair of horticulture at the Ohio College. The Denver Field and Farm says that his successor will perhaps not be chosen until late in the summer, "for the board is looking around for a man who understands our Western conditions and knows a little about irrigated fruit culture." Which shows that we like Western trained men ourselves, and we shall have to make greater numbers of them, both for home use and for export.

We have received a lot of hortatory circulars from an organization which calls itself "The National Daylight Association of Cincinnati." The proposition is to make more daylight for the people of the United States by advancing the hands of the clock one hour on May 1 and moving them back one hour on October 1. So far as it is a proposition to urge townspeople to get up and go to bed one hour earlier in the summer, it seems to us thoroughly desirable, and as different States and foreign countries are passing laws making such monkeying with the clocks legal, we suppose it is worth doing in the United States. We are, however, so stupid that we cannot see how the clock does not lose by early stopping in the afternoon what it gains by earlier beginning in the morning. If the proposition is to get to work by the clock and stop by the sun, there may be something in it. And, come to think of it, the farmer generally begins and closes his day by the sun, and not by the clock, so we do not see why there should be an attempt to lead a reputable farmers' paper into committing itself to approval of any other schedule.

A very old conviction about cutting grain comes up anew on the basis of a San Joaquin farmer's experience, and a local journal enterprisingly proclaims "a new plan of handling wheat and barley." It seems that he had a piece of ground that was low, and it was filled with water for a time early in the season, causing the grain to mature late. When it came time for cutting the grain, the harvester went over the land without regard to the grain being matured on the wet place. He believed that, owing to the wheat being green, it would prove valueless, but since that time he has changed his opinion. The wheat was heavy on the wet spot, and it was kept separate from the other grain. A close examination shows that it is the best quality of grain ever grown in the locality, and now "several growers are planning to make a change in harvesting next season and cut their grain early, instead of waiting for it to fully mature, as has been the case ever since wheat and barley were grown in the valley." And this is a discovery! We supposed everyone knew that California grain was generally cut too late for the highest condition of the grain. Grain cutting is, however, influenced by other considerations than that.

Queries and Replies.

Cherries in the Foothills.

To the Editor: Can you give me information in regard to budding or grafting the cherry on the almond or apricot root? I have heard of both having been tried, but how successfully I do not know. The older orchards set here years ago grew thriftily, mostly on Mazzard, but we cannot get stock that does well now. There is not an orchard planted within 10 or 12 years that has not lost a large percentage of the trees. I have trees on both Mazzard and Mahaleb, and both suddenly die. The Mahaleb usually chokes, because the vigorous top grows too rapidly and seems to shut off the sap supply. I go over them once a year and slit the bark over the junction, but even then they die. Some varieties do better than others on Mahaleb. The early varieties, as Knights, Chapman, and Tartarian, when planted as dormant buds, do very well, and bear better than when on Mazzard, but Black Oregonion or Llewelling and Bing only live a short time on Mahaleb. Hence the inquiry. Will the cherry thrive on apricot or almond? If so, would they not do best by planting the seed in the place where the tree is to stand, and bud?—L. A. S., Auburn.

The cherry will not succeed on any other root than that furnished by some member of the cherry family, and, as your experience shows, all varieties will not go on Mahaleb. The cherry will not do upon the apricot or almond. It is a question whether a seedling grown in place would be better than a transplanted tree, with the probability that it would make no particular difference.

The main difficulty with the cherry on the foothill situations is the irregularity in the moisture supply. While the trees do remarkably well on the river bars and other very deep and moist soils in the foothill region, they often fail in spite of all that you can do on the foothill slopes on which the apricot and peach do well. There is also some difficulty with the prunes in some foothill places, and it seems to be due to the unevenness of the water supply, even when irrigated, and to the high temperature of the soil also, where the soil is rather shallow and spread over bedrock.

The area really suited to the growth of the cherry in California is not very large, and it seems to be rather more a matter of soil depth and character in the particular place than of the general location, for even in places where cherries do not generally do well there may be individual trees or small orchards which are very satisfactory. Of all the cherries, perhaps the Morellos or pie cherries are most hardy, and if you are still disposed to experiment, we would suggest Morello seedlings as likely to give interesting results.

Can Water Run Down Hill?

To the Editor: A curious state of affairs has broken out on a little place above or in a little Coast Range valley. A little ranch of 20 acres has not far back of it the sloping foothills. There is no especial canyon opening directly back, but near to one side. The place has been planted to walnuts for the past 12 to 16 years. In the center, where the land is lowest, the trees are younger and smaller—either planted later or replanted—but at least 12 years of age. During the excessive rains of the past winter this center tract was a bog and, strange to say, it still remains so. About or nearly 100 trees are killed, and the water is still running away in small ditches through the place.

I learn that about 30 years ago the place was in a similar condition, and tules grew upon it. The neighbors are protesting they will not permit the water to drain through their places below, and will hold me responsible for damage. I would like to know whether it is possible to drain and reclaim the land, to prevent similar trouble in the future? Can it be done so as to save the water now running to waste. If some sort of reservoir could be made, could it be pumped to the upper part of the ranch to irrigate there?—Owner, San Francisco.

We cannot offer you anything very satisfactory concerning the peculiar condition which you describe. The cure obviously lies in drainage, but for drainage you must have an outflow, and only a lawyer could tell you whether you would be entitled to carry a drain to the edge of your place and obligate those below to care for the water. Our impression is that you could do so, on the ground that it is natural for water to run down hill, and its continuous flow must be cared for by those below. There are, however, conditions about it which only a lawyer can determine. It is, of course, perfectly practicable for you to sink a well or a sump in a low place on your own land, put in a pump and pump the water into a reservoir, from which it can be drawn later. This is a simple matter, the only question being the economic one, as to whether the cost of such works would be justified by the benefit from the irrigation. It is, however, clear that you must either drain your low place by natural flow, or by pumping off, if you desire to render the land suitable for the growth of fruit trees.

Hardly Prepared for Farming.

To the Editir: I am informed that a man of about 56 years of age is threatened with the loss of his clerical position with a large manufacturing concern, through circumstances involving no fault of his own. But the possibility of a man of his age finding a new situation in the business world is so remote as to seem scarcely a possibility at all. Can he not take some instruction in agriculture, to open up a position either as manager of someone else's ranch, or give him a comfortable competence from a few acres of his own. It would do so in the East, I feel certain. Of course, I realize keenly how much depends on the man himself. That, however, is another question. Given the right man, under California conditions, might not this plan prove feasible?—Reader, Boston, Mass.

We regret exceedingly that we cannot give you very encouraging information along the line of your letter. It is seldom that a person who has given so much of his life to clerical work, and is probably unacquainted with agriculture, would be able to resort to it without training and succeed from the start. There are many cases in California where it has been done, but the person has usually had plenty of capital to hire competent assistance and to pay for all mistakes which he made. We should think a man's chance would be much better at securing employment in some line which he understood. If your man had an investment to make he could learn by instruction a number of things which would be of assistance to him in developing property in which his interest was centered, but we have no idea that a satisfactory place in managing agricultural property for others could be thus secured unless the man had friends who were willing to trust him and try him out in that way. We must say that there seems to be too much of an impression that one can successfully enter agriculture without experience, and master the art by a little academic training. No one would think of entering any other business on that basis, and yet agriculture is one of the most complicated of undertakings, and makes greater requirements of knowledge and experience than most other callings.

Crimson Winter Rhubarb.

To the Editor: We have six large thrifty Crimson Winter rhubarb plants. How and when should one separate them to propagate new plants or centers? Are the little side growths of bud or crown what are used? Is it good for the plants to cut stalks six months from first setting out? Ours have good-sized stalks and leaves now, at that age. —Grower, Caruthers.

If your chief object is to get new plants you had better not pull any leaves this summer; if you are not going to subdivide all your plants you can pull a few leaves if you are dying with curiosity to see how they taste. For subdivision allow the plants to slow down by gradually reducing moisture, and when the plant is dormant subdivide the roots carefully, taking a bud or a leaf stem with each part. As the plant is so disposed to be evergreen under continued moisture, it requires sharp drying to make it perfectly quiet and show only dormant buds. By transplanting after autumn dormancy you will get winter growth in all places where winter temperatures are high enough.

Another Thrips in Capay Valley.

To the Editor: Enclosed please find a small box in which I have placed a sample of an insect which is doing considerable damage to trees in this vicinity. On the leaf covered with a spider's web you will find the remains of what I believe to be the adult; the live ones being rather difficult to capture and place in a receptacle; they either hop or fly when disturbed. The young, as you will note, are of a flesh color and are easily taken. I take them to be the same insect. Kindly advise me what the name of the insect is and the remedy for destroying it.—Grower, Capay.

Professor Woodworth of the University recognizes the insect as thrips of a different species from the pear thrips now being studied by Mr. Moulton and his associates. The larger insect which you speak of as in the web is an enemy of the thrips—triphleps insiduosus. To the extent of its ability it is working in the right way, that is in your favor. There are, however, smaller insects in the web also, and they are the mature thrips. This insect will be controlled by the remedy commended by Mr. Moulton for the pear thrips—the black leaf tobacco spray. We expect to give full details in our next issue.

Irrigating Cherries.

To the Editor: I have a cherry orchard 2 years old, and would like you to inform me whether or not you would irrigate them. They are planted on a deep soil and have been pretty well cultivated, and have made a fair growth. Is irrigation to them detrimental?—Grower, Stockton.

We should not for a moment think of irrigating young cherry trees on such soil as you describe, and well cultivated. It is not desirable to overstimulate growth in young cherry trees, because bearing is postponed thereby. If after your trees attain size and bearing, there is a lack of thrift in the tree, it is possible that irrigation will be desirable, because the cherry tree is very sensitive to irregularity in moisture supply—both excess and deficiency being offensive to it. You can tell what your future course should be by this year's observation. If good cultivation on such deep soil does not enable the tree to maintain good healthy leaves until September, it may be necessary for you to provide irrigation next year. Premature yellowing and fall of the leaves shows that the autumn supply of moisture is too small for the good of the tree.

Intercultures with Eucalyptus.

To the Editor: Kindly advise me what, in your opinion, would be the most profitable root crop to plant between the trees of a eucalyptus grove which is to be set out this coming winter on a dark reddish granite soil. We expect to plant the trees 6 by 8 feet, and expect to cultivate the grove twice each month. We are in hopes to get through without irrigation, and may put in from 100 to 200 acres.—W. H., Riverside County.

We would not for a moment think of planting a root crop, or any other kind of crop, between eucalyptus which are to be planted 6 by 8 feett. If you succeed in getting a good stand, and conditions are otherwise favorable, the trees should touch each other across the rows before the end of the first growing season, and no cultivation of the intercrop could be accomplished without injury to them. You will need all the space for the passage of the cultivator, without reference to any interplanting.

Horticulture.

CALIFORNIA PRUNE INDUSTRY.

(*Continued From Page 65.*)

prunes and berries, but finally fell a prey to other hordes. All nature is a chain of destruction, and each link but bides its day. While we are in search of comfort, let us consider too with reference to possible crop exhaustion, if some such check as the thrips may not prove a very much disguised blessing by calling a halt to heavy crops for a season or two.

The First National Bank of San Jose has, in the interest of its customers and the general industry, obtained an estimate of each season's prune crop in Santa Clara county for the past ten years, and the resumé shows remarkable fluctuations, both in crop and market, the former ranging from 200,000,000 pounds down to 35,000,000. In a circular sent out by the bank to the growers in order to obtain the estimate of this year's crop, it is urged that demoralization of the market has been sometimes caused by the mistaken policy of consigning the fruit, instead of selling or storing, and often by an ill-judged holding on a rising market or precipitous selling on a falling market.

The growers' organization recently effected, involving the appointment of a general agent, the pooling and centralizing of the fruit, and the consequent regulation of the market on a similar plan to that which has been successfuly carried out at Healdsburg for five or six years, and is well exemplified by the citrus and walnut growers of the State, will surely result in placing the prune industry where it belongs in the world's market.

CONTROLLING THE PEAR THRIPS.

By Dudley Moulton, Engaged in Deciduous Fruit Insect Investigations of the Bureau of Entomology, Department of Agriculture.

The problem of controlling the pear thrips has become a very acute and important one in many of the deciduous fruit sections in California, and although the insect seems hard to control, it has now been shown conclusively that this insect can be checked by careful and proper treatment. It has been well demonstrated that plowing and otherwise cultivating the ground during October, November, and December, when the insect is in the pupal condition, reduces its numbers very noticeably, and also that spraying with a combination of distillate oil emulsion and tobacco extract when the thrips are on the trees will kill a very large percent, practically all of those which may have escaped the earlier treatment.

Cultivation and spraying, it will be found, are both so directly subject to weather conditions, and each must be done at its own proper time to be effective, that orchard work, such as pruning and spraying for other insects, must be considered well beforehand and completed, or so arranged that they will interfere but little with the treatment for thrips. Forethought and carefulness of work, it will be found, are most important factors if the treatment is to be entirely successful.

The Insect.—The life history of the pear thrips, in brief, is as follows: Adults begin to appear about the 15th of February, although a few individuals may have come up earlier than this; they are numerous after the 18th, and by the 25th they are common everywhere. They continue coming up from the ground in maximum numbers between February 18 and March 16. At the latter date practically all are out. A few individuals may come out even as late as March 30, but these are of no consequence.

The adult thrips feed in the opening fruit buds, in blossoms, and on foliage, for a period of about five to six weeks. They begin to place their eggs about March 15, and this period of oviposition continues until about April 10. The adult insect is furnished with a saw-shaped ovipositor, with which she first cuts an incision into the tender leaf or blossom stem, and then forces an egg down into the plant tissue. The adults die after oviposition is concluded. The egg is at all times protected, and cannot be reached by spraying.

The larva hatches after about four days, and comes out through the cut in the plant tissue in through which the egg was passed when it was laid. The larva feeds for about three weeks and then drops to the ground and penetrates down several inches. It encloses itself in a little earthen cell, enters into a resting condition, and remains here until it comes out in the following February or March. The insect thus remains in the ground for about 11 months.

The period when thrips larvae are dropping from the trees and entering the ground continues from about April 10 to 30, and all have left the trees by the 8th or 10th of May.

In the Ground.—Many careful examinations of soil from under trees in infested orchards have been made to determine the depth to which the thrips larvae penetrate before they locate permanently. With ordinary conditions of cultivation it has been found that about 80% of the thrips are within 8 or 9 inches of the surface, and within reach of the plow, although previous conditions of cultivation and the texture of the soil regulate the depth to which thrips penetrate to a very large degree. In one orchard 74% of the thrips were between the surface and 6 inches deep, 88% down to 7 inches, and 94% between the surface and 8 inches. In a second orchard 71% were within 8 inches and 81% within 9 inches of the surface. In a third orchard 75% were within 8 inches and 80% within 9 inches of the surface. The insect passes through its pupal development during October, November, and December, within its little cell in the ground, and it is then more sensitive to mechanical injury than at any other time of the year. Our method of plowing, followed by harrowing, and a second cross-plowing, followed by careful harrowing or cultivation in October, November, and December, or after the first early rains, breaks the most of these thrips from their protecting cells and usually so injures them that most will die. By actual tests it has been found that from 70 to 73% of all the thrips in the ground may be thus killed by the plowing method alone.

This treatment is not sufficient, however, to protect the trees if the infestation is bad, and spraying in March and April should also be adopted in conjunction with the plowing.

On the Tree.—Spraying for thrips has proved wonderfully successful wherever proper sprays have been used and the work done immediately on time and with thoroughness and care. Indifferent and careless work or improper sprays are not effective. The thrips must first of all be reached. This necessitates high pressure, 125 to 180 pounds, and a rather coarse, penetrating spray, such as may be thrown from a Friend Vermorel nozzle. It is necessary also that the spray be directed downward into the buds, and not thrown at them from below or from the sides. It should be remembered that spraying is done, not to drive the insects away or to protect the trees from any possible future attack, but to kill those insects which are actually present on the trees. A tower platform should be built over the spray-wagon wherever the trees are large enough, so that the upper branches can be properly sprayed. Almost all of the standard spray formulas have been tried out, and all except two have been eliminated. The bodies of the thrips, both adults and larvae, are decidedly oily and strongly resistant to all sprays which do not assimilate readily with oil. For example, the lime-sulphur solution, which is ordinarily very caustic and penetrating, may be thrown onto the thrips, and it will merely gather in globules on their bodies and not penetrate to kill them. Both larvae and adults have been observed to actually float around in the ordinary soap and lime-sulphur sprays, with no apparent inconvenience. Dry sprays are also absolutely ineffective. Emulsions of oil combined with crude carbolic acid or crude creosote, are extremely penetrating, in reality killing almost every thrips that they touch, even when applied in a very weak form, but these combinations are just as violently injurious to blossoms and leaves as to thrips, so they cannot be considered at all. Poisonous sprays are ineffective because the thrips feed upon the inner parts of the plant, and not from the outer layers, where the poison would be placed.

Tobacco Spray.—Black left tobacco extract, diluted 1 to 50, has been very successful, but this spray seems to demand a somewhat heavier and more penetrating liquid than water alone as a carrying agent. The distillate oil emulsion in 6% dilutions is almost as deadly as the black leaf, but there will follow some injury from the spray unless conditions are altogether favorable. The oil spray has the advantage of being heavier, or being forced more easily into the buds, and of penetrating the oily coating offered by the thrips This emulsion, however, reduced to a 1½ or 2% solution, can be applied with apparent safety to all trees, and, combined with black leaf diluted 1 to 60 or 1 to 70, it furnishes a spray having all the required carrying, penetrating, and killing qualities desired. This is the spray which is now recommended. It can be applied with safety to opening buds, but should not be used on trees in full bloom. This spray can be applied to trees immediately after the blossoms have fallen, and later on the foliage for adults and larvae. The first application should properly be made when the thrips are coming from the ground in maximum numbers and before the cluster buds are too far advanced. This period in the San Jose district is early in March, but it of course differs for the several varieties of fruits. An effort should be made to kill all adults in an orchard before March 15, when practically all thrips are out of the ground and when oviposition begins.

The Black Leaf Tobacco Extract can be purchased from local agents. Directions for preparing the distillate oil emulsion, with other recommendations for plowing and spraying, are prepared in a new circular on the pear thrips, and will be ready for distribution about September 1.

STORAGE FOR APPLES.

Some time ago a correspondent asked for suggestions about arrangement of storage places for apples, and we called his attention to the fact that coolness and means to prevent too great dryness of the air are essential. The latter have been provided in several ways, and it is interesting to give the way in which a Maine grower, Mr. I. L. Ware, secures the needful conditions. He writes to an Eastern exchange:

It is well known that a "damp cold" is the ideal storage for apples. All the cold that apples will stand without injury is desirable; even temperature is best.

If the cellar is dry it will be a poor storage room, especially so if it is warm also. However, this situation may be easily overcome. I have a cement floor to my cellar, and I used to find it difficult to maintain a properly humid or damp air on account of the dry concrete bottom. Now I spread on an inch or sawdust or hay chaff and then thoroughly saturate with a salt brine, made with water and common rock salt. This will keep the floor constantly moist. This salt brine beats anything I ever tried; put on as indicated it will cause a vapor and humidity that is ideal for keeping fruit, and will last a long time.

It has been estimated that apples are 90% water. One can readily see what happens when a large percentage of this water is allowed to get away into a surrounding dry atmosphere. But if the air of the storage room is itself humid or vaporized, this chance of escape is largely prevented.

IRRIGATION BY SPRINKLING.

Irrigation by sprinkling or by imitation rainstorms has never been largely undertaken in the arid regions, for reasons which naturally suggest themselves. In the humid districts, however, although they freely grant the advantage of irrigation, they prefer to take it in the showering way. The Long Island, New York, Agronomist gives an account of work in this line which is interesting:

In the early winter of 1905 a two-inch pipe was buried four feet below the surface, to serve as a main to carry water to every part of an 18-acre plot, in order that irrigation experiments might be carried on during the first season (1906) of market gardening on the maligned idle acres of Long Island. We quickly found that nature's plan of overhead watering of plant growth had all the mere man methods of ditches and underground tiles outclassed entirely and utterly.

Coarse spray, fine spray, surface flooding, and ditches were all tried, and the overhead spray invariably proved its marked superiority. We used ¾-inch garden hose, tried every form of sprinkler on the market, and found the little 50-cent butterflies by far the most satisfactory. Water was deliberately sprayed on all sorts of growth in the middle of the brightest, hottest days. The soil was thoroughly soaked, and the results were immediately apparent and invariably beneficial. Cauliflower was hastened 12 to 14 days and sold at $4.50 per barrel. Unsprayed in the same rows came in two weeks later, and sold at $1.75 per barrel. Lettuce, onions, beets, corn, melons, cabbage, toma-

toes—all yielded heavier, matured quicker, and developed finer, larger specimens when sprayed than those dependent on infrequent showers of summer. In two days after sprinkling, sprayed onions showed 10% advance on unsprayed, and further, were entirely freed from thrip.

Citrus Fruits.

CULTURAL GOSSIP.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

The question of better oranges and better citrus fruits in general is much like unto that of better babies—both are very important, and there is much room for improvement. In taking up the question of fertilization as a means to that end I am aware that I am treading on dangerous ground, but will try not to get into any trade mix-ups or cause any jealousies.

I believe that nine-tenths of the growers understand that the fertilizer and the way it is applied has much to do with the texture of the fruit, and though no fertilizer or any method of application will make the oranges of some districts as good as those raised in other sections, I do believe that every section can improve on the quality of its fruit by an intelligent use of the proper plant food. Stable manure, the old standby, has had its ups and downs, and still finds its knockers and boosters. I was up in Tulare county last fall and found that stable manure was very largely used in that section. One advantage in that section is that it is reasonably cheap, being in proximity to a grazing country, and another advantage it possesses is that it mixes well with the adobe soil or "dry bog," as they call it up there. It makes the soil more friable and easier to work, which is a big advantage, as all who have worked adobe soil will admit.

Intelligent Use of Stable Manure.—I found one intelligent orange grower at Glendora who is an advocate of stable manure, in the person of J. A. Jones, who is also the editor of the Glendora Gleaner, and one of the leading citizens of that beautiful little town. Mr. Jones is fortunate in living in a section where the best of both Navels and Valencias are raised, a combination not very common in California, for usually where the Navel comes to perfection the Valencia is not so good, and vice versa; here they are both very fine and bring the highest prices. Mr. Jones is a great believer in the virtues of stable manure for orange trees, though he also wants to use commercial fertilizer. I do not understand that Mr. Jones claims that the use of stable manure in itself is the one means of raising better oranges, but he does claim that it gives the foundation by putting the life and strength into the tree, when properly followed up by intense cultivation and by the proper amount and timely use of irrigation water. In fact, I know he did speak of using commercial fertilizers for giving the skin texture, and I remember that he laid much emphasis upon the use of nitrate of soda just before the blooming period, claiming that the soda stimulated the tree, and that it would be in better condition to hold the fruit when the hot weather came.

Mr. Jones learned the value of manure when he was a farmer in the Middle West, and has followed out the practice here with great success, though he has seen others fail with the same commodity. He says that too great a quantity will cause all the ailments that the orange tree is heir to—that coarse fruit, splits and puffs will result from too liberal a use of manure. He advocates 10 tons to the acre—not 20 tons every other year, but 10 tons a year, every year. He puts it on in the fall, when showers may be expected, claiming that with his ground covered with the fertilizer, the rains percolate through, making in effect a liquid food for the trees, leaching right down to the feeding roots. He then plows, and plows deep, taking care to break up the plow-sole. He also uses commercial fertilzer in February, and again in September, drilling it in.

Turning Green.—I asked Mr. Jones if he had ever heard that the use of stable manure made the Valencias turn green, and he said he never had been troubled that way. I asked him this because a grower from another district had just told me that he had seen just such a case. I had asked this man if there was much green fruit in his neighborhood, and he said, "only in one orchard, and it is so bad that I do not think it will ever be shipped." He said that the unfortunate grower had used manure freely, and that he was the only one there who had, and as a consequence it was laid to that source. I have asked several growers as to the cause of the fruit turning green after once becoming fully colored, and some of them lay it to frost damage, but I am inclined to reason that this could not be so, for we do not have frosts every year, and we do have the green Valencias to some extent, and then again, no other variety of the orange is affected just this way.

About the Drop.—The growers are now coming to the conclusion that the drop is not as bad as first thought, and many of them are reporting good crops. I was in Upland this week and asked Manager Hamilton of the OK Fruit Exchange about this. He claimed that it was not nearly as bad as at first reported, and though he thinks the crop will be somewhat short of normal, he does not think the drop was very bad. I asked him as to his opinion of the cause of the drop, and he said that he thought it was largely on account of the long-continued cool weather we experienced this spring. He says that on this account the trees did not have the vitality to make good, and that in consequence the buttons, which he claims were as profuse as ever, did not receive the necessary nourishment and so dropped off. He claims, however, that orchards that received the necessary care were in better condition to withstand this cold, and that his own grove has very nearly as much fruit as usual. I asked him if the neglected groves had as many blossoms to the tree as those that were well cared for, and he stated that an orchard in poor condition always blossomed heavier than one that was in fine shape, but that the fruitage was not the same, or if it was, the fruit was inferior. He said: "If you will notice, you will see that a 'gophered' tree always blossoms more than any other tree in the orchard; it is just white with blossoms, but no one expects such a tree to produce the fruit that a healthy one will. Just so with an orchard that does not receive proper care; the yield is small or the fruit inferior."

Shipping Oranges.—I was on a train this week, bound for Orange county, and just behind me were two men talking. One was a tenderfoot from Iowa, out here on a visit, and the other was a resident. The local man was telling the other about the big money made in oranges some years, that Valencias in the past have gone to $5 a box and over, but that now they are cheaper. This was all right and proper so far, and it interested the Iowa man, whom I learned came from a coal mining town, where he said there was no store outside of the company store, and where no oranges had ever been sold. He thought that he might buy a car of oranges and retail them out to the miners, and thus make some honest money, and he began plying the other fellow with questions. If he believed all he heard, he now knows that a box of oranges weighs 90 pounds, and that cars pack out 265 to 285 boxes each; that the freight rate varies according to where the fruit is going, that no charge is made for ice and that all fruit is iced at San Bernardino, and that a packing-box costs 9 cents. The train started just then, and so I heard no more, but I could not help thinking that the man who was doing the most of the talking knew very little about the fruit business. I afterward met Mr. Buffington of the Ed Peycke Company, who said that he had been in the fruit business all his life, but that most of the people he met knew a great deal more about it than he did.

Man With a Theory.—At Fullerton I met a grower with an idea—a man who thinks it is almost sinful to plow deep through an orange orchard and thus turn up all the network of roots that must have been placed there for a purpose. He never plows, and only disks lightly, and when irrigating he uses but one furrow between rows, and that one right in the center and 20 inches deep. He says that he uses just as much water as he would in using more furrows, for he lets the water in gradually, so that it takes fully five hours to fill the trench, which he immediately covers over with loose earth. He also thinks that he saves water by this method, as there is much less chance for evaporation, but his original idea was to save cutting off the feeders.

Sod Cultivation.—I at one time received a number of letters from a Texas man, named H. M. Stringfellow, who favored the sod method of cultivation, or in other words, of no cultivation at all. This Fullerton man told me that he also was very much impressed with the Stringfellow theory, and tried it one year on one part of his orchard, but the experiment was rendered valueless that season on account of his orchard being attacked with the scale, and he had very little fruit anywhere. This man does not claim that his irrigation scheme is at all original with him, but says that he never heard of anyone using it, that certainly none of his neighbors do. He does not want to go on record as saying that it is the proper method, as he may have found out different in the course of a few years—in fact, he is a very intelligent man who is willing to do a little pioneering for the good of the industry.

Just a Tip.—You can take this for what it is worth, but a grower says that, in his opinion, Navels should be planted on the hillsides and Valencies in the lower lands; that the hillside fruit ripens the earlier, and that is a desirable feature in a Navel, as the early Navels bring the good prices, but it is a bad thing for a Valencia to ripen early, no one is willing to pay big prices for Valencias in May when the Navels are in such quantity and such prime condition. There may be something in this worth thinking about.

THE ARIZONA ORANGE PRODUCT.

Mr. Burle J. Jones, who went from California to the Yuma orange district as an expert to assist growers in overcoming their difficulties, gives in a letter to the Fruit World a little sketch of what some of the difficulties are. They are very interesting:

It is quite true that the navel crop here is generally light, so much so that if it were not for the fact that the fruit, which ripens for the holiday market, brings prenomenal prices, the industry would not be profitable. The actual cause of this, while not entirely known, appears to be various. First, the trees have not been accustomed in years past to a proper or adequate water supply, or yet to sufficient cultivation or definite orchard practice. During the past year sufficient water has been available, and cultural methods have begun to improve, and new methods to be devised which are better adapted to local conditions than those borrowed from California. Again, fertilizer has been unknown, with the exception of a few cases in which stable manure has been applied; cover crops have been lacking, and there has been no attempt to make up the nitrogen content of the soil, which is notably deficient here, where there is practically no natural vegetation to decay and create humus. During the past year cover crops have been general, both in summer and winter; tons of stable manure, sheep and goat manure, bat guano and commercial goods have been applied, and, as stated above, practice has improved enormously. Some cultural details, such as plowing during or just before the bloom and applying water during the blossoming period, are still generally abused, and the resulting crop suffers accordingly.

As a rule the annual or semi-annual plowing is not sufficiently deep or thorough, and the summer cultivation is not sufficiently frequent or complete, the water is not run in deep enough furrows or properly conserved to be kept constant after being applied. These things, however, are on the mend, and the groves are already showing a remarkable improvement in color, vegetative growth and general thrift.

Last, but not least, we have an abundance of the orange thrip. It appears in the groves just before blossoming, and remains active, in successive broods, throughout the summer, a general "russeting" of the fruit results, a malformation of the leaves and other serious effects, such as dropping of the bloom. Many times I have examined these fallen blossoms and found that stamens and pistil of the flower had been entirely wrecked by thrips. Many times I have counted as high as twenty thrips on one small orange. While the bloom is generally profuse, dropping begins at this stage and continues until the fruit is as large as ordinary marbles. This dropping of the small fruit is a normal thing and occurs everywhere, being apparently a provision of a wise Nature to prevent overloading. But here it goes to extremes, and when it is all over, the crop is entirely too small. I believe, as many others do, that the orange thrip is the primary cause of this trouble.

In regard to the so-called "hot winds" which

prevail here, and are suggested as a possible cause of the short crops, let me say that while the breeze here is not as cool as where it comes from the coast, yet it can never really be classed as sufficiently hot to affect vegetation, as the vegetation here abundantly testifies. Warm winds never occur before the latter part of June, and often not until July, and generally they last only from one to three days. On the other hand, the dropping of fruit has all passed by or before the latter part of May. Among the Valencias, which set later, and might be expected to be most affected by warm winds, there is generally a better crop and very little dropping.

AGRICULTURAL REVIEW.

Horticultural Notes.

Packing and shipping Black Malvoise grapes commenced at Imperial last week.

Grape packing and shipping commenced at Lindsay this week. The crop from that locality is estimated at 25 cars.

Fruit men around Woodland, Guinda and the Capay valley are complaining of a lack of competent help to gather the fruit.

The Pratlow Preserving Co. is shipping peaches from Yuba City to its Santa Clara house, paying for the fruit from $17.50 to $22 per ton.

The peach crop around Yuba City will be the largest for several years. Prices paid range from $17 to $22.50 for best canning clings.

The wind-up of the cherry crop in Santa Clara county last week showed that about 200 cars had been shipped from that section this season.

By the action of the tariff conference last Thursday at Washington, the lemon tariff of 1½ cents a pound is assured. This is fine news for California lemon growers.

The Cone ranch, in Tehama county, shipped two cars a day of pears last week. The output of pears from this ranch it is estimated will reach 80 cars for the season.

A dispatch from Modesto states that farmers near there have signed up to market several thousand tons of wine grapes through the California Association of Grape Growers.

The Orange Growers' Association of Walnut district, Los Angeles county, closed its work for the season last week, having shipped 83 cars of fruit as against 42 cars last year.

The Georgia peach crop, now being marketed, is said to be very poor, and as a result the market has been off. Most of the peaches marketed have been of the Elberta and Belle varieties.

All the canneries around San Jose are reported to be running full-handed, putting up peaches and pears. While the demand for canned fruit is said to be less than a year ago, a fairly active market is found.

The apricot harvest in Orange county is now completed. According to the Orange Post, the amount of dried fruit in the valley this season will be 1000 tons. Most of the growers are selling at 7 to 7½ cents per pound.

The peach crop in the Oakdale, Stanislaus county, section is now commencing to ripen, and will be a large one. Most of the fruit will be dried, though a large pack will be made by the Pea & Fruit Packing Co. of that place.

The newly organized Almond Growers' Association of eastern Contra Costa county, having headquarters at Oakley, starts out with a membership of over 60. Sealed bids for the crop will be received till 2 p. m., Saturday, July 31.

T. D. Goodman, a large pear grower at Balls Ferry, Shasta county, states that the crop will be light. He usually harvests 125 tons of pears, but this season does not expect over 25 tons. The price there is quoted as being $30 a ton.

A good crop of figs will be ready for picking and packing in the district around Yuba City about September 1. Rosenberg Bros. are said to have bought about the whole crop in that vicinity, paying growers 2½ cents per pound.

News from the Willamette valley, Oregon, is to the effect that the independent pool, representing about 2,000,000 pounds of fresh prunes, last week decided to accept the offer of the Earl Fruit Co. to sell 30 carloads of green prunes at 40 cents per crate of 24 pounds. The prunes are to be picked and shipped to Eastern markets at once.

Harvesting the biggest pear crop in its history commenced at Anderson, Shasta county, Monday morning. Seven hundred workers will be given work on pears alone till September 1, when a larger force will be needed in the prune harvest. It is estimated that 300 cars of pears will be shipped east from this locality, besides a large amount will be dried.

The apricot harvest in the San Jacinto valley practically closed last week. The crop was the largest ever grown in the valley, and as the prices were fair the growers are content. The amount of cots dried in the valley was about 500 tons, most of which have been sold for 7¾ cents per pound. Six hundred tons of the fresh fruit was sold, and the total value of the crop is placed at $100,000.

General Agriculture.

The grain crop around Castroville and Monterey is now being threshed. The crop is reported as being only fair.

The hop crop of Sonoma county is estimated to make 30,000 bales. A large part of the crop has been contracted at 10 cents, part at 12½ cents, and the balance for as high as 16½ cents per pound.

According to the Corcoran Journal, Willis Hall has sold his 18,000-sack barley crop to San Francisco parties for $1.28 per 100 pounds, which, with the extra weight of the grain, made a total of $25,000 for the crop.

The Government is to establish an experiment farm at Hamilton City, which will endeavor to produce seed that will develop only one sugar beet plant each, thus improving quality and saving the cost of thinning after sprouting.

The prediction is made by both government officials and private statisticians that the harvests of the United States will this year be something phenomenal, the money value of all farm products being placed at $8,000,000,000—the largest in history.

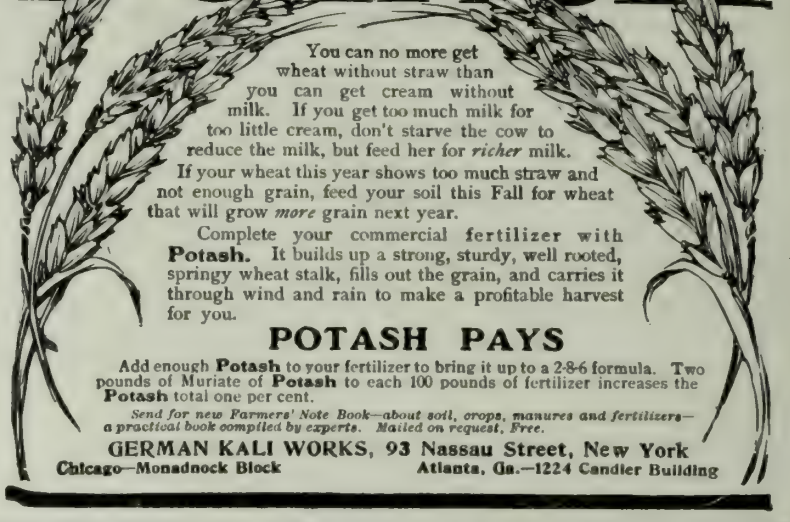
Members of the Kern county board of education and the board of supervisors, at a joint meeting held last week, decided to add an agricultural department to the high school. If a competent instructor can be secured, the department will be added this fall.

Last week D. Damascus, who operates the new sheep-milk cheese factory near Biggs, shipped 1500 pounds of cheese by express to San Francisco. Mr. Damascus claims that he is able to make two pounds of cheese from three pounds of sheep's milk, an unusually large amount.

The Wm. Ash Co., of Colusa county, raised 3360 bags of the new Chul wheat on 240 acres this season. This sold for $4.50 per sack, or $15,120. Many other farmers in Colusa county have made money raising the new variety of wheat, as the demand for the seed is very great, the price being about 3 cents per pound.

Potato growing is rapidly becoming an industry in western Nebraska. In Box Butte county there are over 8000 acres

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devoted to spuds, and the crop is a good one. While the rainfall is light, yet with the new dry farming methods there is enough moisture to mature good marketable sized potatoes, and the yield averages about 80 bushels per acre.

The directors of the Hamilton City sugar factory held a meeting this week to discuss the cause of the small acreage of beets. The farmers in that locality have never raised enough beets to supply the factory, and the problem may be solved by the company planting several thousand acres more next season.

News from the hop fields of Oregon is that prices have been jumping there during the past week. Last Saturday a small sale of the new crop was made at 18 cents a pound. Today there were small lots sold for 20 cents. In the past fortnight 1908s have risen to 13½ cents, 1907s to 10 cents, and 1906s to about 7 cents. In all three cases the rise has been from 5 to 6 cents a pound. Local dealers will not estimate to what price the market for this year's crop will go.

Stock and Dairy Notes.

In its last issue the Hanford Journal says that William Stewart, a Lakeside farmer, sold last week 105 porkers averaging about one year old and 219 pounds in weight, for $1610. An average of $15.33 each.

From the Hollister Bee we learn that the Alpine Evaporated Cream Co.'s plant at that place was closed down last week. This action was forced upon the management by the scant supply of milk. The plant at Gonzales is to be enlarged, that the demand for the cream can be filled.

According to the Lemoore Republican, there is money to be made in alfalfa and dairy farming in Kings county. Here is the story: Mr. Nesbit has 80 acres of alfalfa, and during the month of June he pastured 33 head of milch cows, 15 head of heifers, 20 head of weaned calves, 9 head of horses, 50 head of hogs, big and little, making a total of 127 head of stock. Besides this, Mr. Nesbit cuts enough hay from his 80 acres of alfalfa to feed his stock during the winter months. His cream check for the month of June from his herd of 33 cows amounted to $318.75, or $9.66 per cow.

Miscellaneous.

The Placer County Winery recently made a sale of 42,000 gallons of wine to a San Francisco dealer. This is the largest sale ever made by the winery, and will make 14 carloads.

Yolo county will hold a live stock show at Woodland, August 18 to 21, inclusive. No county in the State can show better or more varieties of stock than Yolo, in cattle, horses, hogs, and sheep.

Chas. L. Page has started a fish farm at his place near Shasta. He has constructed ten ponds, covering two acres, in which he has now 5000 trout, and expects in a year's time to have 50,000.

State Veterinarian Charles Keane is actively at work eradicating the Texas fever tick in San Luis Obispo county. Where stockmen have not dipped their cattle he is having the work done and charging the cost to the owners.

Advices from Santa Clara county state that the Farmers' Union at Campbell has rented a fruit packing house there and will install machinery to do its own packing. Unions at Morganhill and Saratoga have also secured packing houses.

Ten thousand acres of the famous Santa Anita ranch, in Los Angeles county, part of the Lucky Baldwin estate, is to be subdivided and sold in small tracts. The part to be sold is fine land, covered with liveoaks, lying between Monrovia and Sierra Madre.

The Bear Valley Mutual Water Co., of San Bernardino county, will at once commence the erection of a new dam, 100 feet below the present dam, building it 12 feet higher than the original. This will double the capacity of the lake, and will cost in excess of $150,000.

By recent purchase the Natomas Consolidated Co. has added 26,000 acres of land to its holdings, making a total of 80,000 acres in Sutter and Sacramento counties which will be reclaimed by the company and placed on the market in small tracts. Work will be commenced early next spring.

The alfalfa meal plant recently built at Alfalfa, south of Red Bluff, was destroyed by fire last week. Loss, including alfalfa and meal on hand, is stated to be $20,000. Owing to the fact that the farmers adjoining do not raise enough alfalfa to keep the mill busy, the plant may be rebuilt in some other location.

A fire at Cloverdale, Sonoma county, early last week, destroyed the Citrus Fair Association's pavilion, besides other property. The loss to the association is stated to be $9000, with $2500 insurance. A meeting of the stockholders of the association was held last Saturday to find ways and means for rebuilding the pavilion in time for the holding of the annual citrus fair.

Sonoma County Pomona Grange.

At the meeting of Sonoma County Pomona Grange, held at Santa Rosa last week, officers for the following year were elected. Reports were given showing crops to be in fair condition. Grapes have been slightly sunburned in places, and considerable were injured by the frosts. Prunes are only a fair crop, but the size and quality are good. Hay and corn are proving better than expected.

During the morning session a resolution was adopted and ordered sent to the California delegation in Congress, as follows:

"Resolved, By Sonoma County Pomona Grange No. 1, P. of H., that our representatives in Congress are hereby urged to use their utmost efforts to prevent any increase in tariff duties, and that by vote and action they demonstrate that our confidence in them in this particular has not been misplaced."

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Address Box 11, Pacific Rural Press.

WHAT MR. BURBANK HAS TO SAY ABOUT CACTUS.

Most that has been recently written about cactus has particular reference to the foliage as forage. Beyond this, Mr. Burbank has great confidence in the coming appreciation of the fruit. It does not strike us that way, but it is important to know the expectations upon which Mr. Burbank bases his efforts at development. He is credited with having discussed the cactus at a banquet recently as follows:

"Mexico seems to be the birthplace of the great cactus family, comprising almost countless varieties and wonderfully diversified forms. Who knows but all of the forms were cultivated as useful farm crops by a long-forgotten civilization? At any rate, the cactus responds quickly and generously to the kind and appreciative treatment of its human friends.

"One of the most valuable species is the one known by the several names Opuntia, Nopal, Tuna, Prickly Pear, Indian Fig, etc., of which there are hundreds of varieties distributed throughout the tropics and semi-tropics of the world. This species is represented as far north as the northern United States by a small and despised variety.

"The cactus fruit is now sold in many markets of the world for human consumption. Last fall I bought two rather inferior varieties of Mexican tunas in a Los Angeles fruit store, both of which had small barbed capillary spines, and were very seedy. Fortunately, the spines have been bred off from the improved varieties, the seediness reduced, and the flavor improved. None of the improved hybrids are true to seed, but, like the apple and the peach, must be propagated from cuttings—which, from the nature of the plant, is necessarily a slow method of reproduction.

"When the cactus is properly improved, it will increase the food production of our world one-third. I fully realize that this is a most astounding statement. But it is made with the fullest confidence of its fulfillment. Many sections of our older United States that were once fertile fields are now brush-grown and worthless on account of soil exhaustion. Then there are great sections of our commonwealth that have always been arid and unfit for cultivation. What is true of the United States in this respect is also true of the rest of the world. An almost unbelievable portion of the earth's surface is practically arid, and there are no more great States with millions of fertile acres to be discovered. The cactus is the solving of the problem.

"Many varieties grow on barren rocks or unproductive clean sand. Each of its myriads of tiny rootlets is armed at the extremity with a little stinger, which is inserted to each invisible rock crevice, where it ejects its dissolving rock fluid, converting the rock into richest cactus food, which it immediately appropriates to its own use. Then the expanding roots burst off the little flakes of rock, and nature can immediately begin its process of oxidation. The solid rock is in a short time converted into the most friable soil, capable of supporting all kinds of plant life. The action of the cactus is the same on each tiny grain of sand as on the large rock, changing it from an incumberer of the soil to richest plant food.

"It is a commonly received error that a plant will thrive only under the conditions in which it is found in the wild state. Nothing could be more erroneous. There are plants that can only be found in their native state, clinging to perpendicular precipices, gaining a wretchedly poor subsistence from the dry, barren rock, where the parent seed chanced to have been dropped. These plants, when removed to fertile soil and well cared for and protected, thrive immensely. They do not live on the perpendicular rock because that is best suited to their growth, but because they would be destroyed if they grew in a more accessible place.

"Now for a few facts about the improved cactus, of which there has been much said that is misleading. There are several hybrids that are of great economic value, but, like their ancestors, they must be propagated by joint cuttings, which is, as yet, a slow process. Another great drawback is that none of them can as yet safely bear more than 8 degrees of freezing, Fahrenheit. Although I have been interested in the Opuntia for thirty years, the work of improvement has but just commenced. However, it is now to go on very rapidly, as many individuals, as well as the United States Government, are now beginning to realize the great future before this wonderful plant, and are assisting in its improvement.

"There is another species of cactus that is of great interest to me, and which, so far as I know, no one except myself has attempted to improve. It is one of the Cereus, which I believe is soon to be the finest fruit-producing plant in the world. I am now planting many thousand hybrid seeds from the most luscious fruit I have ever eaten."

DIFFICULTIES OF IRRIGATORS.

To the Editor: I was much interested in the irrigation number of the PACIFIC RURAL PRESS, but a careful search failed to reveal any of the optimistic raptures which read like this: "The irrigating farmer has the rainfall at his control; he can apply water at such times as his crop needs it. He has no fear of a flood one time and a drouth at another. He leaves his crops in the field until he can conveniently care for them, and does not have to hustle out of bed at night to save them from an unexpected storm. He is always sure of a crop, so far as moisture can insure it."

Would it not be worth while for the editor to use some space to refute these overdrawn statements? They are, to say the least, rather disgusting to one who has had some experience in irrigation, and knows of such difficulties as a break in a canal, delaying the water when badly needed, some of the ground flooded at haying time from other parties using water, or ground so miry in gopher holes (when there is no water on the surface) that it is entirely unsafe for horses to work on it. The necessity of all-night work irrigating, and also of hauling off hay sometimes before it is ready.

All these are drawbacks in a comparatively successful system, to say nothing of the thousands of dollars sunk in projects which proved a failure.

I have no wish to be a pessimist, but have no doubt that it would be a benefit to California agriculture in general to have the absurdities quoted exposed by the RURAL PRESS.

A. L. WADSWORTH.

Modesto.

[There are such troubles, of course, and our readers are already aware of them. When our correspondent speaks of them as drawbacks to a successful system it is about all there is to say of them. If there were no such things we should begin to doubt the truth of the primal course, "in the sweat of thy brow shalt thou eat thy bread." And it should be remembered, also, that that curse was pronounced when Adam was turned out of an irrigated garden, and not into one.—EDITOR.]

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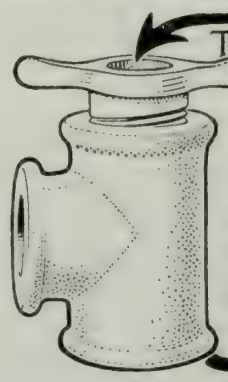
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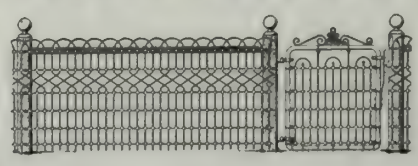
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Live Stock and Dairy.

THE LOCO DISEASE OF LIVE STOCK IN THE WEST.

The so-called loco disease of horses, sheep, and cattle has been for many years a source of serious loss to stockmen in the West, who have generally attributed it to certain weeds eaten by the stock. Investigations which have been made by the United States Department of Agriculture have not only confirmed the supposition as to the poisonous effect of these plants, but have resulted in the discovery and identification of barium as a definite poisonous element in them. Feeding experiments establishing the fact that the plants are responsible for the disease were carried on under field and corral conditions by Dr. C. Dwight Marsh, while the discovery of barium was made in the laboratory by Dr. A. C. Crawford.

The loco weeds are a class of leguminous plants, of which the principal ones are the purple loco weed (Astragalus mollissimus) and the rattle weed (Aragallus lamberti).

The characteristic symptoms of the disease are a slow, staggering gait, rough coat, staring, vacant look, and emaciation. The affected animals have hallucinations, cannot be led or backed, show more or less lack of muscular co-ordination, gradually lose flesh, and die. The affection comes on in a slow and cumulative manner, and there is no possibility of animals becoming immune by continually eating the plants.

Although good results can often be obtained by the treatment of locoed animals, the most effective way of dealing with the trouble is to keep animals from eating the loco plants. Wherever practicable the weeds should be exterminated from the range or pasture, and the best way of doing this is simply to cut them out. This method, however, while often practicable on land under private control, cannot very well be applied to the public range.

In many cases much can be acccomplished by keeping animals away from loco-covered ranges during the time when feed is short, as they are much more likely to contract the habit at such a time. It may sometimes be profitable to feed them for a short time, in order that the loco-eating habit may not be formed.

After animals have become affected the first essential in their treatment is to place them where they cannot eat the loco weeds. They should be given plenty of nutritious feed, and, so far as practicable, feed with laxative properties, such as green alfalfa. Some may recover under this treatment, without recourse to medicine.

As a result of its experiments the Department of Agriculture suggests the following treatment: For cattle, strychnine in doses of three-twentieths to four-twentieths of a grain daily, administered hypodermically. For horses, Fowler's solution of arsenic in half-ounce doses daily, in the drinking water or in the grain. This treatment should be continued for at least a month. To correct the constipation which is almost universal in locoed animals, magnesium sulphate (Epsom salt) may be administered as a drench in two-ounce doses. Epsom salt may also serve to some extent as an antidote to the poison produced by the weeds. Beneficial results have also been obtained by giving horses daily a drench containing 2 ounces of Epsom salt with 10 drops of dilute sulphuric acid, and by giving cattle triweekly 3 to 4 ounces of Epsom salt with a proportional increase in the quantity of dilute sulphuric acid.

As the foregoing treatments are in the experimental stage, the Bureau of Animal Industry, Washington, D. C., would be glad to receive reports of results from their use.

SHEEP ON THE FARM.

We are always urging the attention of California farmers to the desirability of small bands of sheep for the farm—the cleanliness and economy of it, and for the profit in sales and in home meat supply. Small bands can be easily protected from dogs, the great bane of sheep in settled districts. A good argument on these points is made in the American Sheep Breeder, to which we call attention:

Far too many farmers fail to appreciate the value of a flock of sheep on the average farm. There is nothing in the entire farm curriculum that returns the profits proportionate to the work done that does a flock of sheep. This does not mean that a man should raise sheep to the exclusion of everything else, but he should keep them just as he keeps some cows and some horses and other kinds of stock. It is a strange thing, but nevertheless a fact, that in going through the country, past farm after farm, you will see every domestic animal but sheep. A farmer never thinks of doing business without cows, or horses, or hogs, and he ought to think the same about sheep.

Two important items which weigh heavily on the credit side of the sheep account are the small labor cost and the large value of the manure. There is no farm animal that utilizes as much coarse feed of low value with as little attendant labor as does the sheep. Even in winter, when they must be fed, a proportionately larger number can be taken care of in less time than of other stock; while in summer the cows must be milked, the horses cleaned, and the hogs fed, the sheep picks his living, raises a lamb and grows a fleece while the farmer is tending to the rest of the stock. And wherever the sheep goes he enriches the land. It was lamb feeding that replenished the farms of Michigan, which had been depleted by long years of wheat growing, and made them as fertile and productive as virgin lands. Wherever you see a farm on which is kept a good sized flock of sheep, you will see good crops, good buildings and other improvements, and a prosperous, progressive farmer.

The following experience of a Texas man, related in Farm and Ranch, shows the value of sheep from other viewpoints, and what he did any other farmer can do. He says:

"The way I happened to put a flock of sheep on my farm is this: Going back and forth between my town and Dallas, I noticed two adjoining farms, each showing that there was a good farmer on it; yet one was completely clean of weeds, and the other had the usual number. I saw two pastures, one with tender grass growing and not a weed in sight, while the other, in places, had more weeds than grass. I investigated, and found that both farmers were first-class workers and knew how, but one had a flock of sheep on his place, while the other had not. This set me to thinking, and I decided I would look into the matter. After some correspondence I purchased 14 ewes and a ram from a dealer in the State, and began experimenting with them. That was 18 months ago. I now have 40 head, and am going to buy more.

"I find that the sheep is valuable on the farm for its usefulness in destroying weeds, if for nothing else; that the wool clip will more than pay for the cost of the feed during the months when there is no pasture; that the trouble to keep them is comparatively nothing, and that the increase is almost 100% annually.

"Sheep, if treated kindly, are easier handled and more easily trained than either horses, cattle or hogs. With just a little effort one can teach them to drive or to follow from lot to pasture, and the reverse. I think every farmer should have a small flock for the purpose of utilizing the waste about his place, cleaning his fence rows of weeds and bushes, and enriching the soil. And when you consider the two sources of profit—the sale of wool and the sale of lambs, at today's prices—it is clear that within a few years on most every farm there will be found a bunch of sheep."

SWEET CLOVER IN ALFALFA.

This is considered a great nuisance by California growers, but a Kansas farmer finds virtue in it, and gives the Breeder's Gazette this observation:

"A pound of sweet clover seed to the acre, mixed with alfalfa seed thoroughly, is a positive benefit to the crop. As a rule one does not know his ground is inoculated with the alfalfa bacteria before sowing. The sweet clover will surely do the work of inoculation if the seed grows. I believe two pounds would do better than one. Sweet clover can do no possible harm. It is biennial. It will yield no bloom the first year. If the alfalfa crop is worth cutting, and two crops are obtained the second year, the sweet clover will never bloom, and there will be no sign of it the third year. It is the cheapest method of insuring inoculation which is as certain as the rising of the sun.

"I have sown sweet clover on the poorest kind of gumbo land in Kansas, not worth cropping, and made it grow 60 bushels of corn to the acre, and whereas it was difficult to get the plow more than two inches into that tough gumbo soil, after several years of sweet clover growing the plow would go down to the beam in it, as it was as mellow as an ash heap. There is nothing equal to sweet clover as a renovator of soils. Alfalfa is nowhere in comparison."

STACKING ALFALFA.

To the Editor: The article in the Pacific Rural Press of July 17, from Colorado Field and Farm, on "Alfalfa Haying," is very incomplete. How is the hay delivered on the stack? We find buck rakes very good for short hauls, but have found no satisfactory way of delivering the hay on the stack. It does not fork well after being brought to the stack with the rake. Nets are not very satisfactory, and any stacker we have seen is not a success. Will someone qualified give us the best methods of handling alfalfa hay?

A Subscriber.

Corcoran.

Have you noticed the advertisement of the Schmeiser Manufacturing Co., at Davis, Cal.? If not, look for it and write to them for further particulars.

H. H. H. LINIMENT

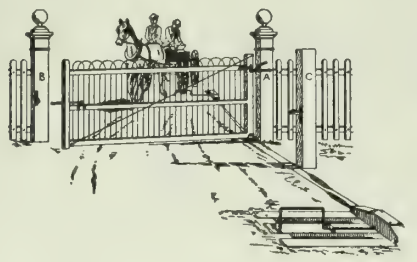
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DO WE GET MORE FROM OUR HORSES?

It is probable that because of our climate, which favors more continuous horse labor, California farmers get more from their animals than they do at the East but the question is worth asking.

In gathering data relative to horses on statistical routes, the Minnesota Experiment Station men discovered that the average cost to keep a horse per year is from $75 to $90. The average day's work varied from 3.08 hours in an intensive diversified farming community to 3.3 hours on the large farms in the Red River valley. It is not generally supposed by farmers that their horses cost so much per year for keep, nor that they are used so little on the average. It is even more surprising that the average hours of horse labor should be less on diversified farms than on the special grain farms.

From the data at hand, it appears that more work horses are kept on diversified farms than can be used advantageously for the entire year. This no doubt has come about through necessity. Field work needed to be done and could not be delayed by odd jobs, such as hauling of milk to the creamery, doing chores, hauling hauling manure and work of a similiar nature. For doing these minor jobs an extra horse or team is kept on many of these farms. This would not be necessary during the major part of the year, for then even one team may not always be kept busy, but during the busy season horse labor is a necessity and in demand. To attempt to hire at this time is practically impossible, hence the extra team is kept the entire year in order to have them at hand when desired, even though that be for only a short time.

It is clearly evident that unless increased use is made of the horses kept, their labor is too expensive. If enough work to keep the extra team busy cannot be furnished, would it not be feasible to let the extra team be mares and grow colts from them each year? The mares could be bred to drop their colts before the spring work began, or after that work is over and before haying begins. The regular team could do all the heavy work and the mares the light and extra work that is necessary. This would be just the sort of work that mares should do, and certainly would be better for the colts.

No data on the cost of growing a colt from birth to maturity is available. Based upon the comparative cost to make gain between cattle and horses, it is probably safe to say that a pound of horse can be made just as cheap as a pound of steer. If it costs six cents in one case it probably will in the other. The steer may sell for more or less than he costs to produce, but very likely little profit will be made. Almost any sort of a horse will bring 10 cents a pound, and many 12 or 15 cents. A 1200-lb. horse would sell on the market from $140 to $180, depending upon his conformation and quality. Heavier horses would bring correspondingly higher prices. Where the cost is about the same as for a steer, an expenditure to exceed $70 to $80 probably would be uncommon. Barring accidents, there is no reason why $40 to $50 per colt grown should not be gained. This would help to make good all of the cost that is now spent boarding horses that work only a small part of each year, and at the same time furnish a market for rough feed.

HOGS AND THEIR RATIONS.

In experiments made on the Colorado Agricultural College farm, hogs fed all the sugar beets they would eat, and no other food, just maintained their weight. Hogs fed grain and all the sugar beets they would eat made less gains than those fed the same amount of grain and no beets. A small quantity of beets fed as a conditioner were valuable, one ton taking the place of 200 pounds of grain. Hogs daily fed a little grain during the pasture season will make from 500 to 1000 pounds of gain per acre of alfalfa pasture, after the gains which the grain could make are deducted. Hogs fattened on grain alone, gained 400 pounds, while those fed grain and alfalfa hay gained 600 pounds. Several lots of hogs were fattened with different grains, and others with the same grains and alfalfa hay. One ton of the hay took the place of 1000 pounds of peas and of 1460 pounds of wheat. Early cut, leafy alfalfa hay should be fed to hogs, and is best fed in racks. They should eat the leaves only; the woody stems are detrimental. There is a loss in either cutting or grinding alfalfa hay for hogs, as these methods compel the eating of the indigestible stems. An acre of Dwarf Essex rape pastured by hogs will put about 400 pounds of gain on them during the season. Grain must be fed daily with it.

NEED OF CAREFUL MILKING.

Every milker thinks he knows how to milk, says a writer in an eastern dairy journal, but if the cows could speak, they would probably intimate that a few lessons in the gentle art would not be out of order. It is not fair treatment to sit down to a cow and tug and haul on her until she steps around in her stall and acts as if she were badly hurt. Sometimes a cow will stop eating and wait until the ordeal is over before she will resume her meal. The cow that does that is usually not comfortable, and an uncomfortable cow will not do her best. Some men have a way of milking that so pleases the cow that she clearly shows her satisfaction. These are the men whose methods should be studied. They never shout at, strike, or otherwise illtreat their cows. They sit down quietly, take hold of the teats gently, no matter how much of a hurry they may be in, and begin to draw the milk without pressing too hard, for they know they are touching her at a tender point. Then they keep steadily at it until the last drop is out. There is no excuse for having a kicking cow in the herd. The kicking cow is almost always made so by her attendant. If a cow is handled before she comes in so as to become familiar with her attendant, and has been kindly treated, there will probably be no trouble. It is my opinion that nine cases out of ten, where there is trouble of this kind, it serves the attendant right to get a good kicking. I think if all milkers would do a little thinking, a little sound reasoning, and investigate matters a little, they would probably find sore teats a common cause for a kicking cow. Instead of using the much-talked-of straps or ropes, I should advise them to use a good remedy. One which has proven effectual without a single exception is simply clean lard. About 15 or 20 minutes before the cow is milked the first time, the lard should be applied to the teats, and when through milking wipe the teats perfectly dry with a soft dry cloth and apply the lard again. This was usually found necessary for about five or six milkings. Many milkers have the bad habit of wetting their fingers when milking, and when the teats of young cows are left in this condition, they get sore. On the other hand, lard heals or takes away the soreness that is so natural, caused by the action of rough, hard hands upon the teats that are not accustomed to the milking process.

I once visited a farm where they had a fine young Holstein cow which had just freshened for the first time. The milker and the poor animal had gone through almost everything during the first three milkings. The cow had no means of expressing her sufferings, except with kicks, and the owner, although a kind, intelligent person, could not think of other methods to apply except what he had used so often with other cows—tying her with straps or ropes. He decided then to let her keep her calf, as it seemed an impossibility to milk her. It was then that I happened to have my attention called to it, so I told him of our method which at that time we had tried only with three or four young cows. He laughed at me when I suggested that I would apply the lard myself. But the cows' teats were now so sore she would not even let the calf touch her. With considerable patting and rubbing and kind words I had the satisfaction of getting the lard applied, and the still greater satisfaction of seeing the cow stand perfectly still a short time afterwards to the great astonishment of those present.

THROWING AND TYING HORSES

In answer to a Washington inquirer, the Breeders' Gazette explains that horses can be successfully thrown with a rope alone although the use of hopples guards against the possibility of burns on the pasterns from careless use of the rope. Hopples are also safer for the operator and are quite generally used by those who throw a large number of horses.

To cast with a rope alone a 30-foot rope is thrown across the horses neck and tied in a knot that will not slip, having the loop over his neck fitting about as snug as a horse collar. The free ends of the rope should be of equal length. The two ends are thrown between the front legs and then between the hind legs, then brought foward on the outside and drawn through the neck loop. The ropes are drawn tight with the contact at the hind legs just below the fetlock joint. As the hind feet are pulled foward the horse falls and if he is being thrown for castration he should be pushed to the left side as he goes down. One man holds his head down while his hind feet are pulled well forward and fastened. The rope is looped around each hind pastern to prevent the feet escaping and the ropes tied to the neck loop by two half hitches. The front feet may then be secured by the loose ends of the ropes, tying each with a loop around the fetlock and a tie of two half hitches. Two men can handle a horse in this way and when he is tied one man can hold his head down to check his struggling while the other operates.

A hopple is a padded strap long enough to buckle around the pastern. A ring is fastened to the strap to run the rope through. In using two hopples the plan of roping is essentially the same as when no hopples are used. With four hopples a surcingle is often used having rings to run the rope through and a hopple is put on each pastern. One end of the rope is tied to one surcingle ring; the other is put through the two front hopple rings, then through both hind hopple rings and back through a second surcingle ring. The operator stands on the right side and pulls on the rope, throwing the horse to the left. All the feet are drawn close up to the surcingle and the rope made fast to it by two half hitches. Horses are sometimes thrown with four hopples and no surcingle by simply threading the rope through the hopple rings and pulling all four feet together, but this does not effectually check their struggling.

There are a number of other different ways of using hopples with substantially the same effect, and nearly every man has a little different scheme and a little different rigging, but these are the simplest ways of doing the thing without danger of crippling the horse.

Western horses when wild are, of course, handled far less gently; they are lassoed around the front feet and thrown and then the hind feet made fast. The shock of the fall is much greater by this method and involves considerable risk with heavy horses. If is safer for the horse when he is tame enough to permit it to throw him by these methods that bring his hind parts to the ground first.

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The Lawrence-Williams Co., Cleveland, O.

BUTTER FROM SWEET CREAM.

The Bureau of Animal Industry, of the United States Department of Agriculture, Washington, D. C., has recently issued the following:

It has been a generally accepted theory among teachers of and writers on dairy subjects that the production of good butter necessitates the development of a certain amount of acid in the cream, for two reasons—to develop a desirable flavor and to improve the keeping quality. Recent investigations by the United States Department of Agriculture indicate, however, that butter made from pasteurized sweet cream has better keeping qualities and remains free from objectionable flavors for a longer time than butter made from sour cream.

The dairy division of the Bureau of Animal Industry for the past three years has been making a study of the changes which butter undergoes in storage, and especially the influence of acidity of cream on the keeping qualities. This was done to determine the best method of making butter for storage. The investigations have included the making of experimental lots of butter by different methods and in different parts of the country. The butter was kept in cold storage and was examined and scored at certain intervals, the scoring being done by men who had no previous knowledge of how, when, or where the butter was made, so that their conclusions were based strictly on the quality of the butter. A report of this work has just been issued as Bulletin 114 of the Bureau of Animal Industry.

As a result of the investigations it was found that butter frequently undergoes marked changes even when it is stored at very low temperatures, and that these changes are more marked as the acidity of the cream from which the butter made is increased. No bacteria were found in the cream or butter which could be expected to be the cause of the more rapid deterioration; furthermore, the changes in the high-acid butter were not checked by eating the ripened cream, which shows that they were not brought about by enzymes secreted with or in the cream and carried into the butter. The results also indicated that acid which develops normally in the cream by the action of certain bacteria, or which is added directly to the cream in



the form of pure acid, brings about or assists in bringing about a slow decomposition of one or more of the compounds of which butter is largely composed.

What is regarded as of special importance is the fact that butter can be made commercially sweet from sweet pasteurized cream without the addition of a starter. Fresh butter made in this way has a flavor too mild to suit the average dealer, but it changes less in storage than butter made by the ordinary methods, and can be sold after storage as high-grade butter. At the present time there are at least ten creameries in the country making butter from sweet pasteurized cream without a starter, and many more with a starter but without ripening. The statements in regard to butter from unripened pasteurized cream do not hold for butter made from unpasteurized cream churned without ripening. Butter made in this way has poor keeping quality.

Butter for the United States navy is being made from sweet cream, and this plan, adopted last year, is giving satisfaction. A tub of sweet-cream butter 14 months old on exhibition at the National dairy show last December had no storage or fishy flavor, and was pronounced a fine article.

RABBIT MEAT FOR EXPORT.

Australia has to a certain extent turned her pest into a profitable industry. During the last five years 14,423,000 frozen rabbits have been exported from Victoria, principally to England; also 98,242,000 skins, while 5,000,000 skins went into local consumption, making a total of 103,242,000 skins.

But this trade great as it is does not yet notably reduce the rabbit pest and there seems no danger of a lack of supply of this kind of meat. The Melbourne Leader, in a description of Bolinda-Vale, a great estate or ranch within 30 miles of Melbourne, says that like all other large estates in Victoria, if rabbit suppression were suspended for two or three years, it would be unable to carry any stock. Incessant war has to be waged against rabbits to keep them under. A day on Bolinda-Vale with the manager, Mr. Robert Clark, affords evidence of the heavy cost of rabbit suppression to landowners. They have been at work on Bolinda-Vale continuously for 30 years. Thirty-five men and 40 horses are continuously employed in it. Poisoning, digging out the burrows, fumigation, trapping, ferreting and hunting with packs of dogs, are all methods which are successfully employed. The substances employed in fumigation are bisulphide of carbon, charcoal and sulphur. The fumes of each of these are forced into a burrow by a blast from the fumigator. All the holes are stopped up, and the rabbits in the burrows are smothered with the fumes.

Digging out the burrows and destroying cover is an excellent way of keeping down the rabbit pest. Good work is done on Bolinda-Vale with packs of dogs. Ten to 12 dogs—all kinds, greyhounds, fox terriers, pointers and crossbreds—form a pack. The packs are taken out daily by men on horseback. Each pack accounts for an average of about 50 rabbits per day; sometimes the number runs up to 100 or 150. A lad with two or three ferrets, a dozen nets, and a good dog, will get two or three dozen rabbits a day. The trappers attend to 50 or 60 traps each. Many of them who understand the business make good wages.

REDUCING BOVINE TUBERCULOSIS.

According to Bulletin 175 of the Wisconsin Experiment Station by Director H. L. Russell and Conrad Hoffman, instructor in bacteriology, a very effective educational campaign has been conducted by means of addresses, printed bulletins, and post-mortem demonstrations given in co-operation with the State Live Stock Sanitary Board.

The demonstrations have proved most convincing, and thousands of farmers have been led to apply the tuberculin test to their herds after observing its accuracy as shown by animals killed at the demonstrations. At points in the State where such demonstrations have been held, the tuberculin testing has been greatest.

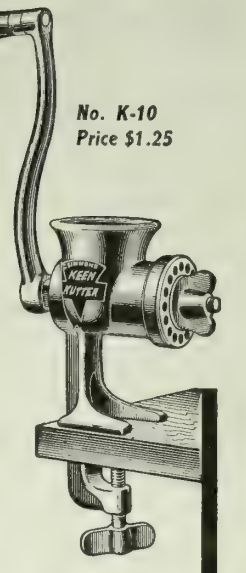
The tuberculin test has been applied under the direction of the Agricultural Experiment Station, and also under the direction of the State veterinarian. Since tuberculin testing was begun in 1892, a total of 72,738 animals have been tested. Over 66,000 of these have been tested in the last three years.

The State has paid to owners two-thirds of the appraised value of reacting animals, and has received in return whatever was paid for the carcasses of those animals passed by federal inspectors.

There has been a decline in the per cent of the animals reacting from 17.7 per cent in 1906 to 5.6 per cent in 1908. In 1906 almost half of the herds which were tested were infected, while in 1908 less than one-fourth had the disease. In 1906 about 12 per cent of the animals tested were found to be infected, and in 1908 less than 4 per cent. This indicates that the disease is present in a great many herds, although it has not spread in each herd to any great extent.

The evidence shows that the most common mode of herd infection is through the purchase of infected animals. Of 363 herds found infected in 1908 there were 263, or nearly three-fourths, infected through purchase. A law requiring a clean bill of health to go with each sale is much needed, as well as a law requiring the pasteurization of factory by-products. No district, where the production of breeding animals is important, can afford not to take up this matter at once. By testing and removing the infected animals immediately and then buying only those which have been tested, owners may keep their herds free from disease.

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CALIFORNIA MOHAIR.

A writer on Angora goats and their product pays a tribute to California in this connection, which all patriotic citizens will appreciate. In a contribution to the Breeder's Gazette he gives the following: One of the most beautiful and valuable products of California is mohair, the hair of the Angora goat. At Bradford, England, where are situated the largest mohair mills in the world, the California product has created a sensation by reason of its rare quality. The Angora goat is valuable for its hair, its skin and its mutton, but the mohair is the most valuable of all its products. This hair grows annually to a length of 10 inches, and is of the purest white. The finer grades are used principally in the manufacture of dress goods and coat linings. It is not a wool in a technical sense, but a pure hair, being devoid of scales, which are possessed by sheep's wool.

The fleece of the Angora is exceedingly lustrous, and is next to silk as a fiber. Upon the animal it hangs in beautiful wavy curls or ringlets from all parts of the goat's body. In California, Angora goats are sheared once a year, but in other parts of the United States they are sheared twice a year. This is done especially in those parts having a long hot summer, where if the fleece is left on the goat, before the summer is over it begins to shed and waste. Fabrics woven of mohair are exceedingly durable, garments made from them lasting for years, and retaining with wonderful tenacity their color and luster.

Shearing time at a California Angora ranch is an important and interesting occasion. It occurs at any time after the first of February that suits the convenience of the ranchman. The shearing is usually done by a gang of professional Mexican shearers, armed with common sheep shears. Machine shearing has been tried on the Angora, but the experiments have not thus far been entirely satisfactory, as the knives show an inclination to clog with the mohair. In tying up a fleece of sheep's wool preparatory to packing, the inside is turned out, as that is the cleanest and whitest; but it is not so with the fleece of the Angora; its most attractive side is the outside, and it is tied with that side out.

The skin of the Angora goat is tanned, both with the wool on and the wool off. Skins with the wool on are made into rugs and robes, while those tanned with the wool off are used as leather for the manufacture of gloves. The fleece-tanned skins are also used by saddlers, who make them into chapperaros for the use of cowboys. Mohair takes dye readily, and will take almost any color, and hold it for an indefinite period. The production of mohair is almost wholly confined to three countries—Turkey, South Africa, and the United States. The industry is comparatively new in the United States, but one of great promise, as about $25,000,000 worth of goatskins alone are annually imported into the country, to be used in the manufacturing industries.

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A. J. BROWN, Elmira, Cal.

The Poultry Yard.

A Way to Circumvent the Tick.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

To the Poultry Department: In the PACIFIC RURAL PRESS of July 17, F. H. P., of Ceres, asks for a remedy for ticks on his fowls. Noting what you say about spraying, will say that spraying is good, and we cannot do too much of it; but would like to suggest another remedy that my father observed in the PACIFIC RURAL PRESS eight or ten years ago, when he was in the same trouble as F. H. P. Suspend the perches from the roof with wire. As the ticks crawl onto the hens mostly at night, this keeps them off. There is no way of getting them out of the cracks and crevices, and whitewash won't kill them; it is the only successful way, I think. (If the inside of the house is painted with crude petroleum, as advised in bad cases of mites, the ticks cannot get out of the cracks nor crawl up the walls, as the petroleum does not dry.—M. R. J.) I hope that this will do F. H. P. as much good as a similar article did my father.—G. E. STIRLING, Elk Grove.

N. B.—Will say in addition that the RURAL PRESS is a very welcome visitor at our house each week, and it never fails to have something new and useful in it. My father, who is 84 years of age, remarked not two days ago that he had always felt kindly toward the RURAL PRESS since reading the article referred to some ten years ago.—G. E. S.

We appreciate the thoughtfulness of Mr. Stirling in writing the above letter, as no doubt our readers in the tick localities will do. When our readers find anything good in practice, we hope that they will send it along. An exchange of experience will be of benefit to all.

The RURAL PRESS also acknowledges with pleasure the added note of appreciation with the assurance of its usefulness and welcome from two of its old friends.

Poultry Notes.

DRY HOPPER FEEDING.—A novice would like to learn something about this method of feeding, its advantages and disadvantages, and the rules for feeding.

Dry hopper feeding, as its name implies, is feeding all poultry food dry in hoppers, the hoppers always containing food, that the fowls may eat as often and as much as they desire. It is claimed that this is the natural method of feeding; which is true, in the sense that food is in nature always accessible to birds, but not in quantities or piles. On the contrary, the bird must chase far for one insect, and gets but a seed here and there.

In this method the three classes of fowl foods—proteids, carbohydrates, minerals—with a supply of vegetables or green feed at intervals when yarded, are kept in separate hoppers before the fowls, and they are expected to select the class of food suited to their various needs, and to balance their rations for themselves. Thus in addition to hoppers of grit, shells and charcoal, which are a part of all right methods of feeding, there are hoppers, or a hopper, of grains or mixed grain, and a hopper for the dry mash or mixture of bran, middlings, oil cake meal, blood meal or beef scrap, etc.

The advantages claimed for this method are a saving in labor and time and the avoidance of the dangers from unwholesome mashes. Undoubtedly its chief virtue is the fact that fowls are never underfed nor subject to long fasts—that is, if the hoppers are not allowed to go empty.

By this method, the person who can attend to his fowls only in the early morning or late at night, or maybe but once a week, by having hoppers of sufficient size and properly arranged, may still keep a few birds and feel that they are well fed in his absence.

The main disadvantages of this method are waste in keeping millstuffs and meat products open to the fowls, and this is caused not alone by the fowls themselves but more by unlicensed feeders; and failure to use waste products which when cooked and made into a mash are first-class egg food and growing material. In our opinion, its chief fault is the keeping constantly before the fowls a class of food which should be fed only occasionally and in limited quantities, such as millstuffs and meat products.

While an ill-made, wet mash is a deadly compound, a good, freshly made mash, fed but once a day, and only in quantities that will be cleaned up quickly, supplies variety, succulence and relish, and can't be beaten as an egg-producer.

Many poultry keepers are following the method of dry feeding practiced at the Maine Experiment Station, which is simple and among the best forms of dry feeding, especially where it differs from the straight hopper feeding by putting the whole grain in litter, though this calls for at least daily feeding. The explanation of this method is from Farmers' Bulletin 357, lately published:

"The method of feeding now employed is in detail as follows: Early in the morning, for each 100 hens 4 quarts of whole corn is scattered on the litter, which is 6 or 8 inches deep on the floor. At 10 o'clock they are fed in the same way 2 quarts of wheat and 2 quarts of oats. This is all the regular feeding that is done. Besides the dry whole grain a dry mash is kept always before the birds. Along one side of the room is the feed trough with its slatted front, and in it is kept a supply of dry meals mixed together. This dry meal mixture has the following composition: In 8 parts of the mixture are 1 part each by weight of corn meal, middlings, gluten meal, linseed meal, beef scrap, to 2 parts of wheat bran. Oyster shell, dry cracked bone, grit and charcoal are kept in slatted troughs. A moderate supply of mangolds and plenty of clean water are furnished. About 5 pounds of clover hay, cut into half-inch lengths, is fed dry daily to each 100 birds in winter. It is very evident that the hens like the whole and broken grain better than the mixture of the fine dry materials; yet they by no means dislike the latter, for they help themselves to it, a mouthful or two at a time, and never go to bed with empty crops, so far as noted. They apparently do not like it well enough to gorge themselves with it and loaf and get overfat and lay soft-shelled eggs, as is so commonly the case with Plymouth Rocks when they are given warm mashes in the morning."

The point that is open to criticism in the above form of dry feeding is the giving of the heavy grain feed in the morning. Practical poultrymen try to induce the fowls to take on a full crop of grain at the last daily feed, to stay with them through the night. We would recommend making the wheat and oats the first feed in the morning, and the four quarts of whole corn the last feed in the evening, with some fresh green feed added.

The Northern Pacific Railway Company is running a 52-acre poultry farm as a side issue, and proposes to supply its own market for fresh eggs, broilers, and roasters.

At Camillus, New York, a man received a life sentence for stealing $17 worth of poultry. It was his fourth conviction, which, according to the laws of that State, means a life sentence.

The hen, it is said, requires 8120 feathers to complete her outfit—and the average woman finds it hard to get one feather for hers!

THE CALIFORNIA STATE FAIR.

Superintendent Healy has this to say to the poultry fraternity:

It is only two months until the great California State Fair opens, and it is time that the poultry fraternity got busy.

The society has done more for the poultry people this year, in the shape of cash prizes, than ever before, and last year $933 was divided among the fanciers there.

Read over the prizes, both regular and special, and you will see that they are larger than given at any poultry show on the Coast; then look at the entrance fee, and you will see that it is the lowest. Write, either to the secretary or to me, for a premium list, if you have none.

Is there any reason why your birds should not be there?

The judges, Cobbledick, Tyler and Venn, need no introduction from me, as their reputation for ability and honesty is unimpeachable and is a guarantee of a square deal.

Where enough from your vicinity intend to exhibit, it would be a good plan to get the birds together at some central point and ship by the S. P. R. R., as they carry all exhibits free each way, saving you expressage.

The management has several novelties in view; also we expect to have lectures by experts from the University of California, and these cannot help but be beneficial to the fraternity.

The above applies to pigeons as well as poultry.

I will gladly receive suggestions from any poultry association of fanciers, that will tend to improve the show.

Remember, this year the whole fair will be in one enclosure, and consequently will be visited by thousands more people than in the past.

This is a State show, not sectional, so let us all get busy and boost for the State Fair show. Fraternally,

E. K. HEALY,
Supt. Poultry Department, Alameda, Cal.

WHEN CHICKENS ARE WILD GAME.

Several years ago the editor of the Patriot, who does not raise chickens, read in an exchange what purported to be a decision of the Supreme Court, or some other unprejudiced and unpurchasable authority on justice and jurisprudence, to the effect that chickens, wandering into a neighbor's strawberry patch, become the same as wild game, and may be shot, snared or have their heads wrung, without regard to what the game laws define as "the season." The editor thought it "good stuff" and copied it. A week or two later some other editor, who evidently raised chickens, or let his neighbors raise them for him, discovered that the Supreme Court had not rendered such a decision, and we were obliged to retract.

Now some paper down in "Egypt" claims to have a direct tip from Attorney General Stead, defining chickens that take their meals away from home and only "come home to roost" as wild game. If we were better acquainted with Mr. Stead's home environment—if we knew what kind of chickens his neighbors raise—we could better determine the genuineness of this opinion credited to him. In the interest of the long-suffering strawberry bed, we hope it will carry some weight. Here it is:

"That chickens when they wander away from their owner's premises, meaning their own private bug-hunting grounds, and take to tearing up Mr. Neighbor's newly made garden, become wild birds. That, having become such, and taking it for granted that Mr. Neighbor has become a wild man and is willing to go to extremes in order to square accounts, they may be shot. That, having been shot without regard to what particular portion of the anatomy the load is aimed at, Mr. Chicken Owner is without recourse by law. Of course, he may tell Mr. Neighbor what he thinks about him, or, if he is willing to take chances on police court publicity, he may lick Mr. Neighbor, but he cannot sue."—Carrollton (Ill.) Patriot.

CALIFORNIA POULTRY BREEDERS, HO!

Secretary Anderson intimates that our poultry breeders are not showing up very thick in the entries to the poultry show of the Alaska-Yukon Exposition. On the other hand, the Eastern fanciers are wide awake to the importance of the occasion. Our California breeders should get busy and "do themselves and the State proud" at the Exposition. Such an opportunity does not occur every year on this side of the continent. Judges from the East agree in saying that we have birds fit for any company, and our fanciers surely are not lacking in the enterprise to bring them to the front.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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The Home Circle.

Don't Stay Late Tonight.

The hearth of home is beaming
With rays of rosy light,
And lovely eyes are gleaming,
As falls the shades of night;
And while thy steps are leaving
The circle pure and bright,
A tender voice, half grieving,
Says, "Don't stay late tonight."

The world in which thou movest
Is busy, brave and wide;
The world of her thou lovest
Is on the ingleside.
She waits for thy warm greeting;
Thy smile is her delight;
Her gentle voice entreating,
Says, "Don't stay late tonight."

The world is cold, inhuman,
Will spurn thee in thy fall;
The love of one pure woman
Outlasts and shames them all.
Thy children will cling round thee,
Let fate be dark or bright;
At home no shaft shall wound thee,
Then "Don't stay late tonight!"

—*Old Poems.*

Three People and a Goat.

One morning, just a week after Judith had refused me for the sixth time, I met her in the village. I am almost sure that it had been the sixth time. The first was in a theater, the second was in a railway carriage, the third, fifth and sixth were on the golf course. The fourth I am not so certain about, but I rather think it was during a game of mixed hockey. Anyway I remember that Judith seemed to consider it distinctly out of place.

Judith had laughed a great deal each time, and yet, Lord knows, I had been serious enough. I always had the thought that someone else with eyes might come along, and—well, not be laughed at. I never could understand myself how anyone could see Judith without wanting to propose to her—partly because of her wonderful dark red hair and and dark gray eyes, and even more because of her delightful trick of dropping the corners of her mouth a little when she was laughing at you. It was almost worth being refused six times to notice that.

However, on the morning that I am talking about, although I was just beginning to hold up my head and take an interest in food again, and even think about a seventh try, I should have passed her with a stately bow. But I was unable to do this, because she was obviously rather in a hole, and because she threw me a quick little glance that I interpreted as an appeal for aid.

She was in the center of quite a crowd, composed of idlers, the village policeman, and very many children. She was standing beside a tiny carriage in which was seated Augustus Frederick, her small nephew, and she was trying desperately to persuade the large black goat that was harnessed to it to move on. Everyone present appeared pleased and delighted, except Judith and the goat.

I knew that goat, and also I knew that child, its master. Both conceal beneath almost angelic exteriors characters that a pirate in his better moments might be ashamed of. Augustus Frederick has worn out a long dynasty of nurses, and as for the goat—in a sterner age he would certainly have been broken on the wheel or something very painful of that sort. He has the intelligence of a senior wrangler and loves to feign the maddening stupidity of an earthworm; he has the strength of a small robust pony, and can assume at will for his own base purposes the fragile, dejected appearance of a broken lily.

He was doing this now. His head was drooping woefully, and he was standing in the shafts with his forelegs knuckling under him. You would have said that he had not been fed for a week. I selected an intelligent boy on the outskirts of the crowd and dispatched him into a shop with sixpense. You see, I knew that goat. Then I pushed by way to Judith's side.

"Oh, do help me!" she said, and she appeared to be splendidly forgetful of the fact that she had recently refused me for the sixth time. "I cannot get this terrible animal to stir."

Augustus Frederick was chortling for pure joy, and flourishing a small whip. I took it from his grasp by a deft movement and exhibited it to the goat suggestively. The animal gave me one glance of supreme intelligence and—deliberately lay down upon the road. The crowd whooped delightedly, and Augustus Frederick was almost shot out upon the back of his steed. He saved himself by an adroit wiggle. As for Judith, she bit her lip and looked as though she had distinct thoughts of tears. Her faith in me, always a tender plant, appeared to have vanished. It was at that moment that my emissary returned.

I took a paper bag from his hand. It contained certain succulent sweet biscuits, the only things in the world that really appeal to the better, loftier nature of that goat. I requested Judith to hold Augustus Frederick in his seat, and displayed a biscuit before the half-closed eyes of the recumbent quadruped. The result was a pure triumph. The goat discarded its histrionic weakness and sprang abruptly to its feet. I moved before it, still displaying the lure, and it followed me al most at a canter. The crowd sprayed out before us, and the village policeman headed off the attendant children. I glanced at Judith as Napoleon, fresh from a stupendous victory, may have glanced at Josephine.

Her attitude rather disappointed me, I must confess. Her cheeks were still a little flushed with annoyance, but her eyes were laughing now. And, as usual, they were laughing at me. I sometimes think that I have much in common with Napoleon. I am sure he would not have cared to be laughed at.

"That was quite clever of you," Judith said, and the gratitude of her voice was almost spoiled by the dancing mockery of her eyes. "I don't know what I and Gussie would have done if you had not come. But—is it not tiring to walk backwards like that?"

It was, and I was also conscious that it was slightly ridiculous. But, after all, I was doing it for her sake.

"Where are you bound for?" I asked abruptly, handing the goat a small instalment on account and venturing to walk in a more natural fashion.

"Oh, Jack betted me sixpence that I could not take Gussie and Billy and the carriage out for a clear mile and retrun in decent order. No nurse has been able to do it yet successfully. I want to win very much; but—we needn't drag you so far out of your way!"

The hint was fairly obvious. But—sometimes it is wise not to read a hint too literally; sometimes one fancies that it may even cover an appeal. If I was not mistaken, Billy had already contrived to shake Judith's confidence a bit.

"I hate being superfluous," I remarked, "but I was going for a walk, anyway, and I think that Gussie's mother and even Jack will certainly say that I ought to have gone with you, if you and Gussie and Billy are brought back from this expedition in minute fragments."

Judith indicated by a gesture, in which her small hands and her eyebrows played eloquent parts, that she and Gussie were quite capable of looking after themselves.

"But we can't help it if anyone insists on coming with us, can we, Gussie?" she inquired plaintively.

Augustus Frederick remarked irrelevantly that he was rather tired of all of us, except Billy. (He is a child who should be sternly corrected by his criminially indulgent parents.) His words annoyed Judith, who had obviously counted on his support, and I fancy that I should have suffered for them, if the animal Billy had not chosen that moment to create a diversion. It is the first time that I have been even momentarily pleased with him.

We were at the four crossroads, just outside the village, and a motor car was coming down one of them. It was traveling briskly, but the road was fairly wide and there appeared to be no danger. As it came level with us, however, that abandoned goat made a sharp half-turn to the right and dashed straight across its bows.

Judith screamed and both she and I made a futile spring, but we should have been yards too late. As it was, Billy, by some miracle, had judged the distance to an inch. The front of the car almost grazed the back of the little carriage, and then, quite uselessly, the startled chauffeur reversed violently. The car groaned angrily and ran backward right up the steep bank of the hedge. At the top it stuck for a moment, and then descended again with a most dismal thud. Billy, totally unmoved by these happenings, was cropping grass by the roadside.

(To Be Continued.)

The Rural Press Household.

"Sweets to the Sweet."—Things are certainly coming the children's way in this new era. We who were children way back in the last century were not allowed to indulge the "sweet tooth" in peace and plenty. Dire prognostications of 'worms" and "decayed teeth" and demoralized "tummies" were always mixed with our stinted allowances of sweets. As for ourselves, however, we were quite willing to take chances if we could get the sweets, and cheerfully raided the sugar bowl and the preserve jars. But there were our parents to be reckoned with, and our stolen sweets were likely to prove bittersweet indeed.

Now after centuries of privations and tribulations for the youngsters along this line, it is discovered that the "sweet tooth is not an invention of the evil one." Dr. Woods Hutchinson says in Success that this craving for sweets is Nature's call for one of the full-blown members of the great trinity of nutrients—carbohydrates, protein, fat. Sugar is the wood, coal, gasoline for the muscle engine. Every time the tiny engine gives one of its rhythmical explosions—that is to say, when a muscle contracts—a certain amount of sugar is burned up. It is fortunate for people whom a mistaken conscience deprives of sweets that the human body can manufacture sugar out of many foods—meat, milk, vegetables and grains. Otherwise the body would go into the desperate business of manufacturing sugar out of its own tissues, which is precisely what diabeties did in the days when this disease was supposed to be due to too much sugar in the food and physicians tried to cure it by cutting sweets and sweet-makers out of the patient's diet. Next to the substitution of pure milk for starchy foods in the nursery, such as gruels and paps, few things have done more to cut down infant mortality than the free and intelligent use of sweet fruits, sugar, preserves, and pure candies. Far from making the medicine chest necessary, candy does away with doses. Of course, children may gorge on candy, but give them plenty of sugar on the mushes, plenty of simple cakes, bananas, etc., and all abnormal cravings for candy will disappear."

Canning Hints.—Always scald the lids and fruit jars in boiling water in which a spoonful of soda to each pint has been dissolved. Some germ of mould may be lurking in the jar, or soured fruit dried under the lining of the lid. After scalding, set the lids on the back of the stove and let them dry and heat; use a soft cloth and put them on the jars hot; this will make more sure and perfect preservation of the fruit.

Turn the cans upside down for two or three days after sealing; then examine carefully before putting away. If there is any leakage, empty the fruit from the can, add more sugar and make into marmalade.

Canned and preserved fruits and vegetables require to be kept in a cool dark place. Glass jars should also be wrapped in heavy brown paper or a portion of a black stocking leg drawn over them. To set them in clean sand up to the lid is an excellent plan. Light is injurious to all such things, but particularly to tomatoes. It causes the formation of citric acid, which gives the tomatoes a sharp, disagreeable taste in spite of sweetening.

No water should be added to strawberries or raspberries, but with blackberries, and especially with Logan berries, a scant teacup of water to each full quart of berries, together with a pint of sugar, will be an improvement.

Mint Vinegar.—Fill wide-mouthed bottles with the fresh clean leaves of spearmint or of parsley, without packing. Cover with good vinegar and let stand two weeks; then pour off the vinegar into other bottles and cork tight. Wholesome and excellent for cold meats, soups, etc.

Mint Sauce.—Wash and let drain the young leaves of mint. An hour before using chop fine, and with every three heaping teaspoonfuls of chopped mint mix two of powdered sugar; then add six spoonfuls of good vinegar. This sauce belongs particularly with lamb, but is fine with other meats.

A dash of snappy horseradish vinegar makes the roast beef more wholesome for those with a tendency to rheumatism.

Light and Darkness in Disease.—A physician says: "There are a number of diseases for which light is good—toothache, asthma, earache, cold in the head. These diseases all grow worse in the dark.

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THE MARKETS.

San Francisco, July 28, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Old wheat is little more than nominal, as the supply is very light, and there is no movement of any consequence. Trading in new grain is still of small proportions locally, though there is some buying in the interior. Outside markets have weakened lately, and while old grain here is still held at former prices, new Club is easier. The Northern market is taking on a little more activity, but buyers here are still inclined to hold off.

California White Australian.	$2.10	@2.12½
New	2.07½	@2.10
California Club	2.05	@2.07½
New	2.00	@2.02½
California Milling		2.10
California lower grades	1.90	@1.95
Northern Club	2.05	@2.07½
New	1.92½	@1.95
Russian Red	2.00	@2.05
Turkey Red	2.05	@2.07½

BARLEY.

Barley is now being offered quite freely, and spot prices have eased off again, although the yield is estimated at less than normal, and the future grain continues firm. There has been considerable activity in shipping barley in the interior, and several cargoes have already been dispatched to foreign ports. Trading here is largely on feed grain, of which there are large arrivals, most of it moving below the top quotation.

Brewing	$1.45	@1.47½
Shipping	1.45	@1.47½
Chevalier	1.50	@1.60
Good to Choice Feed, per ctl.	1.42½	@1.45
Common Feed	1.40	@1.41½

OATS.

Estimates of the Caost crop indicate a shortage, especially in this State. New reds are higher, and red for seed are held at quite an advance, most of the available stock having been bought on speculation, though there is little immediate demand. White oats for fall delivery from the North are held at $1.67, and black are offered at $2.50, but the market is quiet on all lines.

White, per ctl.	Nominal	
New Red, choice	$1.97½	@2.05
Common	1.90	@1.95
Red, seed	2.05	@2.17½

CORN.

Further arrivals are reported from the Orient, but little of the domestic grain is coming in, and with a light demand the market is quiet. Western grades are held at a slight advance over last quotations.

California Small Yellow	$1.80	@1.90
California Large Yellow	1.80	@1.82½
Western State Yellow, bulk.		1.71
Mixed, in bulk		1.69
White, in bulk		1.75
Egyptian	Nominal	

RYE.

The demand is still very small, and practically none has been sold recently. In the absence of business, no definite quotations can be given. Holders are asking irregular prices, and buyers have offered about $1.60.

Rye	Nominal

BEANS.

Beans show little feature at present, as the immediate demand is limited, and dealers are anxious to move the remaining supplies as soon as possible. The tone of the market is accordingly rather weak, and further reductions have been made in the price of large whites and bayos. Limas, however, are quite firm, and are quoted at a slight advance. Pinks are offered at a slightly wider range, but otherwise the market stands as before. While buyers are not active at present, local dealers look for a more general movement within the next few weeks.

Bayos, per ctl.	$4.50	@5.00
Blackeyes	3.40	@3.50
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	6.25	@6.50
Large Whites	4.50	@5.00
Limas	4.20	@4.30
Pea	Nominal	
Pink	2.85	@3.05
Red	Nominal	
Red Kidneys	3.25	@3.50

SEEDS.

The seed market is without any particular feature at present, quotations on nearly all varieties being nominal, as there is not enough movement to establish definite values.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00@ 25.00
Brown Mustard, per lb.	4@ 4¼c
Canary	4¼c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

The prices current for some time are still fully maintained, though buyers generally show a disposition to hold off, in anticipation of a weaker market. There is a fair movement for immediate needs in the local market, but there is scarcely any shipping business.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

The arrivals for the last week show a decided increase, amounting to about 2000 tons more than those of last week. As local consumers and small dealers are still generally holding off from the market, there has been some difficulty in disposing of the stock. Prices accordingly show some reduction on most grades. Buyers here are still dissatisfied with conditions, as they look for lower prices within the next few months, and it is reported that somewhat more pressure to sell is already developing in the country. In the meantime, dealers state that local quotations are lower than those current in some parts of the interior. The market is very irregular, with occasional sales below the figures given.

Choice Wheat, per ton	$17.50@18.00
Other Grades Wheat	12.00@13.50
Wheat and Oat	12.00@16.50
Tame Oat	12.00@16.50
Barley	11.00@13.00
Wild Oat	11.00@13.50
Alfalfa	10.00@13.00
Stock Hay	8.00@10.00
Straw, per bale	50@ 75c

MILLSTUFFS.

There is little feature to the market at present, as the demand and supply continue about equal, and prices are unchanged. Frequent shipments of the leading millstuffs are coming down from the North, as there is a rather active demand in this market.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	36.50@37.50
Mixed Feeds	25.00@30.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	31.00@32.00
Shorts	31.50@33.00

VEGETABLES.

The shipping demand for onions, which has maintained prices of late, has fallen off in the last few days, and supplies are larger than local demands can absorb. Prices are accordingly lower. Arrivals of miscellaneous lines have been quite liberal during the week, and prices generally have eased off considerably. Lima beans continue firm, but string beans and peas are both lower. There is a heavy surplus of tomatoes, holdover lots of which are taken by canners at bottom prices. It is impossible to move ordinary offerings of green corn, only the best lots bringing the top price, as arrivals have been very heavy. Peppers, cucumbers, summer squash, etc., are also in over-supply, and considerably lower than before.

Onions—New Yellow, per ctl.	85@ 90c
Garlic, per lb.	4@ 5c
Green Peas, per sack	75c@$1.00
String Beans, per lb.	1½@ 3½c
Lima Beans, per lb.	5@ 6c
Tomatoes, per box	20@ 50c
Green Peppers, per box	60@ 75c
Green Corn, per sack	50c@ 1.25
Rhubarb, per box	1.25@ 1.50
Summer Squash, large box	25@ 50c
Turnips, per sack	1.00@ 1.25
Cucumbers, large box	35@ 50c
Egg Plant, per box	75c@ 1.00
Okra, per box	75c@ 1.00

POULTRY.

Western arrivals were very small last week, and there was comparatively little California poultry offering. The market was accordingly well cleaned up this week, and three cars of Western stock which have come in have met with a ready demand. There is still little local stock on the market, but prices are well maintained, with a slight advance on small hens.

Broilers	$ 4.00@ 4.50
Small Broilers	3.00@ 3.50
Fryers	5.00@ 7.00
Hens, extra	8.00@10.00
Hens, per doz.	6.00@ 7.00
Small Hens	5.00@ 5.50
Old Roosters	4.50@ 5.00
Young Roosters	7.00@ 8.00
Young Roosters, full grown	8.00@ 9.00
Pigeons	1.50
Squabs	2.00@ 2.50
Ducks	6.00@ 8.00
Geese, per pair	1.50@ 2.00

BUTTER.

The butter market remains about as before, and while business is of moderate proportions, the arrivals are light and prices are firmly held. Extras were ½ cent higher a few days ago, but the advance was not maintained, and the only article to show any change at present is packing stock, which is higher. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	27½c
Firsts	27 c
Seconds	25½c
Fresh Packing Stock, No. 1	24½c

EGGS.

The upward movement in eggs continues, though it is very gradual, and the firmness is greatest on extras, which have been rather scarce. The price is 1 cent higher, with a further advance in prospect. Thirds are also higher, and the over-supply of low-grade stock is less in evidence. Large lots of Eastern eggs are coming in.

California (extras), per doz.	32 c
Firsts	29 c
Seconds	25 c
Thirds	23 c

CHEESE.

Supplies of cheese are lighter than usual, and offerings of all varieties have been limited for several days. California flats are especially in strong demand, and the price is 2 cents higher. Oregon stock has also advanced. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	16½c
Firsts	15½c
New Young Americas, fancy	15½c
Oregon Flats	15½c
Oregon Young Americas	16 c

POTATOES.

The potato market is not especially strong, as new stock is coming forward freely from the river districts, and the supply on hand is too large for local consumption. Prices, however, have been held up to former figures, and as the bulk of the arrivals is rather poor, choice offerings bring an advance.

New Potatoes—Boxes	85c@$1.25
Sacks	65c@ 1.00

FRESH FRUITS.

Arrivals of seasonable varieties continue very heavy, and while the movement is of good proportions the market is unable to absorb the large offerings at former prices. Nutmeg melons are slightly lower, crated cantaloupes being quoted slightly higher, while watermelons are in good demand at about former prices. Strawberries and blackberries are lower, but other berries show some advance, with decreased arrivals. Grapes are quite plentiful, with ordinary offerings lower. Apples are lower, though Gravensteins continue in fair demand. Pears are pretty steadily maintained, though a surplus is going to the canners. Figs are easier, but without any overstock, and both plums and prunes are firm. Apricots and peaches are both too plentiful to clean up and are lower, with large lots of apricots going to the canners at about $25 per ton.

Melons, Cantaloupes, crate	75c@$1.25
Nutmeg, per box	75c@ 1.15
Watermelons, per doz.	$ 1.75@ 2.25
Raspberries, per chest	8.00@10.00
Loganberries, per chest	4.00@ 5.00
Blackberries, per chest	2.50@ 3.50
Strawberries—	
Longworths, per chest	4.00@ 5.00
Large varieties	2.50@ 3.50
Huckleberries, per lb.	12½@ 15c
Grapes, Seedless, per crate	1.00@ 1.25
Malagas	1.50
Fontainbleau	75c@ 1.25
Apples, Choice, per box	1.00@ 1.50
Common	60@ 85c
Figs, per box	75c@ 1.00
Apricots, per lb.	1½@ 2c
Small box	50@ 75c
Peaches, per box	25@ 60c
Lug boxes	50@ 75c
Plums, per box	40@ 75c
Prunes, per box	75c@ 1.00
Nectarines, per box	60@ 75c
Pears—	
Bartletts, No. 1, box	1.10@ 1.25
No. 2	50c@ 1.00
Other varieties, box	75c@ 1.00

CITRUS FRUITS.

Citrus fruits are quite featureless, as the heavy supply and low prices of deciduous lines diverts attention from citrus varieties. Fancy and standard lemons are lower and meet with correspondingly greater demand. Other lines are firm, with moderate supplies.

Choice Lemons	$ 3.00@ 4.00
Fancy Lemons	4.50@ 5.00
Standard	2.00@ 2.50
Limes	5.50@ 6.00
Oranges, Valencias	2.50@ 3.25
Grape Fruit	2.50@ 3.00

DRIED FRUITS.

The movement of apricots has not increased materially, and little easiness has consequently developed in prices. New peaches are also slightly lower, and while local packers are taking on considerable quantities there has been little interest so far on the part of outside buyers. Packers report quite a liberal movement on spot prunes in the last week, and there is considerable inquiry from the middle west, though the Eastern market is inactive. There is also a great deal of inquiry for future prunes for European shipment. Eastern buyers as a rule are holding off in regard to California fruits, and reports indicate little prospect of speculative buying in the early part of the season. Packers are offering lower prices for loose muscatels, but the raisin market in general continues very quiet, on both spot and future goods, both packers and growers being inclined to await developments. Eastern buyers show little interest, but a firmer tone is reported on fancy seeded raisins.

Evaporated Apples, per lb.	7 c
Figs, black	2 c
Figs, white	3½c
Apricots, new crop	7½@ 8 c
Peaches, new crop	3¾@ 4¼c
Prunes, 4-size basis	2 @ 2¼c
Pears	3 @ 5 c

RAISINS.

(New Crop.)

Loose Muscatels, in sweatbox.	2¼@ 2¾c
Thompson Seedless	2¼c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@ $1.00

NUTS.

Spot almonds continue scarce, with a good demand at high prices. Quotations are unchanged, however, and so far there is not much movement of new nuts. Walnuts remain firm, and with steady demand supplies of the old crop are gradually diminishing.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

The local market remains very quiet, with moderate supplies and very little demand at the prices for which dealers are holding. There has been considerable movement in producing districts, however, and producers are getting about 6 cents for white extracted.

Comb	10½@14 c
Extracted, water white	6 c
Old extracted	4 c

HOPS.

The upward movement in hops continues, still higher figures being quoted on new-crop contracts, though good offerings of old stock are nominally as before. Contracts as high as 20 cents are reported in Oregon, and the market shows all indications of continued firmness.

Hops, Old, per lb.	8	@12 c
New Crop	15	@18 c

WOOL.

Spring clips are nominally as before, though the movement is practically over, and there is not enough business to establish actual values. The fall clip is now starting, and new wool will soon be on the market. Some change in prices is accordingly expected within a few weeks.

(Spring Clip.)

Choice Northern (7 to 8 mo.), per lb.	20	@22 c
do (year's staple	20	@24 c
Middle Counties, free (7 to 8 months)	16	@19 c
Southern, free (7 to 8 months)	13	@15 c
Defective wools, 2 to 3c. lower.		
Nevada	18	@20 c
Humboldt (year's staple)		25 c
Humboldt (7 months)		22 c

MEAT.

While hogs are not in much demand at present, the arrivals have been running light for some time, and prices are accordingly a little firmer for both live and dressed stock. Dressed beef is a little steadier than before, but values show little change.

Beef: Steers, per lb	6½	@ 7 c
Cows	5	@ 6 c
Heifers	5	@ 6 c
Veal: Large	7	@ 8 c
Small	9	@ 9½c
Mutton: Wethers	7	@ 8½c
Ewes	6½	@ 7½c
Lambs	9½	@10 c
Hogs, dressed	9½	@12 c

LIVESTOCK.

Steers: No. 1	3¾	@ 4 c
No. 2	3½	@ 3¾c
Cows and Heifers: No. 1	3	@ 3¼c
No. 2		2¾c
Bulls and Stags		1¾c
Calves: Light	5	@ 5¼c
Medium	4½	@ 4¾c
Heavy	3½	@ 4 c
Sheep: Wethers	3¾	@ 4 c
Ewes	3½	@ 3½c
Lambs	4¾	@ 5 c
Hogs: Grain fed, 100 to 150 lbs.	7¼	@ 7½c
150 to 250 lbs.	7½	@ 7¾c
250 to 325 lbs.		7¼c
Common Hogs, lb	4	@ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Cal., July 27.

One hundred and fifty thousand dollars represents the result of the sale of California fruit in the Eastern markets Monday, as reported by the California Fruit Distributors. One hundred and thirty-eight carloads of deciduous fruit were sold at good prices, and other California companies sold 25 carloads, making in all 163 cars. This is the record for the season of 1909. The number of cars is the largest, and the total returns far out-total any other single day. Following is the general range of prices received in the principal Eastern markets Monday:

New York averaged as follows: Republicans, $1.50; Tragedies, $1.30; Burbanks, $1.25; Washingtons, $1.25; Bartletts, $2.40; Fosters, 95c; Eurekas, $1.75.

Boston — Bartletts, $1.90; Tragedies, $1.30; Wicksons, $1.57; sugars, $1.50; egg plums, $1.20; Washington Duanes, 90c; Deckers, 95c.; Crawfords, 75c.; St. Johns, 65 cents.

Chicago—Tragedies, $1.35; Wicksons, $1.30; peaches, 70c; Bartletts, $1.75.

Philadelphia—Tragedies, $1.50; Bartletts, $2.10; Wicksons, $1.50; Crawfords, 80 cents.

Minneapolis — Tragedies, $1.50; Bartletts, $2.05; Columbias, $1.30; California red, $1.40; purple Duanes, $1.35; Burbank, $1.50; Crawfords, 65c.; Bradshaws, $1.05; Kimball pears, 75 cents.

WEEKLY LETTER.

The following gives the number of cars of deciduous fruit shipped to all points by all members of the California Fruit Distributors for the week (7 days) ending Monday night, July 26, 1909:

Plums and Prunes.—109 cars. The plum movement will be considerably lighter from this time on. Shipments during this last week have averaged about 15 cars per day, and probably will not exceed this quantity any time during the season. The earlier sections are now cleaning up their plum crop, and shipments consist almost entirely of Splendor, Imperial, Diamond, Grand Duke, Giant and Gros Prunes.

Peaches.—169 cars. Peaches are in liberal receipt and will so continue for the next two or three weeks. The quality generally averages very good. Late Crawford and Elberta are now available for shipment, and Susquehannas will be offered next week. The peach movement last week would have been much heavier, except for the car shortage, which curtailed shipment considerably.

Pears.—387 cars. The heavier movement of Bartlett pears is past. Sacramento river will finish its heavy shipments this week. Suisun is shipping liberally and will continue to do so for the next two weeks. Heavy winds have done some damage by blowing off fruit, and canners are in the market for their supplies at good prices. This will have the effect of curtailing shipments, and it is advisable for those who want this fine fruit to secure their supplies at once. Quality of the fruit was never better.

Grapes.—3 cars. Carloads of grapes have begun to go forward. These are principally from the Fresno district, and so far practically nothing but Thompson Seedless have been moved. Fontainbleau, Rose De Peru, and a few Tokays are moving from the earlier sections. The quantity is not large, however, and it will be at least two weeks before any considerable quantity of Tokays will be available.

Car Famine.—Since our last letter we have been put to serious inconvenience owing to car shortage, and some sections suffered considerably from this cause. Today the situation appears much brighter,

as we were able to secure yesterday all the cars required, and have enough today to take care of all fruit offered. We hope that there will be no further trouble, as this shortage has interfered very materially with our business, especially in the filling of f. o. b. orders.

Total shipments to July 27, 3392 cars.

Total shipments same date, 1908, 2924 cars.

Special Citrus Market Report.

Los Angeles, Cal., July 27.—The orange market is at the lowest ebb for this season right now, and the prices realized at the auction sales on Monday were very low. It is a situation that will have to be faced, and the fruit will have to sell for what it will bring and not for what the grower and shipper wants it to bring. It is no use to try and dodge conditions or to try and make them appear better than they are. The man who sizes up the orange market would rather tell of big prices than of small ones, but he would be doing the readers an injustice if he did not state things just as they are.

Up to this time the growers in the best districts have been holding out for $1.50 a box on the tree, and this is much lower than they were ever obliged to sell for before. The present prices being received in the East do not justify any such money, and the growers must either accept less money, consign the fruit to be sold for their interests or roll and sell delivered. The shippers have been asking from $1.85 to $2 a packed box for Valencias, but as the orders are not coming in and it looks as though they would have to cut to get rid of any stock they may have on hand.

Sweets and seedlings are selling at prices that do not much more than pay for the expenses of packing and transportation, and it is altogether a bad state of affairs for orange men.

Lemons have gone off considerably since the fore part of the month and prices now being received in the East are only about one-half what they were at that time. The holders of the better quality of lemons are asking fairly high prices, even now, but they admit that they are not selling very many cars. It is safe to say that there will be a revival later, for it needs but another streak of hot weather to set things to booming again. Prices asked at this time run all the way from $2 to $4 a box at this end, but the average of all the lemons sold in the auctions on Monday of this week was but $2.50 delivered, and that means $1.50 at this end.

There are available for sale within the next thirty days 214,000 boxes of Sicily lemons, as against 155,000 at this time last year and 120,000 in 1907. The citrus fruit shipments now amount to 28,674 cars of oranges and 5187 cars of lemons. To the same time last year the output was 22,977 oranges and 3901 cars of lemons.

The Deer, Dove and Quail Seasons.

In connection with the transcript of California game laws given in the PACIFIC RURAL PRESS of July 10, it should be stated that an opinion by Attorney General U. S. Webb states that the bill signed by the Governor in which the open dates for the deer season are from July 15 to November 1 is the law that should prevail in regard to shooting bucks.

This bill was signed by the Governor. The other measures passed both Houses and were referred to the Governor, but were not signed within 10 days after the Legislature adjourned. The Attorney General holds that the original bill prevails.

The open season for doves under the State law begins on July 15 and ends on October 15, the individual bag limit for one calendar day is 20 birds. It is illegal to buy, sell or offer for sale, barter or trade doves at any time, or to shoot doves on enclosed or cultivated land, without permission, where signs against shooting or trespassing are posted.

The Marin county board of supervisors have modified the recently adopted ordinance putting a close season on for three years. Sixty days, from October 15 to December 15, will constitute the open season on quail in Marin county now. The Marin open deer season also has been changed. Thirty days, from July 15 to August 15, are the dates as published.

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Can Japanese Lease or Buy Land?

To the Editor: Referring to your very rational editorial comments in your issue of July 3 on the leasing or owning of land in California by Japanese, and the hope expressed that it may be prohibited later on, are you sure that, as regards agricultural lands, this prohibition does not already exist? We are under the impression that the existing treaty between the United States and Japan gives the citizens of either the right to lease or buy land in the country of the other in towns only, and that Attorney General Bonaparte was inclined to think that any holding of agricultural lands was at least unauthorized. You may confer a favor on the people of the State by quoting just what the treaty says on this matter, and any authoritative opinions on its interpretation which you can conveniently find.

AMERICAN.

Fulton.

Perhaps some of our subscribers in the legal profession will answer the question. All that we know about it is that they are leasing largely, and, we supposed, were buying to some extent, the agricultural lands of California.

To Encourage Rhubarb Culture.

A letter from J. B. Wagner of Pasadena states that he will again offer the following premiums at State Fairs for the best exhibit of Winter rhubarb: First prize, $50 worth of rhubarb plants; second prize, $25 worth; third, $10 worth. To all who compete and do not receive one of the above prizes, $2.50 worth of plants will be given. This offer is open to all growers of the State, regardless of where they secured plants.

Mr. Wagner says that the time is short to do much in the way of forcing for exhibition purposes, but very surprising and satisfactory results may be obtained by following the rules given below:

Cut off all the buds carefully except a couple of the strongest, close to crown, thus forcing all the growth into a few crowns or buds. Not over one or two should be allowed to develop stems.

To stimulate it to its utmost, get a large flower pot or 5-gallon oil can, having holes in sides and bottom. Place same about one or one and one-half feet from plant, bed it in the ground so that top is even with surface between hills. Fill this often with liquid manure and water, of which too much cannot be used. A good substitute for liquid manure is nitrate of soda dissolved in water, using about a teaspoonful to two or three quarts of water, applied every few days. The results of either process will be highly satisfactory and surprising, and will pay anyone for the effort.

The crop the past season was very profitable, and was largely handled by the Rhubarb Growers' Association. Many large tracts have been recently set out, notably by the J. R. Loftus Co. Now is a good time to get plants, as they do well set out at this season.

FARM BOOKS.

The following list of books are kept in stock and are for sale at the Pacific Rural Press officce:

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Attention is called to the advertisement of F. E. Baldwin, the White Leghorn specialist, in our poultry department. Since January 1 Mr. Baldwin has hatched 5000 chicks, and as conditions have been favorable to rapid and substantial growth, he has now a fine lot of youngsters coming on.

Look up the announcement of books kept in stock and offered for sale by this office. The prices quoted are net, postpaid.

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Every farmer who raises any considerable amount of hay these days should purchase a hay press. Excepting the very limited market that is right at home, there is no market at all for unbaled hay. There's the first argument. A hay press enables farmers to put their hay into the one form in which it can always be sold.

The second argument is that baled hay brings a better price than unbaled hay. The difference is not merely the cost of baling. Farmers who are prepared to do their own baling can figure on liberal compensation for their work, and will have a nice margin of profit on their baled hay over what they would receive for it unbaled.

The lesson, therefore, is that if you are raising hay for market, be prepared to bale it. Don't count your hay "made" until you have put it in the condition in which you can certainly market it and get the highest market price for it.

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Such a hay press should not be looked upon as an expense, like wages or horse hire. It should be regarded as a permanent investment which enables him to get more dollars out of his hay field as certainly as if he purchased additional acres of land. The investment needs be made but once. Good one and two-horse presses, such as the ones above mentioned, ought to last many years, with no cost worth mentioning for upkeep or repairs. Summarized, the advantages are, good wages for the farmer and his horses at such time as they would be earning nothing, better prices for hay, hay can be preserved better, and a certain market for the hay at all times.

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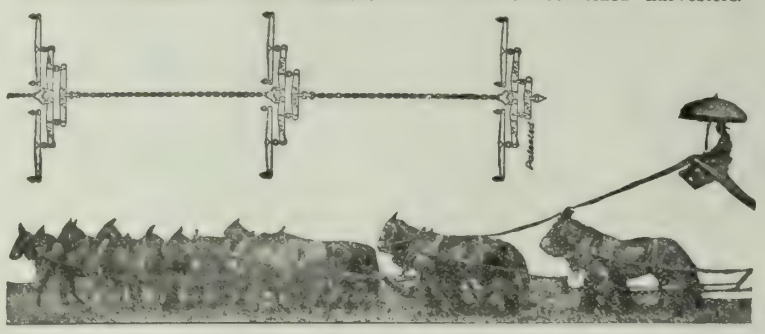
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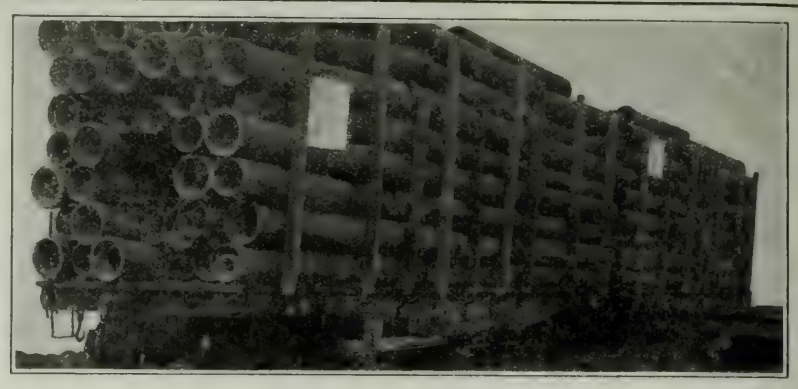
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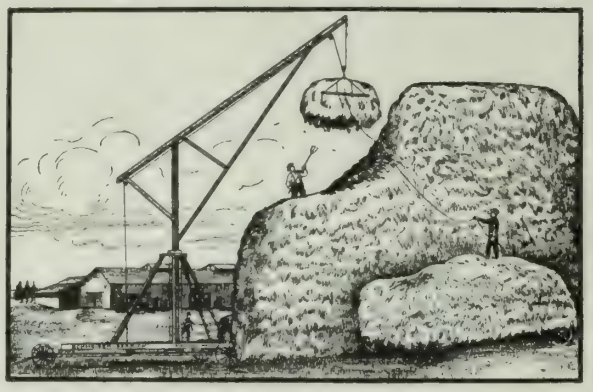
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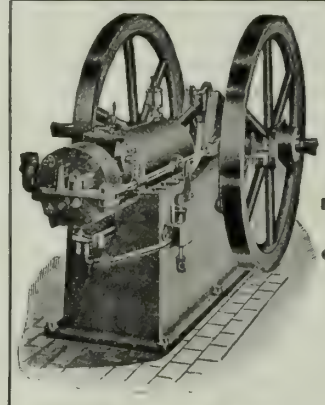
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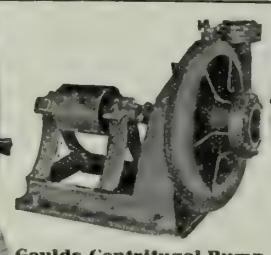
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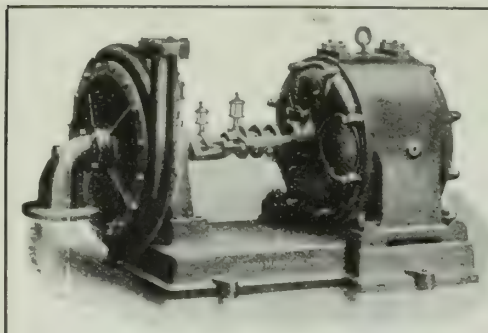
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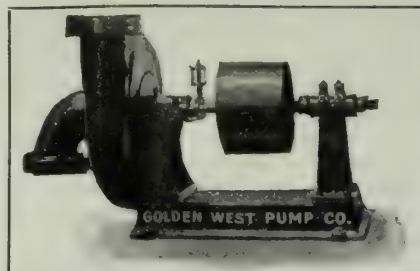
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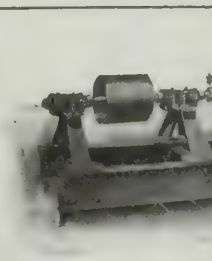
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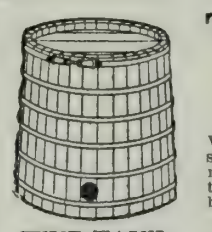
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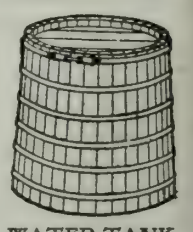
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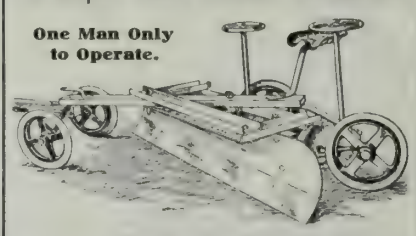
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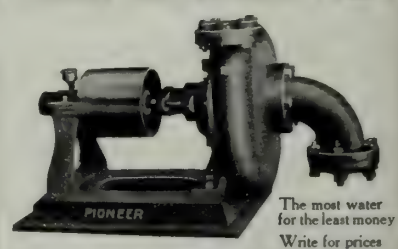
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THE PACIFIC RURAL PRESS
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Vol. LXXVIII. No. 6. SAN FRANCISCO, SATURDAY, AUGUST 7, 1909. Thirty-ninth Year.

More Facts About Eucalyptus.

Written for the PACIFIC RURAL PRESS
By Mr. LEONARD COATES of Morganhill.

[Mr. Coates, who is too well known for wisdom and honesty to need introduction to our readers, starts his excellent article with a breeze of controversy, but soon gets under way with a better motive power. Mr. Ingham wrote his facts from the point of view of species sufficiently tested for commendation to those who desire to make plantations with reasonable estimates of commercial returns. Mr. Coates mentions others which are promising under experiments likely to be profitable, and therefore worth planting by those who are willing to take the business risks which he speaks of. That is all right. What we object to is getting people into wildcat schemes which exaggerate everything and project plantings without mention of business risks—in fact, with claims or even guarantees of returns which are unreasonable. What such guarantees are worth we cannot calculate. Mr. Ingham does not write alone from the trees under his charge at Santa Monica. He has been under instructions for several years to see eucalypts everywhere in the State, and probably no man has gone farther or seen more trees growing than he has.—EDITOR.]

To the Editor: "Hard facts," with apologies to my friend, Mr. N. D. Ingham, are what need circulating. I refer to the admirable article in the PACIFIC RURAL PRESS of July 10 by the sylviculturist in charge of the Santa Monica Station. In order to submit a few more facts I will divide these brief remarks into three parts, viz., varieties, conditions, and culture.

Concerning varieties, or, more properly, species, I refer first to Eucalyptus globulus, or Tasmanian blue gum. Mr. Ingham says, "The blue gum leads the eucalypts in California because of its rapidity of growth under favorable conditions, the light-colored wood, and high strength tests. This is the lumber tree," etc.

This statement should be qualified or added to by the following: The blue gum requires to be grown in the coast region, in deep valley soil, or where it may get the benefit of the moisture-laden atmosphere from the ocean.

There is no doubt whatever that exaggerated statements are being made by the promoters of some of the eucalyptus hardwood companies that have young plantations to sell. On the other hand, the official foresters, sometimes very young men, are apt to err on the other side, by voicing pessimistic views, in the idea that to warn the public against having its pockets picked is a part of their duty.

Any sane person knows that there is an element of risk in any and all business propositions that promise more than the legitimate net interest on an investment, and that that risk increases in direct proportion to the increased rate of interest promised.



Forest Gray Gum: Eucalyptus Tereticornis. Natural Size.

The Santa Monica Station is as valuable as any forestry station could be for that particular locality, but it is far, very far, from typifying California. There are three great areas which will form the hardwood forest regions of the future, of which I will speak more particularly later on.

Eucalyptus rostrata seems to have offended the "experts." A gentleman at the State Fair last year, apparently just out of school, although an "official," had much "speiling" to do against this species, but it is extremely doubtful if he would know it from a dozen others. The fact is that E. rostrata requires heat and plenty of moisture, with a deep soil; no trouble then about a "crooked" growth. E. tereticornis and E. corynocalyx are the two other commercial species, according to Mr. Ingham. E. tereticornis requires similar conditions to rostrata, but E. corynocalyx thrives best nearer the coast, on friable hillsides.

These four may be the only species that succeed at Santa Monica, but to make the sweeping assertion that they are the four "sifted down" suited to commercial purposes in California is certainly not correct. E. viminalis may not make as valuable timber as many others, but it is the best grower over the widest area in California, so far as tests have shown, and the lumber is used in Australia for rough boarding, etc. One is apt to forget that only a very few years ago the globulus was considered worthless except for fuel, and it has been "discovered" as a valuable timber simply because it is the only species cultivated generally in the State, from which merchantable logs may be had, seasoned, in any quantity. Why condemn the others unheard, untested? E. diversicolor, E. pilularis, E. resinifera, E. goniocalyx, E. gunnii, and many others are making growth equal to any except globulus and viminalis on some of our plantation in Santa Clara valley.

California has three distinct regions more or less suitable to the growth of eucalyptus timber—the coast district, the Sacramento valley, the San Joaquin valley. I do not include, for obvious reasons, certain portions of the State where some species will grow, as the whole question as here reviewed is from the commercial standpoint exclusively. By the coast region I mean the natural timber lands of and about the Coast range: the valleys that, half a century ago, were forests of oak; the hills that were and are forests of redwood and other timber. There is no possible risk in planting eucalyptus groves here, and of many more than four species. This is a vast area, and there is no question whatever but that the future hardwood forests of the United States will be the cut-over redwood lands.

The conditions are ideal for permanent forests of eucalypts. Trees planted many years ago in the Santa Cruz mountains are reproducing themselves by seed, which germinates freely where there is a natural leaf mulch and where undergrowth affords protection from wind. I have observed the same thing in groves planted long ago in San Mateo county. About the summer home of Henry Miller, of Miller & Lux, on Mount Madonna, are thousands of eucalypts growing among the brush and timber trees, but rapidly outgrowing and overtopping the indigenous growth; these receive no cultivation except hoeing the year they are planted.

(*Continued on Page 91*)

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The Week.

Thirty years ago, when the overland movement of fresh fruits began to assume some dimensions, a broad-minded grower and shipper of Sacramento said he believed it might be possible to send a thousand cars a year. It was a great idea for those days, when only a few scores of cars comprised the year's movement of deciduous fruits, and citrus fruits were only sold for local use at so much per thousand out of all kinds of packing boxes. We like to think of that day, and how much optimism it required than to think that a whole thousand cars might go a year. It is timely to recall the fact in connection with the actual record made on the last day of July this year, when the California Fruit Distributors started 221 cars of fruit from Sacramento to the various Eastern markets. Last year on the same date 125 cars were forwarded, which was the record for that season. In the record shipment were 99½ cars of peaches, the largest shipment of that fruit ever made in any one day. Thus far this year 737 more cars of fruit have been shipped than were sent East up to the same date last year. All varieties of fruit are firm, and excellent prices are being realized, and the business is rapidly advancing to a greatness which it is easier to measure at 50,000 carloads a year than it was to place it at 1000 thirty years ago.

It is quite time, also, to begin work toward a unification of the fresh fruit shipping interests of the Pacific Coast, and to associate California with her northern sister States in this great industrial undertaking. California leads in volume and value, and will be untrue to her advantages and resources if she does not always lead, because the North can probably never match anything against the greatness and distinctiveness of our citrus interest. In deciduous fruits, however, the North has chances of equality, or even of superiority. They are not likely to come in apricots, peaches and grapes, but in berries, cherries, apples, pears, and plums they are quite likely to arrive. There is now a wonderful development east of the Cascade range in plantings of fruits for long-distance shipment. Whole valleys are being set with trees on the basis of recent shipments of fruits which are certainly grand in size, beauty and quality. In such development the North has nothing to learn in the way of confidence and optimism from California. Some of their land sales for fruit growing make even out values seem moderate, and their spirit makes California buoyancy look like mossback conservatism. In the development of the business end of their shipping of deciduous fruits they are reaching system and regulation beyond anything we have attained in that line, and to equal it we can only point to our citrus fruit handling. We mention these things to show the similarity in motive, in enterprise and in capacity which characterize those who are advancing the fruit interest in all the Coast States, which is a good basis for the unification, or at least active correlation and co-operation of the whole Coast fruit industry. This will not only advance present business interests, but will guide all in future progress by promoting the recognition of complementary relations, so that each can concentrate upon the kinds of fruit, or the ripening season of varieties of the same fruits, which will lessen competition and promote volumes and values of products in the aggregate. In some directions it looks as though rivalry might soon arise: it would be better for all if some sort of co-operative leadership could be made to take the place of it. This idea impresses us just at this time because we hear of so many California fruit men who are visiting the Seattle Exposition this summer. We trust all who can will allow time enough to see the Northern fruit districts and become acquainted with the growers. In this way we can multiply observations, which can be compared and discussed at our coming fruit growers' conventions and lead to some conclusions which will be of wide value.

Speaking of an eye to the North which California fruit growers should have, the movement northward within the State seems to be unusual. A despatch from Los Angeles last week said that from that point additional chair cars and coaches had to be attached to each north-bound train on both the coast and valley lines for two weeks, 200 in all having been called into use. There have been no gatherings in the North, outside of the Seattle Exposition, to draw the crowds, and passengers to the exposition as a rule do not travel in chair cars or day coaches, but use Pullmans. East and west bound travel is normal, or if anything a trifle lighter than usual, and an investigation has been set on foot to determine the cause of the uncommonly heavy travel north. Apparently the bulk of this is for points between Los Angeles and San Francisco. Concerning a movement which puzzles the railways, perhaps a lay observer ought not to have convictions, but it seems to us it is simply the recognition of opportunities in the central and northern parts of the State which the Los Angeles people are themselves largely occupied in making more widely known.

Lest any reader should get the idea that our pedal extremities are getting chilled over the promotive energy of the north States of the Coast, we haste to assure them that California does not propose retirement from the effort. In fact, California has already applied for a copyright upon this picturesque promotion scheme. As soon as the Panama Canal is opened it is proposed to have 100 live and enthusiastic Californians start from San Francisco on the best appointed steamship that can be obtained, sail down the coast, through the canal, and visit every important city on the East Coast; thence up the St. Lawrence and the great lakes to Chicago. A special train will there be ready to take the party through the Middle West and back to California. Stereopticon views of California scenes and industries, and lectures will be given on board the steamer at the various cities visited. The ship will be amply stocked with California fruits and other products, and every county in the States will have an opportunity to make a special display. The only way our northern sisters can rival our scheme will be to cross the Rockies with an airship.

Returning for a moment to fruit subjects, we presume readers are noticing that we are shipping some Bartlett pears this year, and though the total may be less than we would like to have it, it will be a long way larger than was prophesied by some who held that the blight would take it all in a very short time. Take the Anderson district, which was sharply blight-stricken, and from which this report came last week: "There will be 300 carloads shipped from this place before the harvest closes at the end of next month. The fruit is of excellent quality and is greater in quantity than this district has ever known." The facts seem to be that in some important districts the blight seems to have lost the virulence of its first attack, and the warfare against it in some of our leading orchards has worked with the lessened virulence to continue the thrift and productiveness of the trees. The lesson of these facts, as it seems to us, is not to give up the Bartlett pear industry, but to fight for it even though the warfare seems at first discouraging.

We are indebted to Mr. Chas. A. Chambers of Fresno for our first sight of a peach actually sporting to a nectarine. Such things have been on record for generations, and more recent occurrences have been verbally reported to us, but we never saw the thing itself before. Take first the record. Downing, in his edition of 1857, says: "The nectarine appears only to be a distinct, accidental variety of the peach, and this is rendered quite certain, since there are several well known examples on record of both peaches and nectarines having been produced on the same branch—thus showing a disposition to return to the natural form. Nectarines, however, usually produce nectarines again on sowing the seeds; but they also occasionally produce peaches. The Boston nectarine originated from a peach stone." Thus it appears that nectarines come on peach wood or from peach pits, and presumably peaches might come on nectarine wood, for that seems what Downing has in mind when he speaks about a disposition to return to the natural form. We have to do, then, with a very interesting manifestation of the sporting tendency which has given us quite a number of varieties which have proved of permanent horticultural value.

In is interesting to note the manner and place of its occurrence in this instance. The Fresno Herald of July 30 has a somewhat embellished account, from which we take these facts. Mr. L. W. Payton, a few miles from Fresno on the Whites Bridge road, has ten acres in Lovell peaches. "Recently he discovered that one tree in the patch bore both peaches and nectarines. He could not understand how this could be, as he had bought all his trees for Lovell peaches. Mr. Chambers happened to visit the ranch, and Mr. Payton showed him the freak. At first Mr. Chambers thought that the existence of the nectarines must be due to grafting, but he investigated and found two nice Lovell peaches, and two inches above the peaches a pair of twin nectarines—all the fruit flourishing on one parent stem which is only about one-eighth of an inch in thickness." This is the specimen which Mr. Chambers kindly sent us, with the request that we examine and give an opinion. There is nothing to say except that it is a freak or sport, and accounting for sports has never yet been successfully undertaken. There seems to be something in it beyond what is usually called bud variation, because, if the Herald is correct, on the same tree there were several single nectarines growing on the same wood as peaches, and this shows a sportive character in the whole tree, which is beyond, or a multiplication of, bud variation, which is usually understood to come singly. We have not heard anything of Mr. Phillipi's "peacherine" this year. We would like to know if its appearance has any relation to the manner of the Fresno occurrence.

"Which is it?" is the question which was on in Los Angeles last week. The attorney for the California Pine Box Company, addressing the attor-

neys for the California Fruit Growers' Exchange, n Judge Birdwell's division of the Superior Court, said: "If we're a trust, you're another, and that being the case, the Court will afford you no relief on the ground that we are a trust. It will keep hands off and leave both parties where it found is." The case is that of the fruit growers against he Pine Box Company to collect about $30,000 alleged overcharge in the price of boxes. The fruit growers claim that the box company, which furnishes practically all the boxes for citrus fruits, s a trust, operating in violation of the Cartwright aw. The box company came back at the fruit growers' organization by accusing it of being a rust. The judge decided to think it over. The box company's attorney is running a bluff on a echnicality. The Fruit Exchange sells as much fruit as it can at the market price, which it does not aim to control. The box company controls everything it can for the special purpose of fixing prices and to get all the traffic will bear. It ought not to take long to decide that there is no parallelsm in the efforts.

Queries and Replies.

Growing or Buying Eucalyptus Trees.

To the Editor: We would like to ask you if, in your opinion, it would be wise for us to attempt to raise eucalyptus plants in boxes, depending on water which contains 30 grains of salt to the gallon to keep them moist? By this we mean that we raise our seedlings outside, ship them in to our place in seed boxes, there transplant them into flats of 100 each, and then keep them in shape until they are ready to plant in their permanent location; or would it be better, in your opinion, to pay the higher price and purchase the plants ready for planting in the field, raised elsewhere. —Planter, San Francisco.

It would be particularly dangerous to use water containing 30 grains of common salt upon plants of any kind grown in boxes, because the evaporation is relatively so much more from boxes than from the ordinary soil surface, and the saline matter would accumulate increasingly in the same ratio. It is, therefore, particularly desirable to have as pure water as possible for all box or pot culture. Whether with good water you can raise seedlings, as you propose, cheaper than you can buy them from large growers, depends entirely upon how skillful your propagator is. Large growers of eucalyptus seedlings provide themselves with the highest grade of skill in these operations; without this you might get so few plants that your investment would be practically a loss, and our impression is that it would be more desirable for you to make as good a contract as you could with successful growers for stock which is thoroughly thrifty and acceptable, than it would be for you to undertake the growth of such stock yourself, unless you are perfectly sure of the skill and faithfulness of your employes.

Walnuts on the Pacific Coast.

To the Editor: Where are English walnuts grown in commercial quantities in foreign countries; their chief markets; and our protection against importations? Approximately, what acreage is now set out to walnuts in California, Oregon, and Washington, each? What success has California had in producing the "French" varieties—Franquette, Mayette, Vernoy, etc., now being set out in Oregon? Are these varieties superior to the soft shells; are they better sellers?—Enquirer, Philippine Islands.

Aside from a small importation of inferior nuts from Chile, there is practically no competition for the demand for English walnuts in the United States, except the growers of France. There is no considerable production of these nuts at the present time anywhere in the United States except in California. Western Oregon and Washington are now planting to a considerable extent, but have not enough old trees to make a commercial product equal to local needs.

California has, it is estimated, about 35,000 acres of walnut trees, of which one-half are now of bearing age. The Franquette and Mayette were introduced into California many years ago, and have now attained a very wide prominence for planting in the central and northern parts of the State. In southern California, where commercial production began, and where nine-tenths of the product is now grown, the trees are mostly local seedlings, commonly known as "softshells." Some of these are as good as the best imported French selections, but the general average is lower. There is in that region of the State no practical competition between the French and the California seedling, because the production of the former is not yet large enough to cut any figure.

Dying Oak Trees.

To the Editor: I send a twig from one of my white oak trees, which I fear is dying. I have not examined the soil for moisture, on account of having plenty of rain last winter. The leaves are nearly all dry now, while on another tree of the same size, 65 feet distant, the leaves are all green. I send a twig of each for comparison. The size of the tree is: Circumference, 5 feet 10 inches, 3 feet from surface of the ground. The spread of the branches is 40 feet, and the height about the same. It stands, or rather, both trees, on top of a five-acre knoll. More on the south side another smaller tree is already dead. There is a large healthy liveoak 100 feet from this tree.—M. J. P., Santa Clara County.

Concerning the white oak leaf specimens which you send, we can only say that they do not show sign of any particular disease. The leaves are turning brown, and even the buds, which became dormant some little time ago, are brown and dry inside. This indicates that the tree is suffering in its root system; either the soil is actually dried out or some other root trouble has arisen which prevents the roots from nourishing the tree. Just what this is could hardly be definitely ascertained without much difficulty. Why trees which have reached such growth should perish from drouth it is difficult to say, unless the general water-level of the ground-water has fallen, thus denying the tree its customary supply. Of course, trees sometimes perish from debility, just as men and animals do, and one tree may fail and another continue to exist near by because of its great organic strength. These things are difficult to explain, and your own judgment upon them is as good as ours.

New Potatoes for Seed.

To the Editor: Concerning this year's potatoes for seed for a winter crop: Is new seed slower to sprout than old? How long after vines die is it safe to use new crop for seed? Is there any treatment to hasten sprouting of such seed? I have some unirrigated potatoes now maturing and wish to use the small ones for seed, and desire to plant them August 1.—Reader, San Bernardino County.

This year's potatoes do become suitable for seed purposes for next winter's crop. They usually become older than they would in your case, because the sowing is generally undertaken later. The best way to proceed would be to allow the vines to die down and the potatoes to mature as thoroughly as possible; then dig them out and expose them to the light, even if the skin becomes a little greenish. Tubers which are thus matured by exposure are often satisfactory for seed, but the interval which you propose is pretty short, and you would probably get better results by using seed that matured earlier and had been longer out of the ground, if you can conveniently secure it. Using small potatoes for seed is, of course, contrary to the law and the prophets, who prescribe that fair sized, well developed potatoes must be used for seed if good results are to be attained and one is to escape deterioration.

Tree Cricket on the Orange?

To the Editor: I am enclosing a few samples from orange trees that have made a beautiful growth, but are now dying away. Is this a puncture caused by an insect, or a sap disease. If in your opinion an insect, what kind might it be? We have never been able to find anything at work on the trees. If a puncture, is it made to suck the sap or to deposit an egg?—Grower, Coachella.

The marks on the orange twigs which you send are certainly insect work, and they have the appearance of being made by what is called a "tree cricket," which has a way of depositing its eggs by chiseling into twigs in this manner. It is a hard insect to catch at work, which is the reason you have not seen it. Although such punctures are not desirable, they are not likely to cause the death of the twig, but would grow over without noticeable injury, possibly, unless they occur in greater quantity than your specimens show. Something else is injuring the trees. Do they get water enough? The last time we were in your valley many things looked as though they needed a drink.

Fruit on Cut-Back Peach Trees.

To the Editor: I have a lot of peach trees, mostly Muirs. The trees are about 18 years old. Last winter they were cut back to 5 or 6 feet high, and now have a dense growth of new wood, some over 5 feet of growth, and of course very little fruit. Now my question is, would pruning back and thinning the new growth this summer cause the trees to fruit next summer? If this is practical, please let me know the best time to do the work, and about how much to cut away.—Grower, Tehama County.

Your new growth of Muir peaches will fruit next year, if conditions are favorable. We would allow the present summer's growth to continue, thinning out and reserving the best branches for shape during the coming winter's pruning.

Seepage and Percolation.

To the Editor: Speaking of the lateral penetration of water, what word should be used—seepage or percolation? Will you kindly define both? The favor will be greatly appreciated.—Disputant, Alameda Couny.

Seepage is the proper work to describe what you have in mind, because seepage is generally taken to mean lateral percolation, whereas percolation, which means the act of passing through small interstices, is both lateral and vertical. For this reason in our own practice we use seepage to mean chiefly horizontal movement and percolation when we intend to include both horizontal and vertical movement.

Unirrigated Alfalfa.

To the Editor: Will you kindly advise the writer whether or not alfalfa will grow after the first crop in the Sonoma foothills without irrigation?—Farmer, Sonoma.

Unquestionably alfalfa will grow on some of the Sonoma county foothill lands without irrigation, though some of them may be too dry for any profit. The amount of growth, however, will be small as compared with that which is secured from moist and irrigated land, and the stand will probably be short-lived, because without water there is no practicable way of destroying the gophers, which come long distances to feed upon the surrulent roots of the alfalfa.

Skunks in Tray Houses.

To the Editor: In our tray house there are several skunks, which we would like to exterminate, without bad effects, before moving the trays. Can you suggest a poison and its method of application?—A Reader, Marysville.

This is out of our depth. Will some reader help with it?

Horticulture.

PEAR AND APPLE BLIGHT.

California growers who have this bacterial disease to contend with will be interested in some up-to-date Eastern conclusions on the trouble, as outlined by Prof. J. C. Whitten of the Missouri Station in the Fruit Grower, a journal published in that State. We take parts which seem locally most suggestive:

It is possible to check the development of blight by "preventing" rather than "curing" it. One of the most important preventives is to plant only those varieties that are least susceptible to its ravages. Among pears, Keifer withstands blight better than any other leading variety which we know, not because it does not blight, but because when blight attacks it, the tree usually recovers very quickly. Other varieties which are moderately immune are Dwarf Duchess, Garber, Buffum, Tyson and Anjou. Among those most susceptible to blight are Le Conte, Bartlett and Clapp's Favorite. All the quinces that we know of are more or less liable to blight, but most of them will often grow and fruit well before being killed by it. In the apple the blight is usually confined to the young twigs and flower clusters in early spring, and the trees usually outgrow its effect without serious, permanent injury.

The Willow Twig, Lowell, Yellow Transparent, and in fact most of the Russian apples, are subject to blight throughout their trunks and main branches and are often killed by it. The Fameuse, Jonathan, Genet and many of the crabs are often quite badly affected.

Methods of culture also bear an important relation to blight. Anything which tends to cause an unusually rank growth, particularly late in the season, seems to favor blight. For this reason pears should not be cultivated after they reach fruiting age, and should never be cultivated late in the season, say after the first of August. This last is also true of apples and quinces. After August 1 they should not be stimulated into autumn growth by cultivation, but should be allowed to simply ripen their tissues for autumn. Severe pruning should be avoided in all fruits susceptible to blight. Pruning should not be done after midsummer, as it tends to cause a late autumn growth that will be liable to blight the next spring. Cultivation during the spring and early summer should be uniform. Do not neglect the trees so that growth will be slow, and then suddenly give thorough cultivation, which will cause a very rapid growth of tissue.

Remedies.—Cutting out blight and burning the diseased wood thus pruned away has been recommended since the fact has been discovered that the disease is due to a bacterial germ. This practice was based on the theory that since the blighted parts contain the germs of the disease, to remove and burn all diseased parts would destroy these germs and prevent their further spread. It is, however, not only unprofitable to attempt to cut out during the summer the thousands of blighted twigs that may appear in large trees, but it is impracticable to do so. When attempts to do this have been carefully carried out, blight has often appeared next season. Mr. Waite of the Department of Agriculture, Washington, D. C., has, however, by years of careful study, reduced this theory to commercial practice.

Mr. Waite has shown that the dangerous source of infection is not the dead twigs that often appear so numerously in early summer, but rather the half-dead parts in which the living blight passes the winter. The germs of blight in these dying twigs are very short lived, and many have run their course and become incapable of infection before the twigs are cut away. The most dangerous source of infection is the branches that are infected but are not dead, in which the blight germs winter in a living condition and from which they spread in very early spring. Cutting out and burning infected parts should be done in late winter or just before growth begins in spring. At this season the living blight may be detected by a stained, purplish color of the bark.

During the first warm days of spring a rusty-looking, syrupy liquid exudes from these living blight patches and flows down the branch. The bees and other insects are attracted by this exudation, and in visiting it get the germs of disease on their bodies, especially the mouth parts, and carry them to the flowers and starting twigs, in their subsequent search for honey. These living blight patches are comparatively few in early spring, and if a little knowledge of their appearance is acquired they may be readily cut out and burned, and the source of infection thus destroyed. Branches that are wholly dead at this time and show a definite line of demarkation between dead and living wood contain no live germs. Wherever the blighted wood shades gradually into live wood, without any definite line of demarkation, live germs may occur, and these parts should be cut out and burned.

The blight often lives over in the large branches or even in the trunk of the tree and may be detected by the dark or discolored bark, over wood that is not entirely dead. If the cutting has not been thorough, it is well to go over the orchard on warm days, about the time growth begins, when the rusty-colored, honey-like exudations may be easily detected and these parts cut away. A few seasons of study and experience should enable the fruit grower to readily recognize those parts that should be removed, and to almost entirely hold the blight in check, provided his neighbors will do likewise, in order to prevent infection from other orchards.

COLORADO FROST FIGHTING.

Colorado seems to have fallen heir to the California proposition to "heat all out doors" to prevent frost, for the Colorado growers are hot for it, while California growers, from all that we can hear, have largely cooled off and now prefer to take the risk, though what facts may reawaken the interest in this State we cannot anticipate. If we are mistaken in thinking there is less done than formerly, we hope some one will set us right. But that is aside. It is interesting to have fuller details of the Colorado phase of the subject. Mr. James Turnbull, president of the Colorado Canning Co. of Canyon City, Col., gives the Missouri Fruit Grower the following detailed and enthusiastic review of the matter:

Smudging in the Canyon City fruit district has been fully demonstrated to be a pronounced success. We have tried to change the name to "orchard heating," but the attempt has been a failure. Every one everywhere has heard of smudging for so long a time that they will call it nothing else, although for our needs here it is a regular heat and lots of it that is wanted, and all the smoke and smudge of a million "smudgy" fires would not save our crops from the kind of a freeze that we are afraid of.

How the Interest Was Awakened.—Canyon City and practically all of Colorado lost the greater part of its crop of fruit last year by a late freeze, when the thermometer went down to about 24 degrees. One man in the Grand valley saved half of his crop, the full crop on ten acres, which was one-half of his ground, by using pots and burning oil in them. He was so enthusiastic about it that he spread the information far and wide, with the result that in his home county about 75 per cent of the fruit growers were ready to smudge and did smudge this year, and again saved crops that otherwise would have been lost.

In the Canyon City district what this man accomplished was known, and a few of the larger growers and a goodly number of the smaller ones also equipped for orchard heating, and the object lesson shown by them will result in 90 per cent of the growers here preparing to heat their orchards next year. Fortunately the bloom was not advanced enough this year to kill enough fruit to prevent a fair yield in this community, but those that smudged saved the early blooms, and the benefit of the smudging was very apparent and in those orchards a great deal of thinning will have to be done.

It was tried out one night this year under the most unfavorable conditions; a southeasterly blizzard came on the night of April 29. At 11 o'clock the thermometer went down to 22 degrees and stayed there practically all night and till 6 o'clock in the morning, and the wind blew almost continuously and more or less hard all night, with the result that a large part of the heat was blown out of the orchard, but nevertheless the temperature in the heated area was kept from 4 to 6 degrees above the outside area.

The next night was an ideal one for heating and the kind of night when usually damage is done. It was still and cold and kept getting colder from 10 o'clock till daylight. The thermometer got as low as 17 and stayed there for over an hour. Many trees were in full bloom, and those that smudged saved the greater part of those blooms and all of the unopened buds. What more could be desired, and how much worse could conditions very well be at this season? Surely this was proof indeed of the success of the smudging idea.

How It Was Done.—Well, with 100 pots to the acre, the pots were placed at even distances all over the ground between the trees. At 11 o'clock, when the temperature got to 28, we lighted 40 pots to the acre; at 1 o'clock, when it got down to 22 degrees outside, we lighted 40 more; at 3 o'clock, when it still went down and reached 18, we lighted the balance, and then had 100 pots per acre burning. It was a beautiful sight to see 3000 pots burning in a solid block of 30 acres and still more beautiful to see the thermometer at any place in this heated area standing at about 28 degrees, sometimes a degree more and then a degree less; and then to step 40 yards away from the area that was heated and see the thermometer down to 17 and 18. It gave the man that was smudging that restful feeling that comes from the knowledge of a good deed well done and success following it.

A Local Invention.—The pot to burn the oil in, that produces the most heat with the greatest economy of oil and satisfaction, is the Troutman Orchard Heater, an oil-burning pot, invented by a Canyon City man, and its best recommendation is that three-fourths of the people here used it, and, as is well known, a phophet is always without honor in his own country.

With this pot the heat was maintained as above described, and on the entire 30 acres only four men were used to see that things went smoothly, and they were really not busy. The pots burned all night, and the entire experiment was an entire success. Next year many growers intend placing 200 pots to the acre, as that will do away with the necessity of filling the pots so hurriedly, as, if we have to heat one night, it is almost a certainty that we will have to heat the next night.

With orchard heating proved a success, as it has been, the element of chance has been removed from fruit growing in Colorado; there are no other enemies that we have not found a means to fight and win the fight, and now that we have found a way to fight the cruelest foe of all, the frost king, who gets in his work in so deadly a manner, we have placed fruit growing on a sure foundation, and have assured to ourselves the immense profits from it, not only at irregular intervals but annually.

The cost is not high; the oil costs 3½ cents per gallon and the pots hold five quarts of oil and will burn all night, if the Troutman pot is used, as it combines an air-burning principle like a Rochester lamp burner. The pots cost 18 cents with the covers, and will be improved, we understand, next year and cost perhaps 20 cents. One man can take care of five acres of ground and heat it without extra help when properly equipped. It is readily seen that the cost of heating is as nothing compared to the benefits secured.

THE SO-CALLED HUNGARIAN PRUNE.

Our Colorado friends seem to be having some confusion over the English Pond's Seedling plum in their efforts to make a prune of it. The horticultural writer of the Denver Field and Farm has these remarks:

"Of all the prunes that were boomed some years ago the one that has turned out the best in this country is the Grosse or Hungarian. It is perhaps the finest of all shipping varieties sent out as fresh fruit. It is large, handsome and has a delicious flavor when fully ripe. Like the Wickson plum, it has the rare quality of developing a good color and flavor after shipping, even when packed before fully grown. It must have developed at least a light tint of pink on one side in order to make this change, but some color develops before full growth is attained. The color is a deep red wine, and some specimens attain a size of two by three inches through the center. The tree is a vigorous grower and an enormous bearer—in fact, when not nipped by frost is frequently broken down by its load of fruit. The wood is very brittle and careful pruning is necessary to insure against breakage. Thinning the fruit is also essential and can be done with con-

siderable advantage in producing a high percentage of good fruit. The Grosse prune is prone to grow double, and with a partly developed twin plum on one side of an otherwise good one. The half that loses its grip will often be a mere knob or a hard, sharp beak, either of which renders the plum unfit to ship. If these imperfect plums were picked off after the crop is set, it would result in larger sizes for those remaining and render picking less expensive. Many trees run from one-fourth to half imperfect plums, while others have as low as 1 or 2 per cent of imperfect fruit. This prune should never be dried until pitted, followed by exposure to the fumes of sulphur. When treated in this way it has a very attractive color and is sold as the Ruby plum. We of Colorado have never thought much of prunes as prunes, but have always preferred to grow and sell them as plums, and when thus sold they are about as good as anything."

[This is all very interesting, but in California we never think of this plum as a prune, although one or two of its false names include that word. As for the term, "Ruby," with us it does not refer to this plum at all, but to the French prune sulphured before curing.—EDITOR.]

Citrus Fruits.

CULTURAL GOSSIP.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

This week I paid a visit to the most famous orange ranch in the world, the Santa Isabel rancho of Charles C. Chapman at Placentia, in Orange county. Here are produced the Valencias that have topped every market in which they have been offered for many years. I wanted to learn if possible how this was brought about, and how it was that the Old Mission brand of Valencia oranges brought so much more money at public sale than did the fruit raised by neighbors on the same kind of land and under the same climatic conditions.

I have been a believer for a long time that Mr. Chapman was far in advance of the general run of packers in the way he handled his fruit from tree to car, and that this point has given him such a start that it will take time to overtake him. By that I mean, he has established such a reputation for the general qualities of his fruit that he has worked up a class of trade it will be difficult for any rival to equal, even though he grow just as good fruit and put it up in just as good shape.

Another point that I come to believe in is that it does not take a man who has been raised up in the business of growing oranges to get to the front in that line, and many notable examples might be cited. It is ability and brains that count in growing oranges, and, provided soil and climate are right, they are bound to succeed.

The Chapman ranch is handled with intelligent care, and thought they have the best help obtainable, Mr. Chapman attends to many of the details himself. I asked the foreman if he had a name for every tree, and he looked startled until he saw the point, when he laughed and said: "Come up into the tower and I will show you why we do not."

From the tower could be seen the whole of the 300 acres that comprise the Chapman acreage of bearing citrus trees, and with the orthodox 100 trees to the acre, this would mean 30,000 trees, and it would take some names and a good memory to be able to designate them all.

I asked this question because of the evident familiarity of the foreman with certain characteristics and also the bearing ability of certain trees he pointed out to me.

The section we were in at the time contained 17-year-old trees, and they certainly were noble plants, and even a novice could see that they were in good condition. I asked about the average yield from this kind of a tree, and after some thought Mr. Hemphill, the foreman, stated that they would pick 12 field boxes, but that 20 boxes and even more was nothing uncommon. "For instance," said he, "if that tree in front of us is as loaded on the other side as on the side we can see, I would expect to get 18 boxes from it, and if you will turn to the tree behind you and look over your head you will see why the fruit runs into boxes mighty fast."

Directly over my head was one cluster of oranges, hanging like grapes, that might fill a box without having to look for more, and indeed all of the trees seemed to be loaded with the luscious Valencias that are destined to go to market under the proud banner of C. C. Chapman.

There is no secret about the matter, nothing but what Mr. Chapman has told over and over again at farmers' institutes and fruit conventions; they have no magic wands and shoot no hypodermic injections of strange mixture into either tree or soil, but just use the common sense methods that experience has taught them is proper, and which every farmer has had more or less opportunity of acquiring.

Less water and more cultivation is one of Mr. Hemphill's precepts, and I asked him if he waited until the tree showed signs of needing water before applying, and he answered, "No, just before." If there is any secret I suppose it lies right there, for the only answer he gave to my question as to how he knew the tree wanted a drink before it asked for it, was to say that he had learned from past experience. Really I should think this would be hard to tell about, for naturally the between-drink times ought to be shorter in very hot weather, and vice versa. Mr. Hemphill believes that more orchards are hurt by too much water than by too little, and as a general rule thinks that every five, six or seven weeks would be right in the summer time.

In irrigating, the water is never allowed to flood the land, but is carefully confined to the furrows, and just as soon as possible these furrows are covered up. They have two kinds of soil on the ranch, a light loam and what the government experts call a sandy adobe. I noticed the condition of the top soil in both sections, and could see that intense cultivation was practiced, the adobe soil being broken into very small lumps and the lighter soil powdered until it would sift like sea sand. They find that the heavier soil requires the water more often than the light, as the air channels cannot be so thoroughly closed and the moisture evaporates faster.

I asked about the causes of plowsole and was told that it came from cultivating too soon after irrigating, or when cultivations were too far apart and the ground thus not stirred frequently enough. When plowsole does occur, the remedy is to send the tool down deep and break it up. Said he:

"Water under the surface is better than water on the surface, no matter what means are taken to get it there. Flooding and consequent baking of the soil is injurious and tends to make the ground heavy and sad and less friable.

"For cover crops we use vetch and burr clover. We do not plow under at any given date, but wait until it is big enough, and I think that in our case we have to wait too long sometimes, as we are later in planting than most growers, owing to the lateness of our season, meaning that we have oranges on the trees later than most of the orange growers. I think that cover crop should be plowed under in January, when the tree is dormant and can best stand the root cutting. We generally plow under in February, and sometimes as late as March."

I went into the private packing house and tasted for the first time a delicious Old Mission orange. The grading is certainly fine, and the fancy fruit was without blemish, smooth in every way, and beautiful to look at. Mr. Hemphill picked an orange out of one of the bins that, while not green-tipped, was beginning to show a tendency that way, and put it in the choice bin, saying at the same time that occasionally an orange of this kind will slip in, but that they wanted nothing but absolutely perfect fruit to go out under their fancy label.

Isn't this what wins out, and what has made this fruit so famous and such a price-bringer? This year there might be some temptation to the ordinary packer to be a little less careful, as the fruit, not only here but all over the country, is running more to standards than ever before, and in consequence there is a very small percentage of the fruit anywhere that can be classed as absolutely fancy.

I asked Mr. Hemphill if it was not true that they had for years been following out the precepts now taught by Mr. G. Harold Powell, and he said that they had, but that they also had been benefited by Mr. Powell's work, and, in fact, he said that Mr. Powell had visited their house when first starting his work, and had found clipper damages, and that since that time they had been more careful in every way.

There has been more coarse fruit raised everywhere this season than for some years. Particularly has the fruit from young trees been coarse and thick skinned. This is the fruit that all packers have been trying to get out of the way, trusting that when they got to picking the better fruit the prices would go up. However, it keeps coming in. Mr. Hemphill told a story of an old woman who had a cellar full of potatoes to sell, and who was using those herself that showed a tendency to go bad. When someone asked her if she would not finally have to go onto the good ones, she replied that she could just about keep up with the decay, and this seems to be the case with coarse fruit, it is going back, even on the older trees, just about as fast as it is being shipped.

Why wouldn't it be a good idea to turn right round and ship the very best to be had right along? There might be some at the end of the season that would not be fit to ship, it is true, but to be at the top of the market until that time would be a big advantage up to that time, and would probably more than offset any final loss.

I was unfortunate in not meeting Mr. Chapman himself on this trip, but was very kindly received by Mr. Hemphill, manager of the whole estate, and Master Stanley Chapman, heir apparent to the throne of the king of orange growers. Mr. Hemphill stated that he had been with Mr. Chapman for eight years, and to judge from his apparent age at this time, he must have taken this position soon after leaving school. That he is thoroughly efficient goes without saying, for none other than the very best could hope to stay on this ranch continually for eight years. Master Stanley is delightfully unspoiled, and is a high-grade American boy, just bubbling over with animal life and with not a trace of snobbishness in his makeup.

The ranch contains fourteen buildings, including the palatial residence of the owner, the cottages of the foreman and the farm hands and teamsters, five large barns, a garage, and the packing house. Outside of pickers and packers, who do not live on the ranch, there are 25 men employed and 40 head of horses and mules for driving and teamwork. The little village is all piped with 4½-inch iron pipe for fire fighting, and water is supplied from a 30,000-gallon tank. The buildings and grounds are all kept in splendid shape, and everywhere is neatness and order. This year they have shipped 100 cars of citrus fruits other than Valencias, and expect to have a total output of 90 cars of Valencias.

They do things well on the Chapman ranch, because they leave nothing there to chance. From the head man down, through every degree, they work on the rule of one, two, three, and that is why prices are always the best and why the Old Mission brands lead all the rest.

THE CANNED PINEAPPLE INDUSTRY.

The percent acreage of pineapples in Hawaii is estimated at 4540 acres, from which 350,000 to 400,000 cases are expected for the year ending May 31, 1909. For the year ending March 31, 1908, the pack was about 190,000 cases, and only 90,000 cases for the previous twelve months. As an indication of the further extension of this industry the Honolulu Chamber of Commerce Annual says:

"Judging from the plantings that have been made which will fruit the following year, the pack for the year ending May 31, 1910, will run in the neighborhood of 550,000 cases, and if all those planning to plant pineapples during the coming summer carry their plans to maturity the output for the year ending May 31, 1911, would be likely to run close to 1,000,000 cases."

The pineapple industry of the Pacific ocean region is now most extensive in the Straits Settlements. From Singapore in 1907 preserved pineapples were exported to the extent of 845,900 cases, valued at over $1,788,000. The declared exports of these goods to the United States were $133,532 in 1905, $118,506 in 1906 and [illegible] in 1907.

Consul Ernest [illegible] sacks of [illegible] ket from [illegible] uary 30 [illegible] spondi[illegible]rass, 106,0[illegible]sacra-

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AGRICULTURAL REVIEW.

FAIR APPLE CROP.

In its last issue the Chicago Packer printed reports from all sections of the United States as to the condition of the apple crop. In the report California and Colorado are credited with bumper crop prospects, while Oregon, Washington and Idaho will have much lighter yields than last year. Arkansas, Missouri, Kansas and Nebraska will have from 10 to 40 per cent of a crop, as compared with a still lighter crop last year. Michigan gives promise of a fair yield, but other central States will be light. New York will produce less apples than last year, the Virginias will have small crops, Kentucky a fairly good yield. Altogether the crop will be larger than last year, and the market promises to be very much better.

Horticultural Notes.

The Napa cannery started on a three months run last week at East Napa.

Oroville is agitating the question of holding a citrus fair at that place the coming winter.

The cannery at Winters is putting up a heavier pack of fruit this season than ever before in its history.

The wine grape crop in southern California will be one of the heaviest ever produced. Grape crushing will commence in two or three weeks.

The nursery stock belonging to the estate of F. W. Kohler of St. Helena has been sold to Walter H. Lange, who will go into the nursery business extensively there.

The Monte Vista Water Company is improving and putting on the market 410 acres of land, lying along Holt avenue, between Pomona and Ontario. Forty acres is now being set to oranges.

The first carload shipment of fruit for the season were made from Placerville last week. Pears, plums and peaches are being sent out, and the pear growers are well pleased with returns, which make up a light crop.

According to the State Commissioner of Horticulture, the fight to eradicate the "white fly" from the orange trees at Marysville has been successful. After an exhaustive search neither egg, larvae nor pupa was found in that vicinity.

It is stated that Gridley is to have another cannery built there, to be ready for business next spring. The present cannery cannot handle all the fruit and vegetables offered, making the second one a valuable acquisition to the farmers.

So far very little has been done in selling wine grapes this season. A sale by the Clovis Fruit Company to the Italian-Swiss winery of Sonoma county of 7000 tons is reported. Price not set, but is understood will be at the same rate paid during the season.

Owing to most of the fruit being shipped green this season there will be but little of it to dry at Winters, Yolo county, this year. Ordinarily there are dried about three cars of yellow peaches, while this year less than two tons will be cared for in this way.

In an address before the Nevada County Promotion Committee last week, State Horticultural Commissioner Jeffrey predicted that the Bartlett pear orchards of that county would be wiped out in five years by the pear blight, unless strenuous burning were made at once to save the ter or just b
this season the living [illegible] Shasta county, stained, purplish color of the [illegible]
During the first warm days of spri looking, syrupy liquid exudes from the blight patches and flows down the bran bees and other insects are attracted by this tion, and in visiting it get the germs of dise side. The orchard is owned by George D. Barber.

A correspondent of the San Jose Mercery, writing of fruit conditions around Campbell, says that a fair sized apricot crop has been harvested and prices satisfactory. The peach crop is heavy, though prices are low. Pears and prunes promise a light crop, though the latter crop will be of large sizes. The packing house at Campbell to be opened by the local Farmers' Union will soon be ready for business. Only prunes will be packed by this house this season.

The last car of cantaloupes for the season was shipped from the Imperial valley last week. The average price received was 80 cents per crate, which netted the growers about 50 cents. As to the size of the crop, the following statement is from the Imperial News: "During the season 1260 carloads, containing 428,400 crates of cantaloupes were shipped. These were grown on 3500 acres, showing 120 crates on an average were shipped to the acre. In view of the fact that there were many inexperienced melon growers in the business this year, that some of the patches were on unsuitable soil and that more melons were grown than were shipped, the yield appears to have been remarkably good."

General Agriculture.

Most of the grain in the San Ysidro district and in the Canada valley, near Gilroy, has been threshed. The yield and quality were both good.

Bean growers in District 70, near Yuba City are anticipating a large crop, as all conditions favor. Melon growers there are now harvesting the best crop in years.

The new Doty warehouse at Biggs, Butte county, the largest in northern California, is completed and being filled with hay. The hay crop in that locality was a good one this year and will tax the capacity of the new warehouse to hold it.

Miller & Lux commenced suit in San Francisco last week against the San Juan Pacific railroad to collect damages for the loss of 72 cars of headed grain and 4776 bags of barley which were destroyed last year by a fire started from a spark of an engine.

The Transcript, published at Concord, Contra Costa county, says that warehouses in that town are nearly filled, those who have wished to have sold their crop at good prices, and still only about half the hay crop has been hauled from the field.

The Edison & Foulke Company last week purchased the 10,000 acre tract in Siskiyou county, known as the Huseman ranch, to add to their 50,000 acre holdings. The tract just acquired will produce 5000 tons of hay annually besides pasturing 2000 head of stock.

Bids were opened at Antioch last Saturday for this year's almond crop at a meeting of the Almond Growers' Association of eastern Contra Costa county, and the entire output was awarded to M. T. Stein & Co. of Stockton on a bid which is believed to have been about 15 cents. The crop in this section will be 110 tons or more. While less than that of 1908, the crop is of excellent quality.

The biggest day's shipment of deciduous fruit in the history of the industry in the valley was made from Sacramento last Saturday, when the California Fruit Distributors started 221 cars to the various Eastern markets. Last year on the same date 125 cars were forwarded to the East, which was the record for that season. In the shipment were 99½ cars of peaches, the largest shipment of that fruit ever made from this State in any one day.

What is claimed to be a world's record the production of hay was established H. D. Heltzel, a farmer near Waterloo, in Joaquin county. This year he used eleven sacks of Chilean wheat in planting fourteen acres, and instead of cutting it for wheat he decided to make hay of the lot. He secured 86 tons, and though early in the season he sold the output for $15 per ton, netting $90 to the acre. This is said to be most unusual both as to quantity and quality. At other times prices have been higher, but the total yield has never reached these figures.

Stock and Dairy Notes.

Eleven carloads of cattle were shipped from Hanford to Los Angeles last week, to be slaughtered at the Cudahy plant there.

The Orange county honey crop has been gathered for the season and amounts to nearly 300 tons. The honey is of a finer grade than usual.

The bee inspector of Fresno county reports that foul brood has been the cause of heavy losses to bee keepers in his district. The disease is worst in the southwestern part of the county.

At a meeting of the board of directors of the Penn Valley creamery, held last Saturday at Nevada City, a dividend of $2 per share was declared. Besides the dividend, considerable money was spent during the past year for improvements in the plant.

The Yuba City Farmer states that the Western Meat Company will probably be an active competitor in that section to the Western Creamery Company in the creamery product line. The latter company has recently purchased creameries in that district, and now the Meat company seems disposed to establish creameries there also.

According to the Forest Service, the experiment recently tried out in the Lassen National Forest of using angora goats in clearing paths for fire-breaks has proven a success. The goats were driven along trails that had been constructed for them, and they demonstrated their ability to clean out the brush on each side.

Bee Inspector Schultz of Los Angeles county says there is money in producing honey this year. He cites the following as an instance: "I know one man with 250 stands of bees who is just now extracting. He expects to have 27½ tons to market. For this he will receive from 5 to 6 cents per pound wholesale—$2750 to $3300 for the summer's work of a few stands of bees isn't bad for southern California.

Miscellaneous.

According to the Hanford Journal no fair will be held in Kings county this fall, as the project could not be financed at a profit.

The news is given out that the Southern Pacific company is to embark in the raising of eucalyptus trees in the Imperial valley. Three sections of land are to be set out and if this proves successful a much larger acreage will be planted.

The Santa Rosa woolen mills were destroyed by fire last Saturday night, entailing a loss of $150,000, with partial insurance. The mills have been running for several years, and at the time of the fire had a quantity of manufactured goods as well as raw material on hand.

After a meeting of Secretary Ballinger of the Interior Department and F. H. Newell, director of the reclamation service, held at Portland, August 3, it was announced that no new irrigation projects would be launched, on account of lack of funds. At this time there is but $11,000,000 in the reclamation fund available, while the projects under way will use all of this amount.

The Honey Lake Land and Irrigation Company last week filed on 660,000 miner's inches of water, being practically all the waters flowing into Eagle lake, together with 200,000 inches from Susan river, 100,000 inches from Ball's Canyon

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creek, and 50,000 inches from Willow creek. The filing states that the water is to be used for the irrigation of lands in Honey Lake valley.

The Farmers' Union has made a deal by which it will secure the use of the California Seeded Raisin Company's house in Fresno for packing and seeding the union goods. The house as it now stands is in the nature of a nucleus for the house which the union will operate, since either the present house will be enlarged or a new building will be built with an extension of the equipment to meet the requirements.

A dispatch from Vallejo states that a big irrigation project for Solano county has been organized by R. E. L. Stephens of Dixon, who is said to represent San Francisco and San Jose capitalists. The promoters have secured 20,000 inches of water from Putah creek, in the eastern end of the county, and efforts is to be made to secure some of the large wheat growing farms in eastern Solano and cut the property up into twenty-acre holdings.

It is reported at Sacramento that the disagreement between Frank Drumm, representative of J. B. Haggin, and Joseph Craig of Woodland over the sale of the famous Rancho del Paso has been satisfactorily settled, and that the suits started on behalf of the Union Pacific Colonization Company against the Del Paso Land Company for $250,000 and by Joseph Craig for $84,000 will be dismissed on motion of the plaintiffs when the terms of settlement are decided upon. Under the agreement, it is said, the terms of the sale have been modified somewhat. The sum of $100,000 is to be paid down at once, and the additional sum of $200,000 upon the signing of the deeds. The remaining $1,200,000 is to be paid within two years instead of five. The purchasers are to have the right to irrigate and subdivide the land. The Union Pacific Colonization Company expects to put thousands of families upon this great tract.

GERMAN FORESTRY.

Forest experts of all nationalities agree that Germany is in an enviable position as regards her lumber supply. No nation in the world makes more thorough utilization of its forest resources.

The German Empire has approximately 35,000,000 acres of forest, of which 31.9% belongs to the State. Many years ago that country awakened to the necessity of applying the same methods of business economy to the management of its forest lands that are applied to its operations in trade, and the result is that Germany's practice of forestry has served as a model for all other countries.

German forestry is remarkable in three ways—it has always led in scientific thoroughness, and now it is working out results with an exactness almost equal to that of the laboratory; it has applied this scientific knowledge with the greatest technical success; and it has solved the problem of securing through a long series of years an increasing forest output and increasing protfis at the same time.

Starting with forests which were in as bad shape as many of our own cut-over areas, Germany raised the average yield of wood per acre from 20 cubic feet in 1830 to 75 cubic feet in 1908. During the same period it trebled the proportion of saw timber from the average cut, which means, in other words, that through the practice of forestry the timber lands of Germany are of three times better quality today than when no system was used. In a little over half a century it increased the money returns from an average acre of forest seven-fold, and today the forests are in better condition than ever before.

The cannery at Modesto has secured ample capital and will make a large pack this season.

A TEXAS EXPERIMENT WITH JOHNSON GRASS.

Mr. Charles Moore of Palo Alto sends us the following account of work with Johnson grass which he finds in a publication by the Texas Experiment Station:

The formation of new root stocks is the way Johnson grass makes itself difficult of eradication, and a successful method of getting rid of it must be one that will prevent the formation of new root-stocks. It has been found by observing the habits of the plant that new root-stocks do not form until the plant is 6 or 8 inches high, or is ready to head out. It is obvious, therefore, that if the plant is never allowed to attain a greater development than this, it must die as soon as the last joint of the old root-stock is sprouted or decayed.

In the spring of 1906 work was begun to eradicate the Johnson grass that wholly covered a large part of the farm and that occurred sporadically on the remainder. At first attempts were made to rake the roots into windrows on the surface and burn them, but this method proved more expensive and was less effective than persistent cultivation. It was found that a quicker plan of cultivation was to cut the grass below the surface of the ground as often as it attained a height of 6 or 8 inches.

In killing out a meadow, the best results were obtained by plowing the land shallowly in September and sowing to winter oats. During the winter while the grass is dormant the oats reduce the moisture content of the soil, so that in the spring when they are cut for hay the ground is left comparatively dry. The resulting growth of the Johnson grass is not so vigorous as on fields left fallow during the winter, and is kept down with greater ease by the cultivation following the removal of the crop.

In September, 1906, a 6-acre field of Johnson grass meadow was plowed 4 to 5 inches deep with a disk plow. In November the field was divided into two parts, A and B.

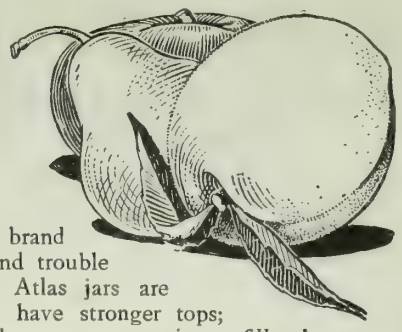
Field A contained 2 acres, and was left fallow during the winter. The cultivation required to keep down the Johnson grass during the months of February, March and April cost $10.84 per acre for man and horse labor, which is rather too expensive for general practice. In May, when the eradication was nearly complete, this field was sown to German millet.

Field B, containing 4 acres, was sown to oats in November. In the spring the Johnson grass grew very vigorously in Field A, but the growth in the oats in Field B was weak, and but few plants headed out before harvesting, which was early in May. The field was plowed again in June, at a cost of $2.73 per acre, but this should not be charged against the cost of eradicating the grass, since it left the field in excellent condition for the following crop. The cost of cultivation to eradicate the Johnson grass after plowing was only $1.12 per acre.

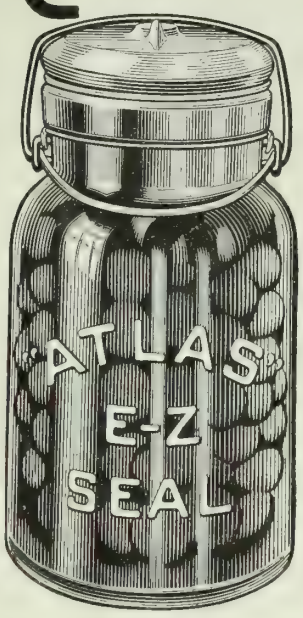
The above treatments were equally efficient in eradicating the grass, but the difference in cost was entirely in favor of the second method given.

[This method of getting rid of Johnson grass by drying out the soil may be useful to some extent in California, but it is a long known fact that on soils which get very dry it will die out of itself. In California its hatefulness lies in the fact that it gets into land which is used for orchard, vineyard, garden, etc., which cannot be allowed to get dry without destroying the trees, vines, etc., or their product. Johnson grass was brought to California as a dry land plant, but it was soon found out that it would not grow much on dry land, and that it would grow to beat the band on land that could not be allowed to get dry.—EDITOR.]

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The Field.

TREATMENT FOR MAGNESIUM ALKALI.

To the Editor: The soil hereabouts is a reddish clay loam, termed in the soil survey "Willows loam." It is fertile, but sometimes difficult to work. It has a cement basis, and sets very hard after rain or irrigation. The scubsoil is not a hardpan, but is very intractable. I have been told that the character of the soil is due to the presence of magnesium, which substitutes itself for some of the aluminum of the clay, and that the proper treatment would be from five to six hundred pounds of superphosphate of lime per acre. Would you advise me to try this? The view seems to be scientifically correct.—READER, Citrona Park.

We will not undertake to discuss the prescription which has been given you. We can probably interest you and others who have forms of white alkali to contend with by reciting the results of experiments with alkali in Illinois, as described by Prof. C. G. Hopkins in the Breeder's Gazette, in answer to a local inquiry. He says that though they do not have black alkali in Illinois, they do have many lands in which the injurious constituent is principally magnesium carbonate, and gives the following experiments with it:

A most practical method which affords temporary relief is to treat the land with readily decomposable organic matter, preferably horse manure, which is commonly known as "hot" manure because of its ready decomposition. The benefit of the manure probably results from several different factors, such as the neutralizing power of the decomposition products, including some organic acids, the supplies of readily available plant food which it furnishes in the surface soil, the increased bacterial content of the soil, which hastens real soil decomposition, and in some cases the reduction in evaporation from the surface and consequent reduced rise of capillary moisture and alkali from the subsoil.

If the soil is peaty in character, the addition of potassium salts is commonly very beneficial, in part at least because of the readily available potassium which is thus furnished where the soil is likely to be deficient in that material, and possibly because of some secondary effect produced by the potassium salt. The information already obtained seems to show conclusively that potassium sometimes produces benefits on alkali lands which already contain abundance of that element. On the other hand, in some cases the addition of potassium gives no relief, while applications of horse manure produce marked benefit.

In the following table of corn yields in soil experiments, Manito field, peaty alkali soil, the treatment applied and the yields obtained in 1907 are reported for the University of Illinois soil experiment field located on the line between Mason and Tazewell counties, about three miles east of Manito, Mason county:

Treatment applied for 1907.	Corn, 1907—bu. per acre.
None	8.8
Manure, 6 tons	43.5
Manure, 12 tons	64.9
Potassium sulphate, 400 lbs.	73.0
Calcium sulphate, 2 to 16 tons.	4.9
None	5.4

It will be observed that without treatment the land produced almost no crop, and for the first season the calcium sulphate (gypsum or land plaster) produced no benefit. The application of manure produced very large increases, and the heavier application of 12 tons per acre produced about 50 per cent more corn than 6 tons per acre. The 400 pounds of potassium sulphate are applied but once for the three-year rotation, at an initial cost of about $10 per acre. The yield produced by the potassium sulphate in 1907 was 8 bushels greater than that produced where 12 tons of manure were applied, and the increase in the yield of corn by the potassium sulphate amounts to more than twice the total cost of the potassium.

It is certainly safe to advise the application of manure to alkali soils wherever the manure is available, and the use of potassium salts is well worthy of trial on a small scale, especially where the supply of manure is inadequate. It may be kept in mind, too, that these alkali soils are likely to improve with passing years where thorough underdrainage has been provided, and it would be expected that the use of manure or potassium salts and the removal of crops will hasten this improvement. It is not necessary that all of the magnesium carbonate should be removed, because most agricultural plants will thrive in soils containing 1% or less of that material. When alkali lands are first broken from virgin sod they are likely to contain considerable amounts of fresh organic matter, and because of the rapid decay of this material two or three satisfactory crops are not infrequently grown before the decomposing action of the original supply of fresh organic matter ceases to be effective.

HOW BOHEMIAN FARMERS ADVANCE BEET PRICES.

Consul Joseph I. Brittain sends the information from Prague that the growers of sugar beets in Bohemia have formed an organization to maintain prices, and have presented a virtual ultimatum to the refiners, demanding higher prices for their beets or no beets will be grown. The Consul continues:

Two factors have contributed toward the planters being able to take such a position. During the past years it has been the custom of the refiners to advance money to the planters on the growing crops before they were harvested. By so doing the beet growers would be to a certain extent dependent upon the refiners when the crop of beets was ready for delivery to the sugar mills. This year it is said that the bankers have encouraged the farmers' organization.

Again, the prices for grain in Bohemia have materially advanced, making the raising of grain more profitable than raising sugar beets at such low prices.

The refiners, realizing their dependence upon the planters for their supply of beets, have finally recognized the planters' organization, and have acceded to most of its demands. Last year the price paid for beets was $3.50 per ton, and this year the price will be $4.95 per ton. Last year the yield of sugar beets in Boheima was 4,051,800 tons. By the terms of the agreement between the refiners and planters there is to be no discrimination. The small farmer who produces a few tons of beets will receive as much per ton as his more fortunate neighbor who produces a larger quantity.

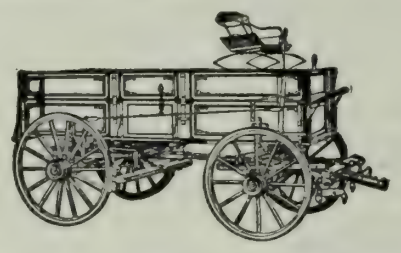
ARSENIC AS A WEED KILLER.

Professor Bolley of the North Dakota Agricultural College is at present engaged in an extensive correspondence with the large chemical houses of the country, with a view to getting them to put upon the market a standard grade of commercial sodium arsenite. Sodium arsenite is the greatest of all weed killers, especially for work upon Canada thistles. As in the casse of formaldehyde, when the Botanical Department recommended it for use, it was to be had only in small quantities upon the market. So it is with arsenite. Wholesale chemical houses have not as yet been able to meet the demand, and many of them do not seem to see the difference between arsenite and arsenate. Most of the material on the market is still found to be largely arsenate, which is worthless as a weed killer. Most of the houses are now submitting new samples for analysis, and it is hoped that before another year this new product will be easily obtained in high-grade quality. One and one-half pounds of this substance will kill as many weeds as 100 pounds of iron sulphate, and do it more effectively and speedily.

[We presume Professor Bolley is making due allowance for the fact that arsenic is an all-around plant killer, and will kill a weed with just the same vigor that it does a useful plant. Also that arsenic will accumulate in the soil and render it permanently sterile. The advantage of iron salts is that they discriminate, and kill some plants and not others; also that iron becomes rapidly innocuous to plants.—EDITOR.]

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ALFALFA HAY MAKING IN COLORADO.

A discussion of alfalfa hay handling by Mr. Carl Wheeler in a recent issue of the Denver Field and Farm puts the matter in this form:

In the baling of alfalfa hay from the field, success depends largely upon the weather and the available labor necessary for handling the hay at the time it is ready for baling. In this dry climate alfalfa hay can be baled as easily or more easily from the windrow than from the stack, and during my four years of handling alfalfa in this way I have not had over 15% spoiled by rain or inclement weather. It has cost me an average of $2 a ton to bale alfalfa from the field. I hire all the labor of by 50-acre field, and find that the labor question is a greater drawback than the work to be done—that is, I have found it difficult to procure help at the time when I need it most.

I prefer to cut my alfalfa after rain has just fallen, and usually by the time another rain comes along I have the hay safely baled. I do not go altogether by the blossoms on the time for cutting, but watch for the the small second growth, which starts as soon as the large alfalfa stops growing. This second growth usually starts when the alfalfa is from 10 to 50% in bloom. The more bloom there is on the hay the better, providing the lower leaves do not turn yellow and fall or the second growth does not start too soon. I rake my hay when one-half to three-fourths dried. If the hay is heavy I use a side-delivery rake, but if light cutting I use the Osborne self-dump rake. In either case I turn the windrows with a side-delivery rake in the morning, and this loosens up the hay so it is perfectly dry for baling by 1 o'clock.

I always cover my bales with canvas of 8-ounce weight after a day's baling, and then when the cutting is all done I ship or store in my hay-shed. There is practicaily no waste to alfalfa baled from the field and, counting this and the better quality of hay obtained, will usually offset the $2 cost of baling. There need be no loss, either, from storm-damaged stacks. I find the side-delivery rake is a great help in drying the hay, and, in fact, do not bale alfalfa until perfectly dry. I would rather have rain on hay than wet bales, and this is also true when the hay is placed upon the market.

If the hay is cut at the proper time and well cured, it is easy to make No. 1 or choice grade from the field. I may say further, that I have topped the market a number of times, one year with frosted hay, which cleared me over $5 an acre, while hundreds of farmers allowed the frosted hay to waste on the field. I used the Acme or Monarch rake to deliver the hay to the baler. This rake is strong and has a good life, and when filled usually holds from 7 to 10 bales of 60 to 70 pounds weight. One sweep will keep a baler crew of three men busy on my Auto-Fedan hay press, which bales about one ton an hour with two horses. I prefer the 8-ounce canvas covers to the heavier weights as they are closer weave and shed water better and cost less.

[Fortunately, frost and high wind are not factors in California hay making.—EDITOR.]

THE OLD STORY ABOUT COWS.

According to the Pacific Homestead, one of the Oregon dairy inspectors tested a dairy herd in one of the Willamette valley counties recently, and he found one cow that was yielding butter-fat at the rate of $11.75 per month, while another's product amounted to but $1.57, and she had been fed and cared for exactly like her more profitable companion. The weeding-out process is urgent in this case, and if the owner will follow out the plan he will be the gainer to a great extent, with less work.

CORN AND COW PEAS FOR HOGS

Those who have naturally moist or irrigated low lands suitable for a summer crop of corn and cow peas may be interested in what they are doing with such crops at the Delta Experiment Station of Mississippi. The following is their own account of it:

We wish to call particular attention to the importance of a pea field, planted in corn at the last working, as a factor in cheap pork production. We made an experiment last fall to determine the value of such a pasture, the result of which should be very gratifying to Southern farmers, who have a monopoly on such a pasture. The Northern farmer cannot grow peas planted in corn, but must give them the use of the land during the entire growing season.

After the corn was gathered, 51 spring pigs were turned into the pea field of 17 acres. They had no additional feed. The gain made from the peas was 2893 pounds, or 170 pounds per acre. At 6 cents per pound, this gives a value to the peas of $10.20 per acre. And this is net, as the hogs did their own harvesting. Also the manure and humus from stalks, vines and seed were left on the land. By tests made at the station for two years to determine the value of peas grown in corn, as a fertilizer, it has been found that they increase the succeeding cotton crop by 110 pounds of lint per acre. The land used was old and had been cropped continuously in cotton. A prolific short variety of cotton was used in the test. Figuring the increase at 9 cents per pound, the peas had a fertilizing value of $9.90 per acre. The above eloquently suggests a means of improving our lands, worn by a one-crop system, at a profit instead of an expense.

The fertilizing value of peas will not be so great as this on the hill lands, which are deficient in phosphorus, but they must be relied on there to largely supply the nitrogen, while the phosphorus must be supplied.

On our Delta lands the supply of phosphorus and of potash seems to be abundant, hence the wonderful effect of the peas.

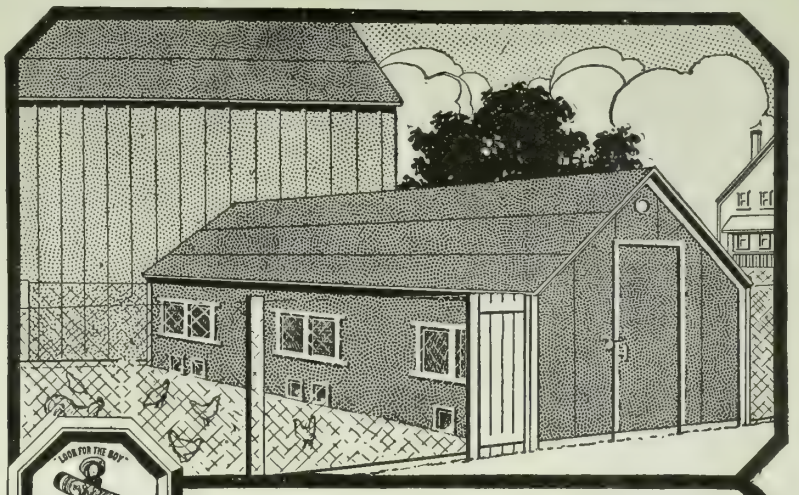
After all, the question of richer lands is the biggest problem that confronts the Mississippi farmer, and the hog is not to be overlooked in its economical solution.

DODDER AND ALFALFA.

There is no excuse in treating dodder in the sensational way it is presented in the following dispatch which was sent out from Marysville:

"Warnings have been received here from Orland to the effect that alfalfa's deadly enemy has appeared in Glenn county and is giving promise of a long fight before it will be eradicated. The dodder is the name of this pest, and it springs up in alfalfa fields, attaching itself to the alfalfa stems after getting started and breaks itself loose from the ground. In the mountains dodder is said to be feeding on wild pea vines and sage brush."

Dodder is bad enough and nobody wants to have it, nor to buy seed which will carry it into an alfala seeding, but the plant is an annual, and burning it with straw before the parasite blossoms or cutting the alfalfa before that time or pasturing it down close with stock will cause it to disappear. It is, of course, a bad thing to neglect, and the fight against it must be made before the tiny blossoms are able to perfect the seed.



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OLEANDER POISONING.

We recently advised a reader that oleander leaves are poisonous to animals. A bulletin of the Arizona Station by Mr. F. W. Wilson, just received, draws the following conclusions from what seems to be adequate tests and obseravtions:

Oleanders are poisonous when eaten by human beings, rodents and common farm animals, but do not exhale poisonous materials when growing in the house. The manner of obtaining the poison is generally accidental and its presence is not usually known until death is approaching. Dry leaves are poisonous as well as green leaves. There is little danger of the animal obtaining the poison from leaves in drinking water. The amount of poison necessary to cause death is small, but depends also on the condition of health of the animal. The physiological effects of oleander are similar to those of digitalis, and if enough poison is obtained the patient is sure to die.

The amount of oleander necessary to cause death in horses ranges from fifteen to twenty grams of green leaves, and from fifteen to thirty grams of dry leaves. This depends on the condition of the animal at the time the poison is obtained. A full stomach will necessitate more poison. In the case of cows it is safe to say that ten to twenty grams of green leaves and fifteen to twenty grams of dry leaves are sufficient to cause death. For sheep the fatal dose of either green or dry leaves is from one to five grams. There is little danger in the bark, roots or flowers, since live stock would hardly obtain sufficient poison in that way.

In the case of human beings greater care should be taken. Often persons thoughtlessly chew leaves, flowers and small sticks. Small children playing under oleanders are very apt to pick up leaves, flowers or sticks and chew them, with fatal results.

The general symptoms are increased temperature and pulse, coldness of the extremities, warm body temperature, dilation of the pupils of the eyes, and discoloration of the mouth and nostrils, followed by sore mouth. The body becomes wet with sweat, due to the exertion caused by the powerful heart stimulation. The animal generally refuses to eat or drink during the twenty-four hours preceding death. This is usually due to soreness of the mouth and throat, making it painful to masticate and swallow food. The bowels act often and feces are usually greenish in color. The action of the kidneys is increased slightly and color of urine is normal.

In our list of shrubs that may be planted for hedge, screen or ornamental purposes, are numerous harmless ones that compare favorably with the oleander so far as resistant and ornamental qualities are concerned. The well-known pomegranate, Japanese, California, and Amoor River privets, common myrtle, laurustinus (Viburnum tinus), and tamarisk may be mentioned in this connection. If oleanders are to be used, however, they should be planted only in places of safety, and not in parks, along public highways or other drives.

There is little doubt that numerous cases of oleander poisoning have never been brought to light because of death being attributed to other sources. It is safe to say, however, that many hundreds of animals have been lost in southern Arizona from this shrub.

TREATMENT.—There is little or no treatment that can be offered, if the animal has received a fatal dose. When oleander has been taken by human beings an emetic may be used with more or less succes if given promptly. The case should then be treated by a physician, who will combat the symptoms as they arise, remembering that oleander is practically identical with digitalis in its poisonous action. In the case of live stock, emetics cannot be used with success.

THE ENGLISH BELIEF IN THE SHORT-HORN.

A Middlesex, England, correspondent of the Breeders' Gazette writes a few paragraphs which will be interesting to California Short-horn supporters. He claims that in England a sufficient number of representative sales have taken place to enable a fairly safe estimate to be made of general results of the whole season. Every one who takes an intelligent interest in the welfare of this cosmopolitan race of cattle will be pleased to hear that there has been an exceedingly healthy demand for Short-horns of all the various types. There was an excellent trade for the milking strains at George Taylor's and Robert Hobb's and the average of both these exceeded the expectations of sellers. The interest in the new movement for increasing the milk yielding propensity is steadily growing and new buyers are springing up.

The two great sections of the breed, the beef and milking types, have been representatively offered for public competition, and both have met with that keen appreciation which the money paid for them most convincingly proves. But who were the purchasers? Not buyers for Argentina or any other foreign country, but breeders at home. In this fact we find the brightest augury for the future prosperity of the breed in its native land. For some years British Short-horn breeders have had to submit to severe criticism from outsiders for allowing "all the best cattle" to go abroad to the advantage of the foreign producer of beef and the deterioration of our own pedigree herds. Much nonsense has been talked and printed to this effect, for breeders do not spend their money and energy for the public benefit, but they do so in the hope of substantial reward. The revival of the home demand and the renewed determination to secure the best is indeed satisfactory, but not because we fear foreign competition. Argentina, the United States, the British colonies, or any other countries are welcome to our finest specimens if they will pay adequate prices, but for British breeders to rely entirely for their profit on such a precarious demand would be an ominous sign of decadence of the home industry. Not only, however, have our foremost breeders come forward and bid pluckily for the best animals this season, but there has been a decided improvement in the demand from ordinary farmers for young bulls at moderate prices for grading up their common stock. Utility is now the keynote of all classes of Short-horn breeders in England.

CHANGES AT DAIRY BUREAU.

As a result of the appointment of two new members of the State Dairy Bureau of California by Governor Gillette some changes were made in the working arrangements of the Bureau. Mr. J. R. Murphy of Fresno has succeeded John A. Bliss of Oakland, whose term expired July 1. A few days after this appointment was made Mr. F. W. Andreasen, another member, resigned and the vacancy was filled by the appointment last week of Mr. E. P. Nissen, a Humboldt county dairyman. Messrs. Murphy and Nissen, together with M. T. Freitas, the other member, attended the last regular meeting and proceeded to make some rearrangement in the working relations of the Bureau. The resignation of William H. Saylor as secretary and chemist was accepted and Mr. F. W. Andreasen was elected as secretary and agent and William H. Saylor as chemist. Mr. Andreasen, the new secretary and agent, practically becomes the executive officer of the Dairy Bureau and will direct the work. He is a retired successful dairy farmer of Humboldt county and is still extensively interested in dairy property in that county. For some years he conducted a creamery near Ferndale.

The three inspectors now serving will be retained by the Bureau if they desire to remain in the service. They are J. L. Starr of Los Angeles, J. H. Severin of Oakland and W. H. Perrott of Humboldt county. These men have been doing inspection work since July 1.

CUTTING ALFALFA HAY.

This is a subject of constant interest, and we find in a recent address by Prof. Merrill of the Utah Station a review of some investigations in a little different form from that in which we have previously presented them. The Experiment Station has spent thousands of dollars and years of time in making a careful study of Utah fodders and their adaptability to the different requirements in the animal economy. Alfalfa being our most extensively grown forage crop, has received a large share of this investigational work. Questions were frequently asked as to the best time to cut alfalfa. Some farmers claimed that it should be cut as soon as the first blossoms appeared. Others when the alfalfa was in full bloom, still others that it should be cut ten days after full bloom.

For the purpose of answering these questions, the station purchased about 40 head of two-year-old steers which were divided into different lots or sets. A piece of alfalfa was divided into three different strips, cuttings being made from these strips at definite intervals. The hay from a certain cutting was then fed to one set of steers, from another cutting to another set, etc. The results of one year's work was not considered conclusive, but at a very great expenditure of time and money this experiment was continued along these same lines for five different years. The results obtained from these different years' work was taken and the average obtained. It was found that the average yield per acre from the strip cut in early bloom was 10,719 pounds; in full bloom, 9829 pounds, after full bloom, 9100 pounds. The annual yield of digestible matter per acre was found to be as follows: Cut in early bloom, 6413 pounds; cut in full bloom, 5912 pounds; cut after full bloom, 5309 pounds.



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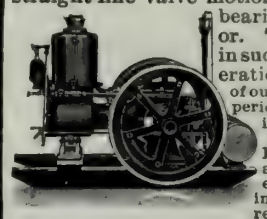
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Agricultural Science.

CRUDE OIL PAINT FOR FARM BUILDINGS.

To the Editor: Can you give detailed information relative to the use of crude petroleum mixed with red ochre or Venetian red or other materials for painting barn-roofs, barns, hog houses and other rough out-buildings. It would be widely useful. SUBSCRIBER.

Merced County.

Several years ago we gave a very satisfactory review of this subject by Mr. J. C. Cooper, of Watsonville, and as his experience promises to be of wide usefulness we repeat his conclusions as follows:

The crude petroleum oil and red metallic paint has proved on a good test to be all that was claimed for it and is the cheapest, most durable and in every way the best for general outside work that could be used. It is cheaper than good whitewash, of one application even, and never has to be renewed, as its life is really unknown. In some places it has stood 17 years and is still apparently as good as when first applied, according to information given me by others. The only objection to it is that it cannot be used for inside work, as it is so slow to dry, but will do for inside of such buildings as chicken houses. As a roof paint it cannot be equaled by any high-priced paint, and as a wood preservative it cannot be approached. While it is somewhat slower to apply than whitewash or thin, cheap paints, or high-priced paints well thinned, the slight extra time of labor really cuts but little figure, as the results are so satisfactory. For much work but one coat is really necessary, but I would recommend for a really good job a light second coat, applied two or three months or more after the first.

Cost and Formula.—The cheapness of the paint can hardly be realized. I painted a barn, granary, hired man's house of three rooms, woodshed, brooder-house, windmill tower, 12 small chicken-houses, and considerable fencing, besides soaking all posts in the straight crude oil, at an expense of $9.60. The formula I followed was: To one gallon crude petroleum oil add three to three and a quarter pounds of Prince's brown metallic. The crude petroleum I got was heavy, so I had to add one gallon of coal oil to nine gallons of crude oil. Introducing three pounds of metallic per gallon, or 30 pounds to the 10 gallons, the mixture was of the proper consistency to apply. Some crude oil needs more and other less thinning. First I added the coal oil in a barrel half filled with oil, and then put in the metallic. The ordinary red metallic will be satisfactory, but as the Prince's brown costs very little more and is better, it is worth while obtaining.

How it Covers.— As a test to see how far the paint would go, another man and myself took a quart each. He applied the paint quickly while I worked it in more. His quart covered 30 square feet and mine 50 square feet. This was on new but seasoned rough lumber, the side of the barn. Neither then nor today can any difference in color, etc., be detected between the two jobs as they were side by side. This proves that a gallon will cover, first coat, on wood that has never been painted before, from 120 to 200 square feet. The paint is a little slower to apply than the ordinary linseed oil paint. And the lumber on which the paint was applied was well dried. The buildings were erected in December, 1901, and painted in August and September, 1902. The shingles on the hired man's house were very dry and commencing to warp. They absorbed a lot of oil, but they were so well treated that never a drop of rain has leaked into that house, while the linseed-oil-painted roof of my own house leaked during three or four heavy blows and rainstorms. And but one coat was applied to the hired man's house. A second coat, I believe, should be much lighter, so that it would cover fully twice as much as the first coat. The crude petroleum soaks into the wood and preserves it, filling all crevices, while the metallic gives it body, filling or rather stopping up the pores of the wood. On some surfaced lumber, of which the gates of a poultry fence surrounding my house and garden were made, it would better if a second coat were applied. Still it looks well, and I may not put a second coat on til later. Surfaced lumber requires much less crude oil paint than the rough lumber; in fact, it is impossible to get a heavy coat on at the first application. Of course, no priming at all was done by me.

With Distillate.—The paint may be made a little cheaper, even, by the use of distillate at six cents a gallon as a "thinner" instead of coal oil, and I would recommend it. A friend of mine is about to try the paint and will use as a "thinner" the refuse Coalinga crude oil he has already used in a crude oil gas engine, and therefore his "thinner" will cost him nothing. The crude oil (the heavy, not the light, Coalinga) can be obtained now in nearly every small city in the State from gas, water or electric light works, mills, etc., at practically the first cost of oil at the wells—plus the freight to the given points, which is much more than the first cost of the oil. The metallic may be bought at a local dealer's, or from a wholesale house cheaper if much of a quantity is needed. It comes in barrels—size of sugar barrels—and weighs 300 pounds. Smaller quantities come higher in price than I paid.

I tried an experiment of adding three, three and a half and four pounds of metallic to a gallon of oil, but found that a full three pounds was the best. Soon after applying three-pounds-to-a-gallon mixture it turns dark, almost black, but as the wood absorbs the oil the color becomes lighter, till in six months or so the shade is that of an agreeable dull brown.

For Chicken Houses. — For chicken houses nothing can approach the paint. It is unequaled as a paint itself and is a positive vermin destroyer. My first chicken houses I painted outside and inside, not sparing the oil about the roosts. I have chicken houses 6x12 feet on runners and movable roosts, 2x2 inches, supported on other 2x2 pieces, fastened to the sides of the houses. These I almost soaked in the oil. At first some of the hens got a slight brown hue in places, but they had neither lice nor fleas, and never have had. The roosts should be replaced when necessary on account of dirt. Later I painted only the supports and roosts and boards nearby inside of the chicken house and then whitewashed the rest, as I readily admit I got tired of the job of working on the inside of the houses. The result has been thoroughly satisfactory. Still I believe it would pay to have the houses painted inside and out. The head painter of the Government, at the Presidio, who gave me the idea of crude oil paint, informed me at the time that he would not have any whitewash on his farm, and that his father-in-law, who has a large poultry farm near Santa Rosa, found that glaring white buildings affected the eye-sight of the chickens, strong as their eyes were, and interfered with their health and laying abilities

For Farm Tools.—Another good use to which this paint may be applied is to plowshares, cultivators, teeth, etc., when one is through using them for a while, so as to prevent loss by rusting. As soon as I am through with a plow or other implement having exposed steel or iron parts I immediately clean it and rub over a little paint. This keeps the plowshare or whatever it is in good condition and it is no trouble to get off the paint, as it will scour off a plowshare and mouldboard in a very few feet, and leave it bright, clean and in fine shape for work, as well as having preserved it between times.

In conclusion, I will say that another beauty about the crude oil paint is that you know just what you are getting, and that it is a pure article, whereas there is no such trickery practiced in any other part of the house-building line as there is in painting, cheap and really injurious oil often being substituted for the good and at first it is very hard to tell the difference. Therefore, I believe that a crude oil paint is the purest, the cheapest by long odds and the most durable of all and is the one that should be and will become universally used in a short time, as soon as known, in places suitable for its use.

MORE FACTS ABOUT EUCALYPTUS.

(Continued From Page 81.)

To plant eucalypts, or any other economic trees, in remote corners, or under adverse conditions, is useful and interesting, but the results must not be construed as necessary rulings for or against planting elsewhere.

In this great and fertile valley great forests of eucalypts may be grown, but the list of suitable varieties is much shorter than for the coast region. The extremes in temperature are very marked, therefore globulus, corynocalyx and many other eually valuable species should not be planted, because of the additional risk involved. I do not, in any of these remarks, refer to restricted localities, but generally and of the whole region under discussion. E. rostrata and E. tereticornis are, so far as experience has shown, the best tested, safe species for this section. E. viminalis and E. rudis will grow equally well or faster, but the records do not show them to produce timber of the same value, though useful for rough boarding, etc. There are several others, very valuable as high-grade timber producers, which, by their growth and habits, will no doubt be added to this list.

The Sacramento valley was and still is, to some extent, an oak forest or park; it receives a copious winter rainfall. There is no risk whatever in planting eucalypts here, of those species which will flourish in both the low and high temperatures that exist.

The San Joaquin valley is a country of marvelous possibilities, but an unknown quantity—an unknown quantity simply because no one can foresee the results in time from a great system of irrigation, or to what extent any trees or agricultural crops will stand the artificially changed conditions. Twenty-five years ago some portions of the San Joaquin valley were but a desert. Irrigation changed them into a rich community of orchard, vineyard and stock farms. Since then alkali salts, carried in solution so near the surface, and left there during the process of evaporation under the sun's rays, have in some places caused all these crops to die, and the land is much more of a desert than it was in the beginning. I was, some years ago, one of a committee to report on the reclamation work being done experimentally under the Government, and learned much of these hard problems from those who had studied under similar conditions in Egypt. Of course the problem is to carry off by drainage the surplus alkali, which had been done sufficiently to allow of the growth of alfalfa where previously nothing would grow of any value.

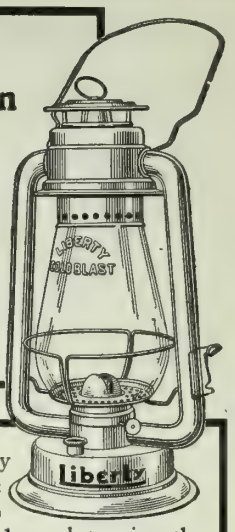
E. robusta is another very valuable species, but slighted for no good cause. As it flourishes in sour, swampy lands, and stands without injury a good deal of frost, is a strong and rapid grower, its timber enduring extremely well in the ground, it becomes one of our leading commercial species. In the article referred to, as well as in much also that is published, the very essential point of the selection of suitable soil and location for any given species is apparently ignored, while success or failure actually hangs upon it.

Mr. Ingham drives home with commendable energy the "hard fact" that eucalypts, as any other forest trees, must be planted close together to encourage a straight growth, but that the weak-growing or otherwise imperfect specimens must be thinned out early, leaving only the robust, vigorous trees for a timber plantation. This cannot be too strongly emphasized, although, strange to say, such is the general misconception of the very first principles of forestry that the reverse is the custom which most growers expect to follow.

Good soil and good cultivation for several years are necessary if good results are to be obtained. The matter of irrigation must be decided according to the rainfall in any praticular location, the nature of the soil, the method of cultivation and the time of planting.

The spring is theoretically the proper time to plant, but actual practice demonstrates the hard fact that much is gained if the land is summer or fall plowed, harrowed after the first rain, and planting done as soon thereafter as possible. Everything, indeed, favors this plan, provided strong, well hardened and well grown plants are used, and that suitable varieties are selected. The planting of small, tender, rapidly grown plants is very risky, and one of the strangest and most glaring errors that has often been "officially" published is that plants four to six and six to eight inches should be used. A eucalyptus seedling of such size is either only a very few months old or it is a stunted weakling, and therefore never to be recommended as being fit to plant in the field. By way of testing early planting we set out, early in last December, 10 acres, or 11,000 eucalypts, of three species, in the main Santa Clara valley, near Morganhill. Of these less than half of one per cent have failed to grow, and these few missing plants were run over by the plow or cultivator. Besides this, we plant many thousands of eucalypts in forest form on hillsides and in valley land, and of all the species that promise well for California. These are being tested as to comparative vigor, adaptiveness to certain soils and conditions, frost resistance, etc. These experiments are costly, but it enables us to speak positively, and not as hearsay. We have nearly fifty species growing on our plantations.

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The Poultry Yard.

A SAFE PROPOSITION.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

"When the clock of Time begins to buzz about the sixties," explained a city man who had called upon us for poultry points, "the machinist often gets a lay-off, and there comes a time when he finds some young chap in his 'sit'. No matter if he is just as vigorous as the youngster, as he certainly is steadier and more reliable; even if his eyesight is not quite so keen—but there's no use knocking; that's the program, and that's my case. I've saved up a little, and I'm going to get out before the city swallows up that little and then kicks me out. Mind, I'm not knocking the city. I like the city only too well; all the same's, it's no place for a man out of a job, and that's why I'm rustling for the country, to try the poultry, fruit and odd-job business."

We mention this incident because it tallies with many other cases where from various causes it is desirable to work into a business where one is both master and man, and sure of one's job, let the wind blow whichever way it listeth.

Our inquirer, who, by the way, is a skilled workman long in the employ of the Risdon Iron Works, has secured a few acres of improved property near one of the bay towns, where his mechanical skill will stand him in good stead in repairing and building up a run-down place. He also has the good fortune of having been born and raised on a farm. No matter where fortune may land one, the farm is a good place to start from—and a good place to come back to.

By September he will have things in shape to stock up with some poultry; but not very heavily. He will buy a few dozen White Leghorn pullets, just coming to maturity, and of good quality as to strain and vigor, for which he will naturally pay a fair price. He will also buy some hens of the same breed in their first molt—hens of good points which reliable breeders of first-class stock are willing to sell at reasonable prices in the fall. He will give these birds sanitary quarters and the best of care through the molt; after which he will select the best from among them for his breeding pens. He will also buy some cockerels this fall from an early spring hatch to head these pens. These vigorous young birds of good shape and head points he will keep by themselves on range and give them every opportunity for developing into strong lusty cocks. In January he will mate up his breeding pens with from 10 to 12 of the pick of the molted hens to each, and one of the cockerels at the head. In two weeks he will test the eggs from the newly mated pens for fertility by incubating a few from each under a hen. If satisfactory, he is now ready to fill his own incubator orders for hatching eggs, with a surplus to sell.

In the meantime, his pullets will be furnishing market eggs, and will have paid for their keep and returned their purchase money, with a profit upon the investment.

As the spring opens, the fruit, garden and hatching will all be on, and the work will increase by leaps and bounds. Our mechanic will have no union to limit his working hours, and will find that a day's work is anywhere from 14 to 18 hours. However, his interest will be proportionately increased, and he will begin to feel solid ground under his feet, in place of shifting sands.

Rye Grass for Poultry.

The English rye or ray grass is very well known and much valued in the San Pablo valley. Old residents hereabouts insist that it is a native grass. Mr. Benjamin Boorman of Richmond, who has farmed in this section for 50 years, says that he first noticed it some 40 years ago, when it took the place of the wild oats, which the sparrows about cleaned out by eating the ripened oats. However that may be, it is a bona fide citizen now, and springs up wherever there is a bit of moisture. It is greatly relished by stock, either green or when cured. Some years since a dairyman here was so impressed with its worth as a dairy grass that he gathered the wild seed and planted his field with it instead of barley. It grew waist high, and with late spring rains two crops of hay could be cut, while with a little moisture it would spring up and make good grazing. The only objection he found to it as a hay was that it ran 50 pounds less in weight to the bale than barley hay.

Hereabouts the growth of this grass is encouraged in the yards and gardens, as it kills out foxtail and most of the pestiferous weeds which do greatly abound. But it cannot hold its own very long with alfalfa. A neighbor reports that the first year it came up thickly in her alfalfa patch; this season there is scarcely a blade of it to be seen in the patch.

It is just suited for a cheap lawn, as it will flourish under conditions which the bluegrass wouldn't even consider; at the same time the clippings are worth much more for poultry than those of bluegrass, for which fowls have no great liking. In fact, as a poultry grass it is worth the especial attention of poultry keepers. On a given space it will supply more green feed with less water than alfalfa, and the fowls like it much better. A year ago last June the writer began watering a dry patch of this grass near the well. Almost like magic it was fresh and green, and all through the dry season it furnished a surprising amount of tender clippings for the fowls. Even when this grass is partly dry, if it is cut in short lengths with the seed on, the fowls will readily eat it. As scratching material it is fine. A bundle of the dry grass will keep the hens busy as long as one tiny seed remains.

Poultry Notes.

INCUBATION TESTS.—From Bulletin 87 of the Pennsylvania State Agricultural College we take the following results of experiments with six runs of incubator eggs. The eggs were furnished by eight different breeds of fowl: Barred Rocks, White Wyandottes, R. I. Reds, Light Brahmas, Buff Cochins, White Leghorns, Black Minorcas, Black Polish. The highest average of chicks hatched came from White Leghorn eggs, with White Wyandottes second, and the lowest average of hatchability from Black Minorcas, with Buff Cochins next lowest.

It was found from this test that eggs set about the middle of April (which corresponds with the middle of March in Califorina) produced the highest percentage of chicks, and eggs set the last of May the lowest. The Buff Cochins seem to be an exception to the general rule, the eggs increasing in hatching power as the season advances. This, however, may have been due to something other than the advance of the season.

The weight of eggs seems to vary from day to day, and among the individual hens in a somewhat similar manner to the variation in the butter-fat content of milk among cows. Some breeds normally lay larger eggs than others, just as some breeds of cows normally produce richer milk than others. Among the breeds tested, the Black Minorca laid the largest eggs, and the Buff Cochin the smallest. The White Leghorn and White Wyandotte laid the average size egg. The eggs of the Barred Rocks and Light Brahma were above the average, those of the R. I. Reds and Black Polish below the average.



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The weight of chicks does not seem to be in direct proportion to weight of eggs. The Brahma chicks were larger than the Minorca, whereas the reverse was true with the eggs. The Wyandotte chicks were likewise larger than the Leghorns, while the Leghorn eggs were slightly larger than the Wyandotte. It seems that of two eggs practically of the same size, that coming from the larger breed will produce the larger chick.

HOW CHINESE LIKE EGGS.

Dr. Malegnon, who has dwelt long in China, gives some curious details of the food of the Chinese. This is what he says of the "Sons of Heaven" and the way they eat eggs:

"The Chinese are great eaters of eggs, which they take hard boiled. One finds them in all the roadside places for refreshment. The Celestials have an expression, 'Eggs of a hundred years.' The eggs are not always a century old, but you are able to get them of many years standing.

"The Celestials have a preference for the egg of the duck or goose. They are placed with aromatic herbs in slaked lime for a period more or less long, the minimum time of treatment being five or six weeks. Under the influence of time the yolk liquefies and takes a dark green color. The white coagulates and becomes green.

"The product of the eggs, which has a strong odor, from which a stranger betakes himself quickly, the Chinese eat as hors d'œuvre, and it is said to have the taste of lobster."—Revue d' Hygiene.

THE SPEED OF A SWALLOW.

A pigeon fancier in Antwerp, Belgium, recently made a unique experiment, by means of which he tested the celerity of flight and the power of orientation possessed by a swallow. Several pairs of these birds had nests under the eaves of his house, and without great difficulty he caught one of the swallows and marked it with a splash of red paint for identification. Then he shipped the bird by rail, together with a consignment of homing pigeons that were being trained, to the town of Compiegne, in northern France, a distance of 147 miles.

The morning after their arrival, the pigeons and swallow were liberated simultaneously at 7:15 o'clock. The homers, following their natural instinct, circled round and round many times before getting their bearings, but the swallow darted away toward the north immediately after its cage was opened. Sixty-seven minutes later the watcher in Antwerp saw the swallow enter its nest, while the first pigeons did not arrive for four hours and seven minutes. The former flew at a rate of nearly 132 miles an hour, but the speed of the pigeons averaged only slightly more than 35½ miles an hour. This latter time is considerably slower than that of which a homer is capable under ordinary conditions, but, granting this fact, the superiority of the swallow is only too evident.—Harper's Weekly.

POULTRY.

ORPINGTONS—Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

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The Home Circle.

Summer.

On the hill the bovine lingers,
Idly chewing on her cud.
In the bog the frog's small fingers
Make soft splashes in the mud.

In the wood the buglet tarries
'Neath each cool, inviting tree,
And where'er the sunlight carries,
Hums the yellow bumble bee.

Now the hoppergrass is gayly
Skipping where the grass is shorn,
And the caterpillar daily
Curls itself in heaps forlorn.

Down the road the toad is busy
Hopping gently o'er the stones,
And the windmill, tall and dizzy,
Makes its usual mournful moans.

In the modern farmhouse kitchen
All the canned goods sit in rows,
And the farmer's palms are itchin'
For the ducats in our clothes.

—*L. S. Waterhouse in N. Y. Sun.*

Three People and a Goat.

(Concluded From Last Week.)

A stout, befurred German had been seated in the car. He had said something during the ascent of the bank which had luckily been toned down by the noise of the machinery. He had turned very white, and was quite obviously annoyed. He left the car hastily and addressed me, while his hireling examined the injuries sustained by his charge.

"Dis goat," the Teuton observed, heatedly, "is a bublic beril! My valuable life and my so eggspensive car have been endangered!"

"It was undoubtedly wrong of the goat," I said, civilly. I could feel for the man, although I could not like him.

"Ten thousand Teufels!" he said, violently. "Are you aware——"

I shall never know the purport of his question. At that moment Billy raised his head from his meal and without warning set off down the road at a brisk trot. Why he did this I do not profess to know, but it was undoubtedly a tactful action on his part. It terminated adroitly what must have been a painful and might have been a violent interview. We left the German stamping upon the road, and fled hastily after our charges. As we turned the corner a hoarse Teutonic scream, expressive of baffled rage, pursued us.

"Oh, this is really rather shattering!" Judith gasped as we ran. "I begin to realize now what these poor nurses have suffered."

"The career of a nurse is certainly fraught with more dangers and complications than I had fancied," I panted pensively. "But let us hope that both Billy and Augustus Frederick are exceptional cases," I added more hopefully. I was not sure which of the two to blame for the recent catastrophe. Either the urchin had twitched the rein from pure, light-hearted mischief, or else Billy, out of mere deviltry, had decided suddenly to give a variety entertainment. Both theories were plausible, for undoubtedly both reprobates possess in common a certain impish recklessness.

We overtook them in a few hundred yards. Augustus Frederick was emitting a kind of fat chuckle that is peculiar to himself and rather adorable, but his mood was swiftly turned to rage. I and Judith each took a rein, with the idea of curtailing Billy's eccentricities, and Augustus Frederick, who rather fancies his driving, strongly resented the insult.

"Leave go!" he said, fiercely. "Auntie Judy, make him leave go! I shall scream!

"Auntie Judy" looked at me hopelessly. I was amazed by her weakness, for I had always given her credit for absolute decision. But it appeared that those six interviews had given me a wrong impression of her character.

"We must let him drive," she said. "I'm always afraid he'll make himself ill if he screams. Oh, Gussie darling, please don't start!"

"You know best," I murmured. "But still——"

"I've heard him scream!" Judith informed me pregnantly. "Oh, this is a dreadful morning! I will win that bet, but I hate to victimize you like this."

"I shall bear up," I said stoutly. You are not to think that I regarded the morning as entirely dreadful.

"I'm wondering what will happen next," Judith remarked apprehensively, and really, having regard to the characters of Billy and Augustus Frederick, I did not feel equal to the task of prophecy.

What did happen next, when we had nearly reached the mile limit, and our meeting with one of the very largest dogs I have ever seen. About its breed I hazard no opinion; it was the size of a small donkey and mouse colored. It took an enormous and sudden fancy to Billy the goat, but unhappily its affection was not returned. Billy, essentially a fearless and pugnacious soul, lowered his head and made several whole-hearted attempts to butt the stranger. Of course the carriage and Augustus Frederick were included in each of these attempts, and the marvel to me was that the child contrived to keep his seat in the bounding vehicle. Our progress for the next hundred yards must have been a distinctly striking spectacle. It was necessary for us to run to keep up with Billy's pace, and the dog gamboled beside us merrily, avoiding the goat's rushes with clumsy dexterity.

"This can't go on!" Judith gasped. And indeed the fact was obvious. I feared that at any moment the canine playfulness might turn to rage. But it was difficult to see what to do. I should have liked to check that dog sternly, but somehow he was not the sort of dog that it is easy to check sternly. He was unmuzzled, and his teeth might have made a lion tamer nervous. Not that I will admit that I was exactly nervous, but somehow I was conscious of a certain diffidence. And then in the moment of desperation three things happened:

A whistle shrilled in the distance, the dog sprang clean over the goat and vanished toward the sound, and Billy, not unnaturally startled, turned and dashed at a mad gallop through some open lodge gates upon our left.

It was then that for the first time Judith's strength and courage almost failed her. Our charges had disappeared so suddenly that for a moment we could only stare at each other in hopeless amazement. Judith wrung her hands.

"Oh, what can we do, what can we do?" she wailed distractedly. "That horrid Mrs. Clareburton lives up there, and we've cut each other for months, and now I shall have to go in! No one knows, no one can guess, what that dreadful goat and Augustus Frederick may be doing at this very moment."

I was very sorry indeed for Judith. I had heard of her feud with Mrs. Clareburton. It was an exceedingly painful and difficult situation, but I had to try to rise to it.

"Please don't cry, Judith!" I said, with quite unconscious familiarity. "Whatever you do, don't cry. There's no need for you to go in at all. I'll run up the drive and rescue Augustus Frederick from all possible complications."

But then Judith insisted on rising to the situation, too.

"No, I must come," she said. "He's in my charge. Oh, but it is very horrible."

I never argue with Judith. It is a thankless task. Next moment we were through the gates and running side by side up the drive. But as we went Judith turned her face to me, and I just caught her words:

"You'll stand by me, whatever happens, Dickie?" she whispered, and I merely nodded. But the question sent a very warm, delightful feeling all through me. Almost directly we heard a succession of shrill screams, and as we rounded a bend in the drive a really shocking sight presented itself to our straining eyes.

A tall, substantial lady, beautifully if rather garishly clad, was running desperately across the lawn. Behind her, just two feet behind her, sped Billy the goat, intent on mischief. He was still attached to the carriage, and the war cry of the delighted Augustus Frederick was mingled with the flying lady's screams. Even as we rushed forward we saw her reach a tall stone fern vase and scramble with surprising agility to a seat upon it. A second later the disappointed but undefeated Billy was skirmishing wildly round and round this coign of shelter.

I think if you will excuse me, I will not dwell at any length upon the scene that followed. It is somewhat painful to me to recall it. In any case, it was mercifully short. Mrs. Clareburton was justifiably angered, and after we had got Billy more or less under control and had helped her to scramble down from the vase, she made no attempt to belittle her grievance. She said several severe things directly to my address, and several more at Judith's. I remember that my apologies sounded clumsy and labored even to myself.

Judith had borne up bravely through this trying scene, but when we found ourselves on the road again, with the slightly blown but entirely unashamed Billy walking sedately beside us toward his home, she quite broke down. She produced a very small handkerchief and began to cry in a quiet, resolute sort of fashion. One constantly feels a fool, but at such moments the feeling is stronger than ever. I strove with sad futility to comfort her.

"It's no good telling me not to mind," she sobbed. "I can't forget about that horrid, horrid woman. To think that I should have given her such a chance of being nasty."

I should have done better by being silent, but few of us are always wise. I tried again, very clumsily I dare say, to soothe her wounds. I was to learn that a woman in distress is apt to rend the nearest victim at hand, however innocent he may be.

"Oh! be quiet!" Judith said, and she stamped her foot. "Can't you see that I want to be quiet? But I suppose you think that this awful, humiliating morning gives you the right to patronize me and say what you like!"

I shrugged my shoulders and put my hands in my pockets. I won't deny that I was rather hurt. We walked in a heavy silence for some two hundred yards, and then Judith spoke in a very small voice. "Dickie," she said, "I am a beast. You must try to forgive me for saying that."

I hope that my grin was as eloquent as I meant it to be.

"And, Dickie," she went on, "I don't want to puff you up or make you conceited, but—but you've been rather a dear this morning."

I should certainly have said something graceful and courtly in my joyful amazement, but at that moment, for the third time that morning, Billy bolted. It was necessary to pursue him instantly, and afterward—well, I forget what I said and did afterward.

And so that, as I said before, was the seventh time. But, now that I come to think of it, I find that I did not propose at all upon that occasion. I rather fancy that Billy the goat did it for me.—Black and White.

The Household.

Care of the Hands.—The housekeeper who can pass the rough work on may easily keep her hands in good condition; not so the working housekeeper, especially she of the farm, who must wash and scrub, and mayhap do the milking and many other outdoor chores, in addition to the lighter housework. The roughness and discoloration of the hands consequent upon such work are exceedingly uncomfortable for the owner as well as unsightly. But to the busy woman there seems no help for them; anyway she is quite sure that she has no time to fuss with her hands.

This is in a measure true; still there are ways in which she might protect her hands, and with little waste of time, if she once got in the habit of using a little care. The first means to this end is to keep handy for use two pairs of lightweight leather gloves. The kind suitable for this purpose are of thin buckskin, and may be bought for 35 cents per pair or three pairs for a dollar. One pair may first be used for the sweeping and other rough work, and when it becomes soiled it may be taken for stove cleaning and outdoor work.

The most trying work upon the hands is the cleaning up after the washing is out. The skin is softened and the pores enlarged by the hot suds necessary in washing clothes, and in scrubbing or wiping up the floors while the hands are in this condition, the grime hardens and discolors the hands beyond redemption. A pair of rubber gloves should be kept for this work; but if the saving housewife considers these too expensive, even cheap cotton gloves will be a protection to the hands at such times. They will keep the grime and much of the wear from the hands, even if they do not keep out the wet.

After washing, cleaning, and all such rough work, the hands should be at once thoroughly washed, then rubbed with a piece of lemon or a tomato, rinsed and dried; after which a spoonful of olive oil should be well massaged into them, and then a dusting of talcum powder or of starch. If a pair of old kid or clean cotton gloves is worn for a half hour afterward it will be an advantage. Rubbing the fingers with spirits of camphor and olive oil will relieve and prevent swelling and enlargement of the finger joints.

The cleaning and paring of vegetables and fruits are hard upon the hands. It is a good device to wrap the two front fingers, which are the ones that bear the brunt of this work, with a narrow strip of soft cotton cloth. The stain from such work may be removed with lemon juice or tomato.

An electric fan for poultry picking is the latest.

The Hamlin School

SAN FRANCISCO, CAL.

A Boarding and Day School for Girls, with a full corps of teachers for all departments in the English branches, Latin, Greek, and the Modern Languages, also accredited by the University of California, Leland Stanford Junior University, and by Eastern Colleges.

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Lectures are given by professors from the University of California, and a course of study for High School graduates and for young women who have left school is also offered.

School Reopens Monday, August 9.

For further particulars address

MISS SARAH D. HAMLIN,

2230 Pacific Avenue,
San Francisco, California.

THE MARKETS.

San Francisco, Aug. 4, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The movement of old wheat has become too small to establish any definite values, and quotations are no longer given. Some of the millers are carrying moderate supplies, which are expected to last until the new crop is available for milling purposes. New grain is arriving in rather larger quantities at the leading market centers of the coast, and there is a little more trading than before, but the larger buyers are still holding off. New northern grain is considerably lower than the old crop, and some California grades are a little easier.

California White Australian	$2.07½@2.10
California Club	1.97½@2.00
Northern Club	1.82½
Northern Bluestem	1.92½
Russian Red	1.80
Turkey Red	1.97½

BARLEY.

The arrivals have continued quite liberal for the last week, and the local market is now well supplied. Feed prices, however, are pretty well maintained, with frequent large sales at the top figure. Shippers have not been buying for the last few days, but holders of shipping grades are asking about the former range of prices.

Brewing	$1.45 @1.47½
Shipping	Nominal
Chevalier	1.50 @1.60
Good to Choice Feed, per ctl.	1.42½@1.45
Common Feed	1.40 @1.41½

OATS.

A liberal movement is going on in the interior, where firm prices prevail, but the local market is still very quiet, and on heavy arrivals prices on both feed and seed grades of reds are lower. A lot of Texas reds is offered here at $2.07 to 2.15. Blacks are held at former figures, and white oats to arrive are a little easier.

White, per ctl.	Nominal
New Red, choice	$1.80 @1.90
Common	1.75 @1.80
Red, seed	1.95 @2.15

CORN.

While the arrivals are still limited, offerings are somewhat larger than they have been recently, and with very little demand the market is rather unsettled. Prices show more or less reduction on all varieties.

California Small Yellow	$1.80
California Large Yellow	1.75 @1.85
Western State Yellow, bulk	1.69
Mixed, in bulk	1.67
White, in bulk	1.72
Egyptian	Nominal

RYE.

There is apparently no demand for this grain at present, and there have been no sales of any consequence for some time. The prices asked are irregular, and it is impossible to give definite quotations.

Rye	Nominal

BEANS.

The market has shown very little change in values during the past week and the demand remains rather small. Small whites, however, are higher again, as the bulk of the offerings have been cleaned up. Large whites are affected to some extent by imported stock, some of which is moving in this market. Dealers who have made a careful estimate of the amount of beans on hand report that stocks are extremely light and believe that, with a normal demand for the next two months, the market will be practically cleaned up by the time the new crop is available. Pinks have been a little weak recently, but dealers look for higher prices on the remaining stocks.

Bayos, per ctl.	$4.50 @5.00
Blackeyes	3.25 @3.50
Cranberry Beans	Nominal
Garvanzos	2.50 @3.00
Horse Beans	1.90 @2.20
Small Whites	6.75 @7.00
Large Whites	4.50 @5.00
Limas	4.20 @4.25
Pea	Nominal
Pink	2.85 @3.05
Red	Nominal
Red Kidneys	3.50 @3.60

SEEDS.

Seeds have remained unchanged for some time, and the present quotations are practically nominal, as there is no movement of any consequence.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	4@4¼c
Canary	4¼c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

There has been more movement for export, both here and at northern ports, during the last week or two than for some time past, though few large shipments are made. Local buying is still very slow, as neither dealers nor consumers are willing to take on a surplus at this time. Prices are firmly held.

Cal. Family Extras	$6.60 @7.00
Bakers' Extras	6.60 @7.00
Superfine	5.50 @5.70
Oregon and Washington	5.50 @6.50

HAY.

Arrivals of hay in this market continue considerably above the average, though somewhat smaller this week than last. Notwithstanding the heavy arrivals last month, prices have been pretty well maintained, and this week's quotations show a little stronger tone on good wheat and oat hay. Wheat hay is not very plentiful and meets with a comparatively strong demand. The lower grades, barley, alfalfa, wild oat and stock hay, form a very large proportion of the arrivals, and with a slow market are offered at lower prices. Dealers here are still looking for lower values, and say that the current quotations have been maintained with difficulty. It is stated that export trade, which has figured to some extent in the San Francisco business in the past, will hardly be possible at present values, and the stock is believed to be larger than domestic markets will require.

Choice Wheat, per ton	$17.50@18.00
Other Grades Wheat	12.00@16.50
Wheat and Oat	13.00@15.00
Tame Oat	13.50@16.00
Barley	10.00@12.00
Wild Oat	10.00@12.50
Alfalfa	10.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 75c

MILLSTUFFS.

Moderate shipments of bran are now coming in from the Orient pretty regularly, but have little effect on the market, as there is a fairly brisk demand, which the local mills are unable to fill under present conditions. Prices are steadily held on all feedstuffs and the market presents no unusual feature.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00@27.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	36.50@37.50
Mixed Feeds	25.00@30.00
Oil Cake, per ton	38.50@40.00
Rolled Barley	31.00@32.00
Shorts	31.50@33.00

VEGETABLES.

Onions continue very plentiful and prices are lower, with a very moderate demand. The movement of miscellaneous summer vegetables is large, as usual at this season, but with excessive arrivals it is impossible to clean up the market, even at low prices. Green corn is even more plentiful than last week and prices are lower, with only choice lots receiving any attention. Peas and string beans are still lower, with considerable overstock. Tomatoes are in good demand and a little firmer, while green peppers are a little lower. While okra and egg plant are very plentiful, prices are still maintained, but cucumbers and summer squash are still cheap. Pickle cucumbers are in fair demand.

Onions—New Yellow, per ctl.	65@ 75c
Garlic, per lb.	4@ 5c
Green Peas, per sack	75c@$1.00
String Beans, per lb.	1½@3½c
Lima Beans, per lb.	5@ 6c
Tomatoes, per box	50@ 75c
Green Peppers, per box	50@ 75c
Green Corn, per sack	50c@ 1.00
Summer Squash, large box	35@ 50c
Turnips, per sack	1.00@ 1.25
Cucumbers, large box	50@ 75c
Pickle Cucumbers, per box	75c@ 1.25
Egg Plant, per box	75c@ 1.00
Okra, per box	75c@ 1.00

POULTRY.

The trade is still pretty well supplied with holdover stock from last week, and the demand is accordingly very light. Arrivals of Western stock have again been very light this week, and the stock of local poultry is not larger than it has been of late. Choice stock is in fair demand, but general offerings are not very attractive, and some descriptions are a little lower.

Broilers	$ 3.25@ 3.50
Small Broilers	2.50@ 3.00
Fryers	4.00@ 6.00
Hens, extra	8.00@10.00
Hens, per doz.	6.00@ 7.00
Small Hens	4.50@ 5.50
Old Roosters	4.00@ 4.50
Young Roosters	7.00@ 8.00
Young Roosters, full grown	8.00@ 9.00
Pigeons	1.50
Squabs	2.00@ 2.50
Ducks	6.00@ 8.00
Geese, per pair	1.50@ 2.00

BUTTER.

There is still something of an upward tendency in butter, extras being ½ cent higher, while seconds also show some advance. The arrivals have been running light and the extra grade is much less plentiful than a few weeks ago. A further advance is accordingly expected this week. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	28 c
Firsts	27 c
Seconds	26½c
Fresh Packing Stock, No. 1	24½c

EGGS.

While extras are a little lower than last week, the market is inclined to firmness, as arrivals of California stock are decreasing and the market is kept pretty well cleaned up. Eastern stock is arriving in rather large quantities, however, and the lower grades accordingly show less strength. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per doz	31½c
Firsts	29 c
Seconds	25½c
Thirds	23 c

CHEESE.

There has been considerable low grade stock on the market for the last few days, and the market on the fancy grades is accordingly a little easier, flats showing a slight decline. Y. A.'s, however are higher, with a good demand, and Oregon flats are also a little higher.

Fancy California Flats, per lb.	16 c
Firsts	15½c
New Young Americas, fancy	16 c
Oregon Flats	16½c
Oregon Young Americas	16 c

POTATOES.

There has been some demand for potatoes for shipment for the last week, which has maintained prices at about the former quotations. The supply here is quite large, however, and the market is inclined to weakness, as the local demand is small and limited to the best offerings.

New Potatoes—Boxes	85c@$1.25
Sacks	65c@ 1.00

FRESH FRUITS.

The situation in general remains about as before, but arrivals of apricots are beginning to fall off, bringing higher prices. The canners are large purchasers of bulk fruit, which shows considerable advance. Bartlett pears are also in strong demand for canning, with rather stronger prices, though fancy stock is lower. Berries are not in much demand, and some descriptions are lower, though decreased arrivals in some lines have caused an advance. Nutmeg melons are considerably lower, but cantaloupes find ready sale at an advance. Watermelons show a wider range, and while the supply is large they find a good sale. Fancy apples are a little higher, other grades remaining steady. Peaches are doing a little better, but plums and prunes are weak, while nectarines find little demaand. Muscat grapes are coming in, and there is an oversupply of most varieties, causing a decline.

Melons, Cantaloupes, crate	$ 1.75@ 2.00
Nutmeg, per box	50@ 75c
Watermelons, per doz.	1.25@ 2.50
Raspberries, per chest	7.00@ 9.00
Loganberries, per chest	6.00
Blackberries, per chest	2.00@ 3.50
Strawberries—	
Strawberries, large varieties	2.50@ 4.00
Huckelberries, per lb	12½c
Grapes, Seedless, per crate	65@ 75c
Muscat	1.00
Other varieties	65@ 75c
Apples—	
Fancy Gravensteins, per box	1.25@ 1.50
Fancy Red	1.00@ 1.25
Common	60@ 85c
Figs, per box	75c@ 1.25
Apricots, per lb	2@ 2½c
Small box	50@ 75c
Peaches, per box	40@ 75c
Lug boxes	50c@ 1.00
Plums, per box	40@ 75c
Prunes, per box	65@ 85c
Nectarines, per box	60c@ 1.00
Pears—	
Pears, Bartletts, No. 1, box	1.00@ 1.25

CITRUS FRUITS.

Several changes in prices are noted. Valencia oranges and choice and standard lemons being lower. Oranges are in fair demand for this time of year, and lemons are moving freely, but the market in general is quiet.

Choice Lemons	$ 2.50@ 3.50
Fancy Lemons	4.50@ 5.00
Standard	1.50@ 2.00
Limes	5.50@ 6.00
Oranges, Valencias	2.25@ 3.00
Grape Fruit	2.50@ 3.00

DRIED FRUITS.

Quotations continue at about the same range as before. General conditions, however, appear a little more favorable. Spot business is still quiet, as most fruits are becoming pretty well cleaned up, and interest is turning more toward the new crop, which is meeting with more inquiry from both Eastern and foreign buyers. The present supply of prunes is moving off fairly well, and there is greater firmness in regard to new crop, which is held for better prices by local shippers, and meets with a more general demand. There has also been more inquiry for new apricots. The old figs are becoming scarce, and the new crop is expected to find ready sale. Peaches are still rather quiet, but are strongly held. While Eastern reports state that raisins are neglected, the movement seems to be increasing to some extent, with a growing interest in the new crop.

Evaporated Apples, per lb	7 c
Figs, black	2 c
Figs, white	3½c
Apricots, new crop	7½@ 8 c
Peaches, new crop	3¾@ 4¼c
Prunes, 4-size basis	2 @ 2¼c
Pears	4 @ 5 c

RAISINS.

(New Crop.)

Loose Muscatels, in sweatbox	2¼@ 2¾c
Thompson Seedless	2¼c
Seedless Sultanas	2 c
London Layers, 3 crown	90c@$1.00

NUTS.

There is still some uncertainty in regard to prices on new crop almonds, as the figures made in transactions so far have not been definitely given out. A sale in the interior is reported at about 15 cents, but the report is not confirmed. With spot stock cleaned up, however, the prospects are for a high range of values. There is little new in walnuts, spot supplies being quiet and firmly held.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

Local trade is still limited, as the growers are holding for high prices, with reports of sales for the East and for export. This market has weakened materially, the finest water white being offered here at 6¾ to 7 cents. Amber and light amber are neglected, and old dark honey is being cleaned up at 3½ to 4 cents. A little water white comb honey is offered here at former prices, but the general range is lower. The quotations are San Francisco market prices.

Comb	10 @13 c
Extracted, water white	6 @ 7½c
Old extracted	3½@ 4 c

HOPS.

Continued reports of short crops in Europe are causing great firmness in this market, a new high level being established for future contracts, while some old stock has been sold at comparatively high prices. The market, however, is rather quiet, as most of the California crop is now in strong hands. The Oregon crop has been benefited by recent rains, but this is unlikely to have any material effect on the market.

Hops, Old, per lb	8 @12 c
New Crop	15 @20 c

WOOL.

Spring wool is now entirely nominal, as none has been sold for some time, and it is believed that the clip is entirely cleaned up. No prices have been established on the fall clip, but figures may be looked for at any time.

Spring clip	Nominal

MEAT.

Quotations show very little change, though there is a little more firmness on beef and veal, with higher prices for some descriptions. Small veal is out of the market. Lambs are also a little stronger, but mutton is unchanged. Hogs are easier, with increasing arrivals, but there is no quotable decline in prices.

Beef: Steers, per lb	6½@ 7 c
Cows	5 @ 6½c
Heifers	5 @ 6½c
Veal: Large	7 @ 9 c
Mutton: Wethers	7 @ 8½c
Ewes	6½@ 7½c
Lambs	9½@10 c
Hogs, dressed	9½@12 c

LIVESTOCK.

Steers: No. 1	3¾ @ 4⅛c
No. 2	3½@ 3¾c
Cows and Heifers: No. 1	3 @ 3¼c
No. 2	2¾c
Bulls and Stags	1¾c
Calves: Light	5 @ 5¼c
Medium	4½@ 4¾c
Heavy	4 @ 4¼c
Sheep: Wethers	3¾@ 4 c
Ewes	3¼@ 3½c
Lambs	5 @ 5¼c
Hogs: Grain fed, 100 to 150 lbs.	7¼@ 7½c
150 to 250 lbs.	7½@ 7¾c
250 to 325 lbs.	7¼c
Common Hogs, lb	4 @ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Aug. 3.—Yesterday 185 cars of California fruit were sold in the East, 154 by the Fruit Distributors. The sales were made as follows:

Chicago, 19 cars; St. Paul, 4; Minneapolis, 6; Montreal, 11; Philadelphia, 9; St. Louis, 4; Cleveland, 4; Pittsburg, 9; Cincinnati, 2; New York, 46; Boston, 14; Baltimore, 7; Buffalo, 2; 17 cars were sold in Western markets.

Prices ranged as follows in the principal markets of the East:

New York—Bartletts averaged $2.10; Elbertas, $1.25; Crawfords, $1; seedless, $2.25; Eggs, $1.35; Wicksons, $1.15; Tragedies, $1.25; Purple Duanes, $1.10; market lower on pears.

Philadelphia—Bartletts averaged $2.25; Crawfords, $1.10; Sugars, $1.20; Duanes, $1.10; market strong.

Boston—Bartletts averaged $2.25; Crawfords, 85 cents; Fosters, 85 cents, Tuscans, 75 cents; Sugars, $1.55; Tragedies, $1.57; Germans, $1.47; market strong.

Chicago—Bartletts, $1.75; Elbertas, 85 cents; Tragedies, $1.40; Sugars, $1.10; Crawfords, 70 cents; Germanas, $1.45; Eggs, $1.15; market fairly strong.

Shipments have been going forward in large quantity during the past week. The markets have held firm and cars have grossed from $700 to $1225. A car of mixed fruit sent from Sultana on July 21 sold in New York, August 2, for $1434 gross. In this car were some Thompson Seedless grapes that sold for $2.37.

Total shipments to Aug. 2, 4329 cars. Total shipments same date 1908, 3527 cars.

WEEKLY LETTER.

Sacramento, Cal., Aug. 3.—The following gives number of cars of deciduous fruit shipped to all points by all members of the California Fruit Distributors for the week (seven days) ending Monday night, Aug. 2, 1909.

Plums and Prunes (120 cars)—Plums will continue in fairly good supply for the next ten days or two weeks. Shipments, however, will probably grow lighter from day to day until the close of the season. Shipments now consist almost entirely of Diamond, Grand Duke, Giant and Gros prunes.

Peaches (424 cars)—Peaches are now going forward in liberal quantities and will continue to do so until the 15th of August, after which time we expect shipments to drop to very small proportions. Fruit now going forward is of better quality than any that had been shipped so far this year. Early peaches have been a disappointment to us, as the quality was not nearly as good as we had expected. Later fruit will be found much more satisfactory, and we feel sure will be acceptable to the trade.

Pears (460 cars)—Sacramento river has practically finished its shipments, but a good many cars will go forward daily from other sections during the coming week. Pears will be practically done within the next two weeks. Quality of fruit continues fine and is giving almost universal satisfaction.

Grapes (46 cars)—Grapes are being shipped in quite liberal quantities, consisting principally of Thompson Seedless, although some Malagas are now going forword. Rose De Peru and Tokays are increasing in receipt from the earlier districts, and after next week there should be reasonable quantities of both varieties available for shipment.

Car Famine—We have had plenty of cars available for shipment the latter part of the week, and in consequence shipments have been very heavy. It is necessary to use each day the cars arriving the day before, as there is absolutely no surplus. As long as receipts counterbalance shipments we expect no further

trouble, but at any time that this is not true, our troubles begin afresh. It is hoped, however, we well get through the remainder of the season without any serious trouble of this kind.

Special Citrus Market Report.

Los Angeles, Cal., Aug. 3.—There does not seem to be much of encouragement in the present citrus situation. Valencias are lower than they have been for many years, and certain kinds of lemons are selling in the Eastern auctions at less than cost of placing them there. There is a wide difference between the prices realized for the very best brands and the ordinary stock, both on oranges and lemons. At Monday's sale lemons sold as low as 60 cents a box delivered and as high as $4.50, and Valencia oranges from $1.40 to $4.15. Other varieties of oranges are apparently not wanted at all, most of the sweets and seedlings not paying expenses, and grapefruit is also selling very low. There are few seeds and sweets left on the trees in California upon which the owners cannot get a bid at all. The seedlings that were involved in the E. H. Verrill failure at Riverside are still upon the trees and will probably be a total loss. They were appraised at 35 cents a box recently, and it was hoped that $6000 would be raised for the creditors from the sale, but the best offer made was a guarantee against loss, which was refused at the time and will probably not be renewed.

The best oranges from the best districts are held at $1.90 cash California for fancy, and down to $1.40 for choice. In other districts the best is held from $1.50 to $1.75, and the shippers state that they are receiving but few orders at any price. There are about 60 cars of oranges a day going out, and they must be going without orders to be sold delivered.

Up to this past week 40 cars a day of lemons have been going forward, and this stocked the country up pretty well, so that the hot wave of the past week did not bring out the high prices of the fore part of the month. If the demand is enough to clean up some of these accumulations it may mean better markets in the future. The shipments for the past week have been but 25 cars a day from California, and even at this rate the stock on hand could not last for two months. At a recent meeting of the Lemon Men's Club it was brought out that there are about 1000 cars of lemons left in the State.

The citrus fruit shipments to this date have been 29,022 cars of oranges and 5338 cars of lemons, as against 23,168 oranges and 3992 lemons to same time last year.

IRRIGATION EXPERTS TO MEET AUGUST 9.

The most important irrigation congress ever called together in the United States will convene at Spokane, Wash., August 9 to 12. Many of the brightest minds of the country will assemble at this congress and mighty matters relating to irrigation and kindred subjects will be presented and discussed.

F. H. Newell, director of the government reclamation service, will be present. Important papers will be presented by James J. Hill, president of the Great Northern railway; George C. Pardee, former governor of California; Enoch A. Bryan, president of Washington State College; R. E. Campbell, of the forestry branch of the Canadian Department of the Interior; E. T. Allen, United States District Forester; Bailey Willis, United States Geological Survey; Dr. W. J. McGee, secretary of the Inland Waterways Commission; Clarence Johnston, state engineer of Wyowing, and many others famous in the irrigation world. One of the most interesting features of the congress will be an address on "Soil Utilization" by James Wilson, Secretary of Agriculture in President Taft's Cabinet.

Owing to the wide scope of the subjects contemplated and the remarkable talent assembled, this National Irrigation Congress promises to be the greatest one ever held in the United States.

THE AMERICAN WEEKLY, with its own special men on the ground and its own perfectly equipped art and editorial staff, will present to its readers a complete and authentic account of the proceedings, constituting a liberal education in the science of irrigation. As will be seen by its advertisement in this issue, the irrigation number and the three succeeding issue will be sent to any address for 10 cents.

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ANGORA MUTTON POPULAR.

We are glad to see that favorable prediction regarding the sale of the flesh of Angora goats is being verified. The Butchers' and Stock Growers' Journal has already called attention to the fact that the young of this breed of goat are not only equal, but in very many instances superior to lambs for the table. The Rural Spirit of Oregon recently published a statement that there were 68,183 Angoras slaughtered for mutton at Kansas City in 1907 and sold at very little less than the prices of mutton sheep. Kids brought as high as $2.25 and wethers $4.32 per head.

Commenting upon this the Butchers' Journal says: "Our contemporary is certainly correct in saying that this looks encouraging for the Angora breeder, but the goatman must remember that while the animal need in no way lose his usefulness as a brush and weed exterminator, to bring good prices as mutton the Angora must be properly fed and cared for, the same as any other live stock intended for the block"

On this head the Rural Spirit adds:

"As the industry grows there will be more and more to dispose of every year, besides those sold for breeding purposes, and if a good market can be established for the mutton it will add much to the stability of the business. We have always held to the opinion that this can be done if sufficient care and judgment is exercised in putting nothing but well fed, thrifty goats on the market, that will dress out a good quality of meat. If sufficient care is exercised along this line until the existing prejudice against goat meat is broken down there should be no difficulty about selling all that may be produced."

FARM BOOKS.

The following list of books are kept in stock and are for sale at the Pacific Rural Press officce:

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Shepherd's Manual, by Stewart	1.00
Clovers, by Shaw	1.00
The Hop, by Myrick	1.50
Farm Grasses of the U. S., by Spillman	1.00
Animal Breeding, by Shaw	1.50
New Rhubarb Culture, by Morse	.50
New Onion Culture, by Greiner	.50
Home Pork Making, by Fulton	.50
Profitable Dairying, by Peck	.75
The Potato, by Fraser	.75
Asparagus Growing, by Hexamer	.50
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Chemistry of the Farm, by Warrington	1.00
Cereals in America, by Hunt	1.75
American Grape Growing and Wine Making, by Hussmann	1.50
Broom Corn and Brooms	.50
Soiling Crops, by Shaw	1.50
Book of Corn, by Myrick	1.50
New Egg Farm, by Stoddard	1.00
Dairyman's Manual, by Stewart	1.50
American Cattle Doctor, by Dodd	1.00
Greenhouse Management, by Taft	1.50
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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

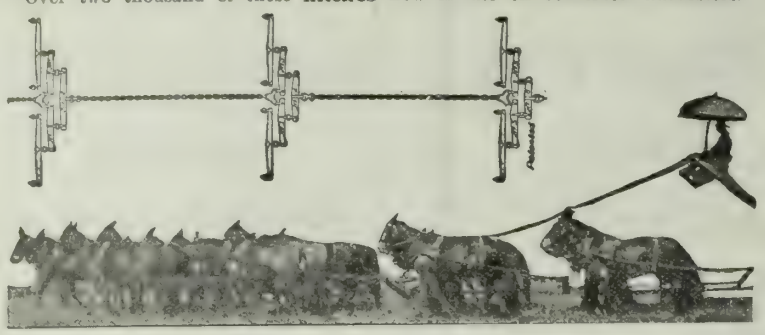
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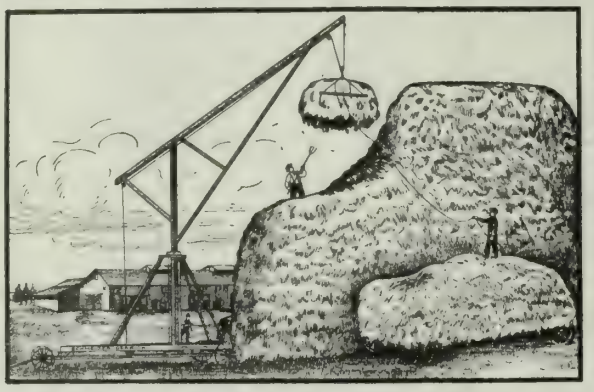


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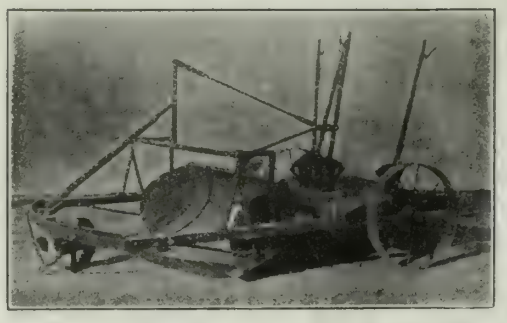
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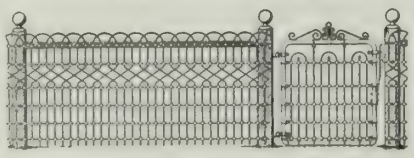
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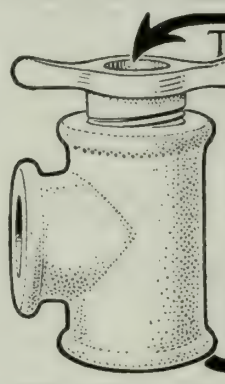
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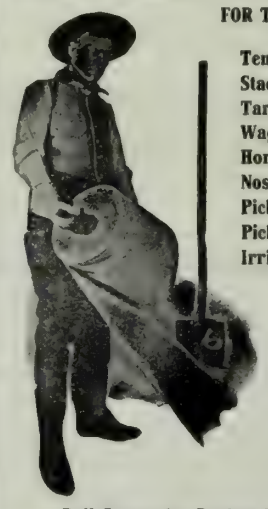
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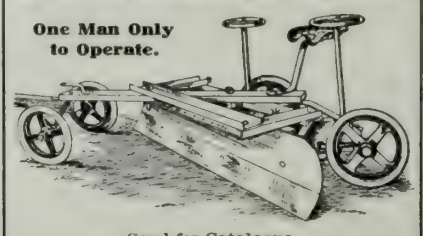
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 7. SAN FRANCISCO, SATURDAY, AUGUST 14, 1909. Thirty-ninth Year.

The "San Jose" Mayette Walnut.

Written for the PACIFIC RURAL PRESS
By Mr. LEONARD COATES of Morganhill.

The great problem in walnut culture today is to produce healthy trees bearing nuts which meet in full the requirements of the most critical market, and which are apparently immune against attack of the walnut blight. This question is being very carefully studied by such men as Prof. R. E. Smith and H. J. Ramsay, well known all over California in connection with the State University Experiment Station work, with practical reference to bacterial and fungus diseases. Attention is called to a bulletin by the former, published by the College of Agriculture, and to an article by Mr. Ramsay published in the PACIFIC RURAL PRESS of April 4 and 11, 1908. These two lectures cover the ground fully, and should be read by all who are interested in the walnut industry. The best late blooming walnut of the true Mayette type which has been introduced is the "San Jose," so named by Mr. Rudolph Wiltz of San Jose. This nut was described by the late Felix Gillet in the PACIFIC RURAL PRESS of January 26, 1907, as follows:

"I consider them as regular commercial walnuts, which should bring the best prices on the market, for they are of fair size (commerce, you know, rejects too large nuts, like the Mammoth), with a smooth, high-colored shell, needing no bleaching whatever; the inside is as fine as the outside, the meat filling the shell well, and being invested with a pellicle of very light color. You will observe that when the inside of the shell is white, so is the meat, and when dark, dark is the meat. Such nuts can be put on the market shelled or not shelled, and sell well. These nuts from Mr. Wiltz are proof of our ability on the coast to raise first grade walnuts. Nuts of the shape like those of Mr. Wiltz are the best to put on the market."



Branch of San Jose Mayette on Ten-Year-Old Tree.



San Jose Mayette Photographed in July.



One-Year-Old San Jose Mayette Bearing in the Nursery.

The "San Jose" Mayette is distinctly an improved Mayette, being proved to be suited to California conditions. It is of the Grenoble type or class, and, as such, is superior to all others as a commercial nut. Of this type the leading nut importing firm of New York said in a letter to the late Felix Gillet: "Your letter at hand regarding Franquette walnuts, and in reply would say we do not import those walnuts as such. What few come here come, we think, mixed with Mayette."

One has only to visit the leading stores in any large city of the United States or Europe to see in a minute that the nut here described, "Mayette," is the walnut of commerce, and the one commanding the highest price. The Mayette is also the nut used for shelling purposes, most extensively, as buyers naturally do not wish to pay for the extra weight in a thick heavy shell.

Mr. H. J. Ramsay was asked at a recent Fruit Growers' convention: "Are walnut trees, when grown from seed from grafted trees reliable, or to be depended on to produce good nuts?" To which answer was emphatically made: "No, they are absolutely unreliable." Mr. Ramsay also said, in the course of his remarks: "The method, which unfortunately is being used by some disseminators of grafted stock, of going into a seedling orchard and procuring scions from a great number of seedling trees, without regard to the character of the trees, reaps no benefit, but the very thing for which one is working is in this way defeated."

The importance of planting two or more varieties in an orchard must never be overlooked, the staminate catkins often falling before the pistillate blossoms are out. The Concord, another walnut of the Mayette type, might well be planted with "San Jose," and an occasional Franquette

(*Continued on Page 100.*)

Pacific Rural Press

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The Week.

The most sensational agricultural event of the week is the arraignment of Mr. Luther Burbank at the bar of horticultural judgment. We have apprehended its coming for a long time. We have not hesitated to state in these columns that the extravagant exaltation of the man and his achievements by those who really did not know either one or the other was, in our view, the most serious menace to his career, because it caused him to be misjudged and his work to be misunderstood. The logical reaction from fulsome adulation is denunciation and this is the phase which Burbankian development has now reached. It had to come: it is better now than later:

"Be it resolved, that the Pasadena Gardeners' Association hereby strongly condemns the nature-faking methods and the exploitations of alleged but false creations by Luther Burbank, and deplores the fact that a false impression has been given the public concerning plant breeding by Burbank. It is the sense of this association that this impression should be corrected."

This indictment is said to have been unanimously voted last week by about a hundred people duly assembled at a meeting of the society named in the resolution. It is, in word and spirit, fairly representative of the attitude which a considerable number of professional gardeners and commercial florists hold toward Mr. Burbank's work. His plants do not enter to any extent into their stock, which is chiefly comprised of varieties originated by specialists working in their special lines and to whom they extend loyal deference. Naturally, these stars shine bright and large in this narrow horizon and no one denies them right to the homage of their worshippers. Mr. Burbank has worked in these branches and demonstrated wonderful achievement. He blazed the way which some of these florist's specialists have followed and have won distinction in the eyes of their peculiar constituency. All would have gone well if the envy and ill will of this contingent had not been excited by the extravagant, distorted and untrue accounts of Mr. Burbank's motives, expectations and methods which have been rife in the popular press. Men who seem to them great have been ignored. Burbank, whose "stuff is no good," as they wrongly but honestly claim from their point of view, has been almost deified. They become indignant, they lose capacity for calm and cool judgment, they cry aloud.

As we have said, we have apprehended just this situation and have feared it, not from any permanent effect upon Mr. Burbank's fame, but because of the embarrassment and ill feeling and the utter waste of effort required to overcome it. Mr. Burbank feels the weight of this trouble. In an interview since the Pasadena proclamation, he is credited with saying:

"The extravagant estimates of my work have been the bane of my existence. There has been much written about me by sensational writers who know nothing either of me or my work. I am not responsible for all these things and any one with any knowledge of horticulture could discern at once that much of the stuff sent out is nothing but space-writers' chaff."

Mr. Burbank has been too tolerant of this injury to his reputation, not apprehending that it would create at length an impeachment of his character and work. He has been too kind to the throng of adulators, dreamers and vaporizers who have crowded about him, until they have entangled themselves in his footsteps and make him seem to the public to be walking unsteadily. He should long ago have relegated many of his ignorant and fawning friends to membership in the Ananias Club. Instead of listening to their dreams, with such composure as he could muster, he should have smitten them heavily with the largest, thorniest cactus he has ever brought in from the wildest wilderness. They might have then understood that his work was real and not composed of the vegetable visions and vagaries which they have so glowingly depicted. We are inclined to charge Mr. Burbank with "contributory negligence" in allowing this thing to go so far as it has.

The outbreak of the Pasadena Gardeners' Association is in every way unfortunate. As an arraignment it is indiscriminate, ill-tempered and misplaced. It carries broad denunciation which no special-purpose organization should undertake, and it is therefore narrow, misleading and unwarranted. If the association was burdened with the conviction that it ought to warn the world against being eaten up by Burbank, the proper course would have been to invite the other horticultural societies to join in a systematic inquiry into the facts, so that all lines of Burbank's work could be covered by a joint committee qualified to understand and judge. We do not know whether other fruit, flower and vegetable societies would take hold or not: if not that very fact would indicate that the undertaking is unworthy. As it is, the resolution will accomplish nothing but disputation, discord and misrepresentation. It will be strongly repudiated in California, but meanwhile it will be widely paraded by serious people in all parts of the world as a California sentiment, which it is not. It is manifestly unjust to judge a man's work by one of several lines which he may follow: unjust also to judge of one line by a single act (which some eastern people are now doing with much spitefulness), unjust also that the declaration of a single group of people should be taken to be a state sentiment. There is probably nothing which can be invoked to meet the unwisdom and injustice of the Pasadena manifesto except forgetfulness, and we would have practiced a quiet personal forgetfulness over it had we not feared that silence might be taken to indicate consent.

While, then, we are maligning our own good men, distant communities step in and take them away from us. The lack of appreciation of Californians for Californians, which is too often manifested, is not creditable to us. It is now announced that Mr. E. M. Ehrhorn, deputy commissioner of horticulture and state horticultural quarantine officer at this port, has resigned from the service of the state and has accepted an appointment as superintendent of etomology and inspection at the port of Honolulu, the position held by the late Alexander Craw, whom Ehrhorn succeeded as quarantine officer at this port. He will leave here September 18 and assume his new duties October 1. Mr. Ehrhorn has rendered distinguished service to California fruit growing and we part from him with deep regret.

But though we abuse each other and lose each other, there is some consolation in the fact that California soil advances in public esteem because of new demonstrations of its characteristic goodness. Mr. C. B. Lipman, soil bacteriologist of the University of California Experimental Station, has found that where eastern soils and soils in other parts of the world contain bacteria only a few feet below the surface, California soils contain them to a distance of five and one-half feet, and in the case of experiments made with soils in the neighborhood of Hayward, in Alameda county, the bacteria have been proved to exist at a depth of twelve feet beneath the soil. This becomes more significant when it is remembered that the necessity of bacteria, especially those producing nitrogen by their activity in the soil, has been demonstrated. No soil that is not "alive" can remain permanently fertile and productive, and it is upon these microscopic organisms that the plants depend for their supplies of nitrogen taken in at the roots. Therefore California soils are not only deep but deeply fertile and ready for root action.

This is probably a characteristic of the arid regions everywhere as compared with the humid parts of the country and might enter into the present overwhelming demand for arid lands. There has just been a drawing for released reservation lands in eastern Washington and there were 289,000 applications estimated to be in the filings. This estimate allows 75,000 for the Flathead reserve, 105,000 for the Cour d'Alene and 109,000 for the Spokane Indian lands. On the last named reserve it is thought there is not more than eighty good homesteads, so 108,920 applicants were disappointed in one of the three reservations. Counting the loss and disappointment involved in trying to get good land for a song it would seem to be wiser to dispose of such lands by sale at a fair agricultural price rather than through a gamble for the prize of a nominal rate.

Perhaps the rush for land in the reservations had something to do with the lack of harvest hands on more easterly parts of the northern tier, and they are making desperate efforts to get a supply. The report is that the secretaries of the commercial and agricultural bodies in the Dakotas and elsewhere have appealed to the police departments of large cities to send men. South Dakota alone is said to need 8000 men at from $2 to $2.50 per day and board. The railroads are willing to transport genuine laborers free of charge to the wheat fields in order to save the crops. "It is doubtful, however," says the report, "if many of the unemployed in the cities will accept the offer." That is probably true and it is also true that they could hardly render satisfactory service if they would go. We spoke recently of the difficulty of making a good farm manager out of a man who knows nothing of farming. It is much the same in making a good farm hand out of a city workman. But there are, of course, notable exceptions in both cases. Nevertheless, skill and training are as a rule necessary to success, and experience in the life is essenial to success. The croak of a frog is as lonely a sound to the transported city workman as is the whang of the street car gong to the misplaced farm hand—and that is saying the least of it.

All the millers are busy urging the farmer to sell wheat at the present high prices and not to be careless about it and hold until it goes down. If the millers did not need wheat so badly in their business their advice might seem more disinterested. We do not know whether it is going up or down. We believe the rule to sell as harvested, if the price is good, is a good rule. Still those who

desire data for expecting farther advance can find in the studies of the London Economist, which show that at the beginning of July all of the wheat "in sight" that can be drawn upon was about 68,000,000 bushels, as compared with 74,000,000 of last year and 125,000,000 of the year before, a narrow margin between supply and demand is shown. Hence up go the prices. The margin could be wiped out in nine days. The harvesting of the spring wheat has been made in this country, however, and the yield is estimated to be about 400,000,000 bushels. The Economist says that the harvests in Northern Africa, Southern Italy, Spain, parts of Roumania and Southern Russia will yield about 360,000,000, or in all, at the highest figures, 800,000,000—which is about enough to feed the world one hundred days. After that America must feed the world and the fear is that enough cannot be spared from local consumption to interfere with high bread rates. It is probably true, as always, that if one does not take the "just-after-harvest" high prices, he may have to wait some time to realize later advances, even if they should be caused by a short supply for the year.

Queries and Replies.

Elementary Facts about Trees.

To the Editor: Will you kindly answer this: Does the trunk of a pepper tree grow longer from the ground to its lowest limb? The pepper trees by side wall are allowed to head out from 3 to 5 feet from ground and the limbs hang over the walk. They tell me the trunks will grow longer and the heads will be higher. That is something I never had heard of before in the 78 years I have lived. Should the soil about young trees or shrubs be thoroughly stirred to the depth of 6 or 7 inches once a week or so, or just be scratched on the surface?—Suburban, Oakland.

The trunks of exogenous trees do not grow appreciably longer from the ground to the first branch. In fact, from the enlargement of the lateral branches the head of the tree sometimes seems to be nearer the ground that at its beginning. Those who promise you that the heads will be higher after a while are, of course, mistaken, unles they trust to removing lower branches and using forkings higher up to constitute the head. This has frequently to be done in ordinary street tree culture. Cultivation should extend to a depth of 5 or 6 inches at least, in order to effectively reduce surface evaporation. Simply scratching the surface is of little avail in that direction.

Trees Needing Moisture.

To the Editor: Enclosed please find sample leaves of apple trees that seem to have some disease. The ground has been cropped to hay and grain for many years, until some four years ago; since then it has lain idle. This last spring this sod was turned under to a depth of 8 to 10 inches, the ground harrowed and fruit trees set out in last of March and first of April. I have cultivated three times and floated immediately after cultivation. I have hauled water twice and put about three gallons each time around tree. After the water soaked away I stir the soil and put fine earth on top to prevent baking. The soil is of a rather mellow adobe, having considerable sand in it, but still will bake if handled wet. The holes were dug 1½ feet deep, a hole bored 2 to 3 feet farther, then a stick of dynamite exploded at bottom, hole then filled up with top earth to right depth and tree set out.—Planter, Santa Cruz.

There is no sign of specific disease on the leaves which you send. Their appearance indicates a lack of moisture. You seem to be treating the soil in the best possible way but do not use moisture enough to secure thrifty growth. The fact that you blasted to secure deep stirring of the soil does not, of itself, make it necessary to apply more water for the first year, because you have given it every opportunity for escape. Under the circumstances anywhere from ten gallons to a barrel of water could have been used to advantage in connection with each tree. If you can get good thrifty growth and root extension during this summer the trees con probably be carried for some time by cultivation with little or no irrigation.

Cultivation and Moisture.

To the Editor: I would like to have the views of some one that has experimented extensively in dry farming. Every time I work the ground the mulch gets deeper and at the present time there seems to be as much moisture where I stopped cultivating in June, and nearer the top, than where I stopped two weeks later. The ground is all the same. I used a harrow tooth cultivator.—Gardener, Gilroy.

The rising of moisture in cultivated land is what we desire, but the prevention of its escape by surface evaporation is also essential. This escape is promoted by the compacting of the surface, even where no rain falls, and the moisture which you find nearer the top of land which you stopped cultivating in June may really be on its way to escape into the dry air, while there may be more moisture below in the land which has been continuously cultivated since that time. General California experience is that to secure the best results the mulch must be five or six inches deep and must not be alowed to become crusted or compacted on the surface.

Growing Burr Clover.

To the Editor: I desire to know how the seed of California bur clover (Medicago denticulata) is gathered in California. Is it grown with barley or wheat and the two crops harvested together? What is its date of ripening compared with barley or wheat? Is spotted burr clover (Medicago maculata) grown in California, and, if so, which is the largest growing and largest yielding plant—the denticulata or the maculata? Which matures the earliest? Is either plant ever cut for hay and, if so, what is the feeding value. I know the analysis but I wish to know of its palatability as a hay and how well horses and cattle and sheep fare when fed it.—Enquirer, Arkansas.

Burr clover is never intentionally grown with wheat or barley, although it is apt to volunteer quite freely and add value to stubble pasturage. It begins ripening seen before grain matures. In this State it is quite freely cut for hay and is generally classed as cow hay, answering about the same purpose as red clover hay in the east. It is not, however, largely sown for this purpose, but is taken as a wild or volunteer crop. There has been nothing very complete published in California about burr clover. Americans found it here on arrival and it has generally been considered too common a thing to print much about or to do much with, although there is a greater disposition to sow the plant than formerly, owing to its excellent winter growth and value as a cover crop in our orchards. The best publication on the plant was recently made by the Texas Experimental Station, where the plant is called the California clover. The denticulata is the species which we consider of agricultural account.

Almonds in Alfalfa.

To the Editor: Under separate cover I send you specimens of almond leaves. I wish you would help me to determine the trouble. I find on them yellow mite and other insects that I am not acquainted with. They appear on my Golden State almond, but not on any of the others to be noticeable. The leaves on the Golden State trees are all more or less yellow. This orchard was put out to alfalfa about 7 years ago and has been irrigated about twice a year. The trees are, I think, about 17 years old.—Grower, Woodland.

We find on the almond leaves which you send, in addition to the mites, a few eggs of apentatomid, which is not counted a tree pest, and is not concerned in the ill appearance of your trees. The yellowing of the leaves which you speak of must be due not to insects, because they do not seem to be abundant enough on these specimens, but to the fact that the alfalfa is taking too much moisture from the trees, which could be remedied by more frequent irrigation if your soil should be deep and free enough to dispose of the water freely. If otherwise, of course, the application of water freely to the growth of the alfalfa would bring the roots of the almond into distress. It is a question, then, of what conditions actually prevail, and that you would have to determine by deep digging in the soil to ascertain moisture conditions.

Phosphorus and Prosphoresence.

To the Editor: There is a spot in my lemon orchard where the trees have never done at all well, and I discovered one night not long ago that the ground seemed nearly ablaze with phosphorus. Can you tell me what effect it would have upon the trees and of some remedy? Should the soil be analyzed to see how much phosphorus it has?—Grower, San Bernardino.

The phenomenon of phosphoresence which you observed is not necessarily conditioned upon the presence of phosphorus. Phosphoresence is simply the property of shining in the dark after exposure to the light, and it is shown by many substances, both mineral and organic. What caused the phosphoresence which you noticed it is impossible to state, and analysis would not show it, because the producing conditions may have disappeared. You do not need any remedy for it. Perhaps if you do not stay out so late you will not be bothered with it any more.

Alfalfa by Pumping.

To the Editor: Can you give me some information regarding alfalfa in California? (1) Can it be raised successfully upon land irrigated by pumping? (2) Is there always demand at fair prices for the crop- (3) What part of the State would you recommend as being best adapted to profitable and successful alfalfa farming on a large scale?—New Reader, Wisconsin.

Alfalfa is being successfully grown by pump irrigation in various parts of the State. There seems to be no question about its profit if the wells will stand the strain and the pump is effective and economically managed. In spite of the immense increase of alfalfa production, the price for alfalfa hay was never higher than at the present time. Lands which especially commend themselves for alfalfa growing are the deep loams of the Sacramento and San Joaquin valleys, wherever they are rendered suitable by adequate irrigation.

Eucalyptus on Hardpan.

To the Editor: Will eucalyptus grow where hardpan exists from three inches to three feet below the surface?—Enquirer, San Diego.

We presume that eucalyptus trees will maintain life for a certain length of time under the conditions which you mention, but we have no idea that they will be profitable. The length of their existence will be, of course, proportional to the depth of soil. With three feet of soil considerable growth can be attained by irrigation, and the tree may maintain its life by rainfall. It is a mistake to think that anything profitable, however, can be gotten out of eucalyptus planting except on soils which are fairly good and deep and adequately supplied with moisture.

To Get Those Skunks.

To the Editor: By placing a few eggs containing strychnine around their packing house the party from Marysville can easily rid the place of skunks. Insert the strychnine through a small opening at one end of the egg and place where the skunks can find them and they will be surprised to find how thoroughly and easily it was done.—E. E. Tribble, Elk Grove.

Horticulture.

DROPPING AND BLEMISHES ON PLUMS AND PRUNES.

We have received during the last few weeks several letters about an unusual amount of blemishes in the forms of irregular spots and cavities on partly grown plums and prunes, concerning which discussion may interest many more than have taken part in the correspondence. We give the matter in the progressive form in which it has passed under our notice:

Prune Troubles in Tehama County.

To the Editor: Our crop of prunes were dropping badly during the middle of July. They seem to mature to proper normal size on tree, turn red and drop. This we understand is a general condition north of Marysville. They dropped last season also, and it was then attributed to hot north winds, but this season many think the season has not been hot enough to cause the drop. Prunes the grown here without irrigation, and very little fertilizer used. Some contend that it is an insect pest, others lack of fertilizer, and still others adhere to the hot winds theory. Anything that would combat this condition would be of great value to the growers. Can you enlighten us on the subject in any way?—Grower, Corning.

We have heard of the trouble with prunes in the upper Sacramento valley, but do not know the conditions well enough to give a definite opinion. Our impression, however, is that the trees are chiefly suffering from lack of water. Last year the rainfall was short. This year, although the winter rainfall was ample, much of it was lost by run-off from soils not deep enough to store it, and the spring rains this year were too short to carry the trees through the summer, even with good cultivation. We believe that irrigation will be found essential to success with full bearing trees in many places where they grew well enough with rainfall while young. From what you say of the premature coloring of the fruit and dropping, lack of moisture seems likely to be the chief trouble. Something can be done by the growing of winter crops of peas, vetches, etc., plowing them in early in the spring, because this will not only enrich the soil, but enable it to receive and retain moisture better and for a longer period.

Something More Than Dropping.

To the Editor: What is the matter with the prune crop of Tehama county? The prunes on the trees turn red; a great many of them have a spot come on one side, which spreads and seems to turn black and rots and softens and they drop off. Two years ago I had 38½ tons; last year on the same ground and trees I had only 2½ tons; all the rest dropped off. Every orchard around here has dropped most of their prunes, except a few, and they have lost many. I bought another prune orchard this spring, and the prunes have nearly all dropped off. My other orchard, which I have owned some years, has been loaded with prunes, but a great many have dropped off. Lots more are spotted as if stung with an insect, and I suppose will drop. If there is a cause and a remedy, the people here would be very glad indeed to know it.—Orchardist, Tehama county.

The trouble which you submitted is somewhat obscure as to cause and conditions. It is now under investigation by the plant disease experts of the University Experiment Station, but no final conclusion has yet been reached as to causes, of which several, possibly, are involved.

First. The superficial pitting or blemishing of plums is sometimes due to mechanical injury. It has been known to be produced by hail storms, especially in the foot-hill district of California, but is not confined to this cause, because it occurs when hail storms have not visited the trees.

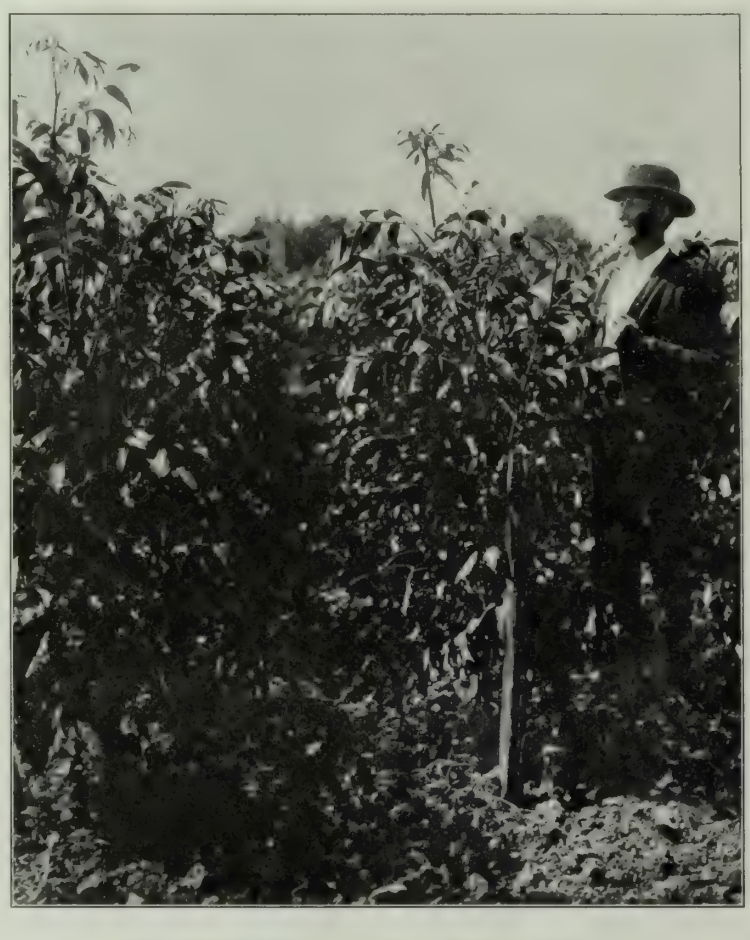
Second. It is also traceable in some cases to insect injuries. The sting of an insect which causes the atrophy of the surrounding tissue produces a depression and discoloration. Our California plum trees have been unusually invaded by plant lice this year, and they are capable of producing an injury which at some time afterward will develop a pit or depression, and, of in sufficient quantities, a general malformation. The same effect in less degree might be produced by any visiting insect, and as the injury is done long before the fruit manifests the effects, it is difficult to definitely indicate the intruder.

Third. There is a pitting of fruits which is due to the attacks of fungi, and there might be an intrusion of fungi causing a softening of the tissue after the first injury had been accomplished by another agency. This is a matter which the plant disease experts, working under Prof. R. E. Smith, have continually under consideration and ere long interesting conclusions will be reached.

Beyond all these, and sometimes accompanying them, is an unthrift of the tree owing to a lack of water during the latter part of the fruit formation period. This results in a limpness of the leaf and premature ripening or reddening of the fruit, and oftentimes the unprofitability of the orchard. It is exceedingly important that with trees bearing heavily an adequate summer supply of moisture should be provided. In many cases orchards which it was expected would thrive upon rainfall alone are now clearly seen to need at least one good summer irrigation.

A Napa Grower's Observations.

To the Editor: My Yellow Egg plums are badly pitted and spotted from some cause. I shall await with interest any conclusions as to cause which the plant disease experts may reach. Personally, I attribute it to heat. We had a few intense hot days in the early growing season, when the growing plums were most susceptible to heat. The fierce rays of light and heat seared the exposed portions of the plums—sometimes burning the whole side of the fruit, or, filtering through the leaves, only reached the fruit in spots. The injured part decomposes, turns black and rots away. In talking with other fruit men in the valley I find that this condition is more or less prevalent over Napa valley this season. It is a new one on us, never having occurred before, but it is blamed on the heat. While Yellow Egg are most affected, it has also occurred on all Japanese plums, also on Washington, Jefferson and other varieties. It is not a mechanical injury, and I do not think it is cause by insects, although, as you say, we have plenty of them this year. Our Green Gage plums have had the aphis on them badly, more so than the Yellow Egg, yet the gages are perfectly sound. Outside of the heat, only a possible fungus remains as the cause. The trees themselves are thrifty enough. I shall be very glad to hear about it whenever the investigation reaches a conclusion.—Observer, Napa.



Mr. Rudolph Wiltz in San Jose Mayette Nursery.

THE "SAN JOSE" MAYETTE WALNUT.

(*Continued From Page 97.*)

to assist in pollinating the latest blooming.

No seedlings of the "San Jose" Mayette are ever grown, every nursery tree being grafted by Mr. Wiltz from scions which he cuts himself from his grafted trees. Mr. Wiltz has 20 acres planted with this variety, and the purpose of this article is to let the public know that the claims here made may be verified, as Mr. Wiltz cordially invites anyone to visit his orchard, at 16 Lucretia avenue, San Jose. Our nurseries have been appointed the sole distributors of the stock, a very fine lot of the trees being now ready to market.

THE HOG AND THE MOTH—A FABLE.

Written for the Pacific Rural Press
By A. J. L.

One summer afternoon a codling-moth, fluttering on an apple bough, espied a hog beneath the tree.

"Halloa! What are you doing there?" exclaimed the astonished moth.

"Eating apples," was the dryly grunted reply.

"A quite obvious and disagreeably audible fact," sarcastically observed the moth.

"Then why ask?" grunted the hog.

"But how came you there," persisted the curious moth.

"Under the fence—after the orchardist failed to drive me through the gate."

"I have heard of your tractable and obliging disposition," mused the moth, "but, pray, why are you wanted in the orchard?"

"Well," said the hog after a reflective crunch or two, "I presume to eat windfall—and—incidentally—codling-grubs."

"Why, that's what I was," exclaimed the startled moth, ceasing to flutter.

"Indeed," rejoined the hog, raising his snout with some show of interest.

An embarrassing silence here ensued, broken only by the sound of crunching apples.

"Do you know," at length resumed the moth in a changed voice, "why it is those apples fell to the ground?"

"Law of gravity," answered the hog, twinkling his little eyes—"a discovery of Sir Isaac Newton, if I mistake not."

"Really, you are the learned pig I have heard of, but the 'law of gravity' would not have given you those windfalls without my assistance, as you will plainly see if you stop to examine the fruit you are devouring so voraciously."

"Yes," said the hog. "I admit you helped me to the apples, but this idea of my feeding on codling-moths and worms is clearly a pipe-dream of the orchardist. I rarely find an apple with a worm in it, and I begin to strongly suspect they leave the fruit before it drops to the ground. And, as for codling-moths—could I be so ungallant as to injure so lovely a creature. None but a giraffe could be so cruel. However, say nothing, pretty moth, for I like windfalls, and rooting."

This unwonted porcine politeness so mollified the vain little moth that she then and there agreed that the grubs of her family should continue to send down fruit to the hog, while the orchardist remained under the pleasing delusion that he was turning codling-grubs into pork.

DRYING SMYRNA FIGS.

Smyrna methods are not so good and cleanly as those pursued in California, but some one may like to read a new outline of them as just furnished by Vice-Consul-General Ernest A. Magnifico, of Smyrna:

The process of fig curing as practiced in Asia Minor is simplicity itself. The fruit dries naturally on the trees and drops when perfectly cured.

They are then collected and spread out on serghis, or smooth, hard-beaten pieces of prepared ground, measuring usually 10 yards by 2, and sloping slightly, so that any rain falling may run off immediately, where they remain four to eight days, according to the weather conditions, to dry thoroughly. They are then tightly packed in jute or woolen bags and shipped to the markets. The largest and finest figs are picked out for table purposes and shipped chiefly to England without any further preparation.

The figs to be packed in boxes are simply sorted into various sizes, rolled roughly into shape and then pressed into the boxes by the workers, whose hands are kept moist with sea water, or, in places where that is not to be had, with a brine of water and common salt.

The thickness of the skins is not affected by the curing or the packing, but depends entirely upon the water supply; the less water, the thicker the skin. About 80 per cent of the fig trees are entirely dependent upon the rainfall for water supply, the last rains being generally early in May. In those districts where there is an abundant water supply, the trees are irrigated once in the month of June and once in July, and these plantations, without exception, produce the thin-skinned and juicy figs, which are the best quality.

HOW TO GET EVEN WITH YELLOW-JACKETS.

To the Editor: The California yellowjacket invades our dry yard and winery premises every fall. Being intemperately and pestiferously fond of temperance beverages, they hover incessantly around the wagon loads of grapes and the grape crusher.

At times they give their undivided attention to the four-horse teams which haul in the grapes from the field and the neighbors' fields. The unexpected combination of the attractive power of the teams and the propulsive power of the warlike yellowjackets is apt to develop a startling burst of horse power. Should the teamster fail to hang on to his lines the team and wagon and grapes may be speedily distributed for a distance of some miles, in such a manner that there is trouble and expense in reassembling the constituent parts thereof.

Remedy.—Take a milkpan, or any old pan, or a tub or a bucket and fill nearly to the top with soapy water. Take a slat or lath or stick or narrow board long enough to lay across the pan; then tack, nail or tie a piece of raw meat the size of a walnut on the under side of the slat. Lay it across the pan so the meat just fails to touch the soapy water.

In the industrious attempt to get away with the meat so kindly provided, the yellowjackets crowd each other off into the bath so unkindly provided, and drown. While plain water has no terrors for them, the combination with soap is as fatal as it might be to tramps.

Each pan is good for a couple of hundred yellowjackets per day if your crop is a good one. Use as many pans as you need for the job. If you have ever been stung you will enjoy at least a dollor's worth of satisfaction each day that you work this scheme on your enemies.

FRANK T. SWETT.

Martinez.

Citrus Fruits.

CULTURAL GOSSIP.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

I find that many of the more successful orange and lemon growers, those who sell their fruit at top prices at all times, are ones who are getting along with the least possible quantity of water. Not only, they say, is the eating quality of the fruit deteriorated by the too liberal use of water, but also the appearance and keeping quality is impaired. I was talking this week with another grower-shipper, who did not want his name mentioned, who is almost a crank on the subject of less water and more cultivation. He says that through the summer he keeps a team going on his ten acres every day in the week. He stated that when he got hold of his present place it had not been well taken care of and was in a run-down condition. He took his harrow to the village dentist and had every other tooth pulled from it and then put on four horses and "sent her down deep." He has since put the teeth back and taken off the extra team, for his orchard is all of a fine dust mulch, and that is the way he intends it always shall be as long as he owns it.

Conservation of moisture is this man's hobby, and he states that he is getting fine results, and surely if I should tell you his name you would admit this, for his citrus brands sell near the top at every auction sale and they would not attain this prominence unless the quality of the fruit so warranted.

I did hear of a Riverside grower who carries the less water doctrine to extremes, and who, it is said, irrigates but once a year. I could not learn the man's name, but it was stated that he was a wealthy man who did not entirely depend upon the income from his oranges and who was conducting a series of experiments along certain lines. It was stated to me that the man had never made a commercial success since using this method, for the reason that his crops were very small, but, stated my informant, "I understand that his fruit will keep till h—l freezes over and that he had beautiful navels on his trees as late as September."

I do not believe that there is any great value in September navels, but any orange that acquires a reputation as a keeper will always have a call with Eastern jobbers ever after he has satisfied himself thoroughly on that score.

C. C. Chapman has the latest Valencias on the market, often his Old Mission brands are seen in the auctions after the middle of November and for a brief period he has the market entirely to himself, and this is the time, too, when he gets the very highest prices of the year. Since talking with Mr. Chapman's foreman and getting his views on the use of water and manner of cultivation I am sure that we have hit upon one of his secrets, which is no secret at all.

An orange grower, who has also been a grower of grapes, tells me that grapes are irrigated in most sections of California, but that at Cucamonga they never irrigate, for the simple reason that they never have any water to irrigate with, and yet they raise four tons of grapes to the acre, mostly wine grapes, and he states that he considers this a very good yield. He says that this result is brought about by cultivation and the conservation of the rain waters of the winter months. He states that on his ranch at Cucamonga the soil is moist the year around not over eight to ten inches below the surface.

I have often looked out across the 3000 acres of the Italian Vineyard Company near Wineville on the Salt Lake route and wondered how it was possible for grapes to grow in such sandy looking soil and without any water other than that provided by nature during the winter months. The soil is so light here that it shifts with every windstorm, and it is stated that they have what is known as a "flying title" to it, thus being able to claim it wherever they find it.

I suppose these things have all been talked over in many meetings of the orchardists, but when I find so many farmers apparently drowning their trees under the impression that if a little is good, more must be better, then I am forced to the conclusion that all did not attend these meetings, or came away unconvinced as to the truth of the theory that too much water was bad.

Also I am surprised at the number of growers who never cultivate close to the tree, and I find many an orchard where the ground for four feet all around the trunk is packed so hard that it would turn the point of a pick to break it up. Surely there is something wrong in their methods of cultivation, and one grower tells me he thinks this a prolific cause of gum disease. He states that the hard soil chokes the tree and checks its growth, that the flow of sap is stopped and that it finds an exit through the bark. This grower, a Mr. Marine of Del Rosa, says that he thinks very few of the advanced growers will dispute his statement that this soil should be broken up, but he says also that it should be broken as far as it has packed, for if only the surface soil is broken it will tend to cause the young rootlets to become surface feeders, seeking the point of least resistance.

I think it would pay every doubtful grower in the State to visit the groves of C. C. Chapman and a few others who are leaders in net orange returns. They could carry all the packed soil they could find home in a handkerchief.

What has made the California lemons in general such poor keepers this summer? I have asked this question of many men, and they all seem to think it was caused by the cold spring weather and the excessive rainfall. This is in line with the argument for less water at all times. Some may point out that oranges were not thus affected, but in reply it can be stated that even if the oranage has been keeping better than the lemon the orange has by no means been perfect, for the navels were oversized and inclined to be coarse and thick skinned, and this will also apply to Valencias this year, except that they are not growinig so large; in fact, they are so small that big sizes are commanding a premium. The Valencia, particularly from the trees just coming into bearing, and there are lots of them this year, is of a rather rough appearance, thick skinned and more "woody" in the pulp than the fruit from older orchards, and even this fruit is running heavier to standards and culls than common.

A Chula Vista lemon grower tells me that almost every orchard in the district is troubled with wither-tip. He says that this does not hurt the fruit in any way except in appearance, that it makes a reddish tinge near the stem end of the lemon. It does, however, hurt the tree, and will eventually kill it if it is not cured in due time. At a recent meeting of the Lemon Men's Club in Los Angeles this question of wither-tip was discussed by a Florida grower, whose name I have forgotten. He said that the disease was very common in Florida and that they used the Bordeaux mixture in combating it, with very good results. I understand that this remedy has been tried at Chula Vista and that the results were not altogether satisfactory.

The San Diego district is coming to the front as a producer of lemons. Up to the time of the lemon boom in 1905 and 1906 the lemon industry was rather neglected at San Diego. The prices had been low for many years and water was scarce and many orchards were allowed to run wild. The water came at the same time as the high prices, and lemons from this section are no longer the joke with the trade that they formerly were. They are now carrying as well as fruit from almost any other district.

With the increased tariff on lemons the industry will no doubt revive wonderfully, and this Chula Vista man claims that there is land and water enough down there to raise all of the lemons to supply the whole United States, that frost is unknown and that with their ever increasing knowledge of the proper way to handle and cure lemons for keeping quality, that San Diego is bound to be the great lemon producing section of California.

I heard a remark the other day that impressed me. A man said: "We handle our oranges and lemons like eggs up to a certain point, and that is when we put the cover on. When the box is placed under the compress and hundreds of pounds of pressure is put on to get the edges of the cover down to the edges of the box, we crush the fruit as though it was the toughest thing imaginable." This is true enough. The trade likes a nice high pack, for the reason that they are apparently getting more for their money. I received a box of oranges from a friend last spring, and he put me up a specially fine grade of fruit and made a fine, high pack. When I took the cover off I found four oranges crushed so that the skin was broken and many of the top layer were flattened so they were nearly broken. Up to recently many of the shippers used a double cleat both top and bottom, so as to allow the very high pack, but at the same time prevent the fruit from getting crushed. Cleats kept getting larger, and soon the attention of the railroad officials was called to the matter, and they promulgated an order to the effect that extra freight would be charged on all boxes using cleats over one-half inch in thickness, and so the style went out of fashion. I noticed when I was in the Chapman packing house that the Old Mission pack was not extra high, but tight, and I believe that this is the sensible way to pack for a reputation.

AGRICULTURAL REVIEW.

Horticultural Notes.

The opening shipments of Malaga grapes for the season were commenced at Fresno this week.

Early figs are ripening in the San Joaquin valley. This year the crop is about two weeks later than usual in ripening.

Fifteen fumigating outfits are now at work in the citrus groves of Orange county, in an effort to clean up the scale infested trees.

Grape shipments from the Imperial valley will be about 35 cars this season. Practically all of the crop has already been shipped.

The first car of dried peaches to be shipped out of the State this season was sent East by J. & I. Blum of Vacaville, August 5th.

San Diego will purchase and operate fumigating tents and spraying outfits to aid growers in the work of fighting scale in their citrus groves.

It is reported that another distribution of funds, amounting to $30,000, will soon be made to the members of the old Raisin Growers' Association of Fresno.

Carload shipments of fruit commenced at Healdsburg last week. The number of cars to be sent out from that point this season are estimated to reach forty.

Tokay grape growers around Biggs, Butte county, are anticipating a fine crop. Arrangements are being made to pack the fruit for shipment at home this season.

So far this season, 298 cars of oranges and lemons have been shipped from San Fernando. Of this number 194 cars have been shipped through the co-operative association.

The fruit crop in the Maywood Colony district is a good one this year, the payroll for help amounting to about $2000 per week. Only white help is employed in picking, packing and cutting.

The cannery at East Napa is very busy now putting up a large pack of fruit. It is claimed that much of the fruit has already been sold to Liverpool parties and more will be sent to the Middle West of this country.

Grape growers around College City, Colusa county, are finding markets in the Bay cities for fresh grapes at good prices. One grower has sold his entire crop of seedless grapes to a Sacramento firm for $15 per ton on the vines.

The sixteen-year-old vineyard near the Kearney estate at Fresno, known as the Paragon Vineyard, and owned by Capt. W. A. Nevills, was sold last week to A. B. Hollensworth, Jr., for $40,000. This year's crop of grapes is retained by the seller.

The Hanford Journal says that G. W. Harris, a farmer living near there, has developed a new canteloupe, which he has named the Hanford. The new product is declared to be of large size and fine flavor, and was secured by crossing the Rocky Ford and Giant varieties.

The orchardists of Happy Valley, Shasta county, have organized an association for the purpose of forcing the smelters at Coram and Kennet to use some smoke consuming device. They claim that the arsenic fumes in the smoke are killing all vegetable life for miles around.

A new citrus fruit marketing company was organized last week, to be known as the Foothills Orange Association of Claremont. Over 500 acres of bearing citrus groves have been signed up to sell through this new organization, which will be a part of the California Fruit Growers' Exchange.

In his monthly report, Secretary Pease of the San Bernardino county horticultural commission, states that citrus fruit skin is being badly pitted. An expert from the pathological station is to make an examination. The commission is making headway in its work of eradicating the Russian thistle.

From Lodi the news comes of a record price of $2250 having been paid for the Tokay grapes on the fourteen acre vineyard of George Bechthold near Woodbridge. The place is known as the old Sayer place. The crop sold last year for $1900 and the two preceding years for $2000. The price received this year is estimated by the vineyardists to be in accord with the present outlook for good prices of grapes. The purchasing parties pick all of the grapes, Bechthold hauling them to the cars at Woodbridge. The sale of this crop carries with it great importance, for it will likely be a basis on which other crops will bring. The report has been current of late that the present crop of Tokays would be light. This crop does not seem true in this instance as the seller will receive $350 more for the same crop than he did last year.

General Agriculture.

Hop picking will commence in Sonoma county about September 1st. The hot weather did considerable damage to the crop.

Perry Mardis, a farmer near Visalia, who has 50 acres under intensive cultivation, claims to have raised 80 tons of hay from 15 acres this season, which he has sold for $12 per ton, or a total of $960.

The big crop of broom corn that has been raised by R. L. Bowler on his farm near San Jacinto, Riverside county, will doubtless interest many other farmers to seed out a large acreage next season.

Hop picking commenced at Wheatland this week. The hop picking machines will be used there in the thickest part of the fields. It is claimed for the machines that they will do the work of a dozen people or more.

Sacramento county is taking steps to get rid of Johnson grass along the roads of that county. Under the Act passed by the last Legislature the county will remove the grass and collect the cost from the property owners.

The 1500 acre crop of cotton now grown in the Imperial valley will be harvested the latter part of September and the first of October. While the crop promises to be a large one, its profitableness has not yet been estimated.

Eighteen thousand acres of land is to be seeded to grain by the Farm Lands Investment Company in the district south of Marysville. When the grain is up the land is to be sold off in tracts of 20 acres or more to settlers.

The Selma Union & Packing Company is a new $50,000 corporation organized by the Farmers Union for the purpose of erecting a large packing house at Selma. Building is to be commenced at once and it is expected the company will be able to handle grapes and peaches this season.

Mr. Anthony Fickewirth is having a portable potato grader built for use on his large ranch near Covina. This grader is the first of its kind ever used in that section. As the grader is being drawn through the field all potatoes are thrown into it and graded by falling through the different sized apertures in a revolving bin.

A big crop of hops will be raised on the 30-acre tract in the Pajaro valley owned by the McGrath Company. This 30-acre tract is the only hop field in the valley, where there used to be several hundred acres. As the price of hops is gaining rapidly, the growers will make a profit in the industry this year.

Big crop stories are now being published in the country papers in various parts of the State. In Kings and Tulare counties the height of the corn seems to attract the most interest. At San Jacinto, Riverside county, one farmer is credited with forty-six tons of hay from ten acres, the hay selling for $11 per ton. From the Amador valley, Alameda county, a farmer harvested 42 sacks of barley to the acre, oats 25 sacks, and from six acres took 142 sacks of wheat.

Stock and Dairy Notes.

Francisco Pico, of San Jacinto, last week sold 300 head of fat cattle for $12,000. The cattle were shipped to market at once.

The Cawston Ostrich Farm, located near San Jacinto, has started on the work of seeding 300 acres to alfalfa for bird feed.

Two separate parties are figuring on building alfalfa mills at Biggs, Butte county. One of the parties is from Chicago and talk of putting in a dairy in connection with the alfalfa mill. The other party is said to be Somers & Co. of San Francisco, who ask that growers pledge to furnish 10,000 tons of hay a year at $7 per ton.

The creamery at San Jacinto, Riverside county, was recently purchased by A. G. Munn, from W. D. Krug. Mr. Munn is an old timer in that locality and will doubtless be able to build up the patronage of the creamery.

About 100 members of the Santa Clara County Poultry Association met in monthly session last Wednesday at the home of F. E. Baldwin, near San Jose. Mr. Baldwin is one of the old fanciers of the county and has a flock of fine white Leghorns.

Since buying the creamery at Corcoran and consolidating with its other two plants, the Tulare Co-operative Creamery Association is said to be doing the largest business

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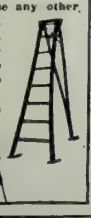
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is known to be the lightest and strongest made. A ten-foot ladder weighs 30 lbs. We have been making these ladders since 1895. All fruit growers like them. Many of the big office buildings in San Francisco will not use any other. We make them with three or four legs as preferred. We keep in stock Fruit Ladders 6, 8, 10 and 12 ft. and House Ladders 4, 5, 6, 7, 8 and 10 ft. We make longer Fruit Ladders up to 24 ft. at short notice. Our House Ladders are made with a safety lock to prevent the legs from spreading. We will ship one or more to any S. P. R. R. station in California and prepay freight on receipt of price, 30 cents a foot.



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"THE SEED HOUSE OF THE GREAT SOUTHWEST"

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of any co-operative creamery in the United States. Its total output will be close to two million pounds this year.

Miscellaneous.

Petitions to organize irrigation districts in Stanislaus county were to be ready this week.

The bean harvest on the 1000 acres sown near Arbuckle, Colusa county, promises to be a good one.

Fifty irrigation pumps in the vicinity of Corning are now being run by electricity, which means that a large acreage is being irrigated there.

Last week the people of San Diego county voted to issue bonds amounting to $1,250,000 for the purpose of building 450 miles of first class highways.

The San Luis Obispo county fair will be held at Arroyo Grande this fall. An appropriation of $1000 was made by the county supervisors last week to aid the association.

It is now claimed that the alfalfa meal mill recently burned near Red Bluff will be at once rebuilt. Besides this factory there are prospects of another one being started at Corning, making two for Tehama county.

The Glendora Irrigation Company has just had installed the largest deep well pump ever put in that section. The pump will lift over a barrel of water at every stroke, it cost $5000 and was built by the Pomona Manufacturing Company.

A representative of the California Fruit Canners Association made the announcement last week that the two canneries located at Yuba City and Marysville would be consolidated and that a new plant with a capacity of 160,000 cases would be built at either one of the towns.

The report comes from Newcastle that the big pre-cooling plant, recently completed there, is inadequate to handle the fruit to be shipped East. The plant has a capacity of 250 tons of ice daily and has been forced to 300 tons, and still many cars of fruit have to be sent to Truckee for icing. The unusually heavy shipments this year have not only used up the ice, but the 6600 refrigerator cars owned by the company were not enough to carry the fruit, and many cars have been borrowed from other companies. It is stated that a big ice storage plant will be built at Roseville to help the Newcastle plant.

A dispatch from Fallon, Nev., will interest those who have land under the new irrigation works: Louis J. Cohn, register of the Government Land Office at Carson City, has notified twenty settlers on the Truckee-Carson Irrigation Project, in this county, that their homestead entries have been canceled because they have failed to pay two of their installments for Government water. These settlers have just completed building new homes and putting their fields in shape to produce, and hoped to have the time of payment extended, but the Government has refused to give them any extension of time and has ordered their homesteads canceled summarily.

NUTRITIVE SUBSTANCES IN HAY.

There is not usually much time to read and think during haying, but where one gets as many cuttings as we do with alfalfa in California there is a little chance between times for meditation. A pertinent subject, then, is what makes the hay nutritive and how much there is of such substances in hay from different plants. A new Farmer's Bulletin by Mr. Harry B. McClure discourses on the matter intelligently as follows:

The nutritive substances in hay or feed may be divided into two classes—flesh formers and fuel or energy producing substances. When the proper amount of these two classes of substances is fed the ration is said to be balanced. If an unbalanced ration is fed, as one containing more fuel or energy producing substances than are needed and less flesh-forming material, the ration is partially wasted, and such unwise feeding will not bring as good results as the feeding of the same amount of a balanced ration. Each class of substances has different offices to perform in the body. If not enough flesh-forming substance is fed, the body suffers, because it is absolutely necessary to keep the body in good condition. Thousands of horses are fed all they can eat, yet are poorly nourished because the food contains little except fuel substances.

The flesh-forming substances are used to replace the waste that goes on in all living tissue. Energy-producing substances are used to furnish the energy required for the nervous and muscular activities of the body, and when fed in excess they may to a certain extent be stored up in the form of fat for use later, when needed for either energy or heat.

One of the most important substances in any foodstuff is protein. All nutritive substances which contain nitrogen are classed under the general term protein. Protein is composed of nitrogen, carbon, hydrogen, oxygen, sulphur and phosphorus. Protein is the substance which builds up the body. The muscles, tendons, ligaments, connective tissues, skin, hair, hoofs, part of the bone, and in fact every part of the body but fat are made up of protein, together with mineral matter and water.

The next important class of substances is the carbohydrates, which contain carbon, hydrogen and oxygen, but no nitrogen, sulphur or phosphorus; they include starch, sugars, etc. These are used for practically the same purpose for which coal or wood is used in the steam engine, namely, to furnish energy and heat.

The third important constituent of hay is its oils. Small quantities of oil are present in all kinds of hay. These oils serve the same purpose as the carbohydrates. A pound of these, however, will furnish two and one-fourth times as much energy or heat as the same quantity of carbohydrates. It can readily be seen, when the chemical analysis of hay is considered, why the price of the different grades or kinds of hay should depend, first, upon the amount of digestible nutrients contained, and, second, upon the purpose for which the hay is fed. If the concentrated feed—i. e., the grain in the ration—lacks protein, then the hay that is high in this substance is more valuable than one which contains but little carbohydrates, and vice versa. There is quite a range in the amount of the different classes of nutrients in the various kinds of hay.

On an average, in 100 lbs. of alfalfa hay the digestible protein amounts to 10.58 lbs.; in cowpea hay, 10.79 lbs; in alsike clover hay, 8.15 lbs; in red clover hay, 7.38 lbs.; in redtop hay, 4.80 lbs.; and in timothy hay, 2.89 lbs.

In 100 lbs. of redtop hay the digestible carbohydrates amount to 47 lbs.; in timothy hay, 43.72 lbs.; in alsike clover hay, 41.70 lbs.; in alfalfa hay, 37.33 lbs.; in cowpea hay, 38.40 lbs.; in red clover hay, 36.15 lbs.

When fed for protein, timothy hay ranks last, but when fed for carbohydrates it stands next to redtop, which heads the list. If the total nutrients are considered there are a number of different kinds of hay which are equal, if not superior, to timothy hay for feeding purposes. If cut at the right time and properly cured, Johnson grass and Bermuda grass hay are about equal to timothy in amount of nutriment contained.

Almond Hullers

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The Propless Prop That Props a Tree

Just the Thing for Propping

Citrus and Deciduous Fruit Trees, Grape Vines, Street and Ornamental Trees.

Cheap, Serviceable and Durable

Over three millions in use in the fruit orchards of this State. Better than poles, or any other system of props now on the market.

PRICES:

1½ inch 25 for $1.00; 50 for $1.50; 100 for $2.00; 1000 for $15.00.

2 inch 25 for $1.25; 50 for $1.75; 100 for $2.50; 1000 for $17.50.

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CHOICE LEMON TREES

Plant lemon trees because it is the growing season in which to establish your orchard. In this connection we want to offer you the best and largest assortment of trees from which to select—trees true to name, of A1 quality, and of the best sorts. Write us your wants and we will give you prices and particulars. Our monograph on Citrus Culture, containing some 20,000 words of text and many fine illustrations, sent to any address for 25 cents.

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Eucalyptus Seeds

In large or small quantities, 33 species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells you how to sow the seed, raise the plants and plant out in the field. Also describes all the leading kinds, gives their uses, etc.

Trial packets 15c each, 4 for 50c. Write for prices in quantity.

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CRIMSON WINTER RHUBARB

Now is best time to plant Rhubarb. $1.50 per doz., $6 per 100, $40 per 1000. All kinds of small fruit and berry plants.

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PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J St., Sacramento, Cal. Send for catalogue.

The Irrigator.

TESTS OF DITCH LININGS.

A test of the efficiency of various types of ditch linings in preventing seepage is now being made by the Federal Department of Agriculture. The results of these experiments are not yet ready, and may be given out only in the form of bulletins; but a brief account of them may be of interest.

The test ditches are uniform in size, and of the following dimensions:

Depth 2½ feet, side slope 1½ on 1; bottom width 2½ feet, top width 10 feet, bottom length 42½ feet, top length 50 feet, surface area 579 square feet.

Two of these ditches are lined with a 2½-inch coat of concrete, of different compositions; one containing 1 part lime to 2 of Portland cement, and 1 part of this mixture to 7 parts gravel; the other consisting of 1 part cement to 4 parts gravel. Cost as follows:

Lime concrete: Labor, $16.50; material, $25; total cost, $41.50; per square foot, $0.072.

Concrete: Labor, $13.50; material, $28; total cost, $41.50; per square foot, $0.072.

One lining consists of brick dipped in hot asphalt, laid flat, and then flooded with hot asphalt.

Brick and asphalt: Labor, $12.37; material, $25; total cost, $37.37; per square foot, $0.064.

Burlap coated with road oil, and later covered with one-inch layer of soil, cost $0.018 per square foot.

Clay puddle, 2½ inches thick: Labor, $7; material, $3; total cost, $10; per square feet, $0.0175.

Neat cement, ¼-inch coat, formed by sprinkling dry cement on the moistened soil surface of the ditch: Labor, $2.50; material, $3.75; total cost, $6.25; per square foot, $0.011.

A coat of alkali puddle put on like clay puddle cost $0.025 per square foot; and a coat of road oil, at a cost of $0.008 per square foot, was applied to one ditch. One ditch was made without lining.

This test is being made on the University Farm at Davis, where there is a station of the weather bureau from which corrections can be made.

Correspondence.

BLESSINGS ON LABOR.

To the Editor: As a subscriber to and reader of the RURAL PRESS I value what appears in its columns, and it has helped me on many occasions; in every issue I find something of practical value in my work, but it seems to me that in the issue of today you strike a wrong note when on page 72 your words seemingly endorse the popular misconception that labor is "a primal curse," a punishment for wrong doing. This belief is shared by many, and the desire to avoid and escape from it has caused much of the dishonesty found in the world; from it, too, results discontent with one's station in life, unhappiness and the conflict between employer and employed.

The story of Eden is God's way of telling of the departure of man from the right relations with Him and its results, and the way of man's return. It tells of man living close to God and listening to His voice, and of man as ceasing to do so. Nowhere do the Scriptures intimate that labor is a curse, or should be regarded as aught else than a privilege and a blessing. The words are "Cursed be the ground for thy sake," that is, "for they good, for thy welfare." When faithfully and conscientiously performed labor is one of the greatest blessings that God has given to man, enabling him by loving and faithful service and the overcoming of obstacles to ever rise higher and higher, and to develop the best that is in him; so he can come nearer to his Master, who Himself was among us "as one that serveth." "My Father worketh hitherto, and I work." Some work in one way, others in another; but no work is hard when done through love and the desire to be of use, even though much toil is involved. The old motto, "To labor is to pray," is always true. Through labor comes life, through idleness comes death is true of the individual and the nation. Joy and development of character is to be found even in overcoming the difficulties of irrigation spoken of by your correspondent which served as the occasion of your editorial note, as I know by experience, and the sweat of the brow mentioned in the story is simply a statement of a law, for that which costs little is worth little, spiritually or physically. Again I say, Blessed be the gift of labor.

SAMUEL WORCESTER.

Lancaster.

[We quite agree with the general sentiment.—EDITOR.]

DO YOUR OWN HAY BALING

THE hay press of real value to the farmer is the press that enables him to do his own hay baling.

There is unquestionably a great advantage in owning your own hay press.

You have ample time to bale your hay during the late fall and early winter months, and

The money you will save by doing your own baling rather than having it done by the contract baler will pay better wages for you and your horses than you can make any other way.

I. H. C. PRESSES FOR INDIVIDUAL FARMERS

I. H. C. hay presses are well adapted to the use of individual farmers.

They are run by horse power, the kind of power you always have on the farm.

They do not require a large force to operate them. Usually there are men enough on the farm without hiring extra help.

They are not such expensive machines but that each farmer can afford to have a press of his own so he may bale his hay or straw whenever he is ready.

I. H. C. presses are made almost entirely of steel and iron, very strong and durable. They have the great advantage over many other presses in being made on the **pull-power** principle, by which the plunger is pulled, not pushed.

The presses are made in two sizes. The one-horse, made with a 14 by 18-inch bale chamber can be operated by two men and a boy. It will bale 6 to 8 tons a day.

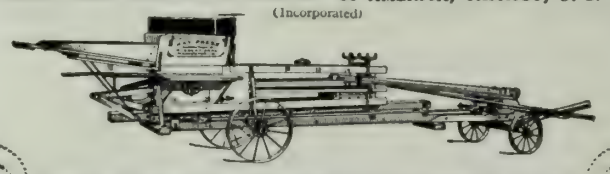
The two-horse press bales 8 to 15 tons a day. It has bale chambers 14 by 18, 16 by 18 and 17 by 22 inches. This press is well adapted to doing not only your own work, but also neighborhood and contract baling, if you have the time.

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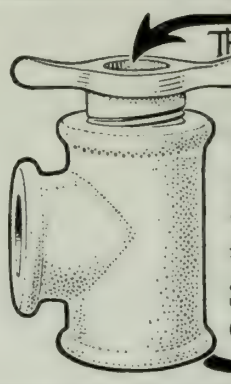
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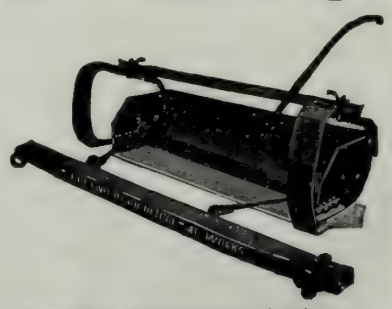
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THE PACKER'S STYLE OF HOG.

Mr. Frank D. Winn in the American Swineherd gives some points which may help our readers to a clearer conception of the great commercial type of a hog. He says:

The ideal hog from the packer's standpoint, as I see him, beginning at the front end, should have a medium short head with medium to small ear, jowl full but not heavy and baggy, as it furnishes cheap meat. One of the best type Poland China sows I have seen for some time, both from a breeder's and packer's standpoint, was turned down for championship at three different fairs, and I think rightly so, because of an abnormal jowl. The neck should be short and full; shoulders set well in line with sides and rest of body, with no tendency to shields or thick hide; chest should be full and well let down, with good width between front legs, and there should be no depression back of shoulders either on top or at the sides. The lower line of chest should make a perfectly straight line with lower line of belly and flank. The back should be slightly arched with rib well sprung, but not beyond the side line. A stick standing perpendicular and touching the edge of rib should also touch the belly line and side at every point. The loin must be thick and full and the meat covering loin and back should be of firm quality, but not hard; sides perfectly straight and deep, with flank low and in line of belly.

In my opinion no point is more overlooked and is less considered by hog breeders than the flank. Without a low, deep flank you cannot have a deep side and middling, and you very seldom see a good flank without a correspondingly good side and ham. The two points most indicative of a quiet disposition, easy feeding, early maturing hog are head and flank. The rump should be almost level, with long coupling and tail well set up in line of back. A short coupling is nearly always accompanied by a round rib, high flank and not enough body depth. The ham should be even with rib and side line and let down well to flank, but not out of line or proportion with rest of body. You very seldom find a big, bulging ham on a well proportioned hog, whose top and side lines are even and where the flank is properly let down. A very wide ham goes with a high flank and round rib, which generally means not enough depth and width below. A baggy ham at bottom, often termed by breeders a "meal sack" ham, is undesirable to the packer—all the lower, flabby meat being waste.

The rather general opinion being that you cannot get too much ham on a hog is very erroneous, if the statements of a number of experts connected with the packing business, with whom I have talked, are to be considered. This surplus ham had better be over the loin or filling and rounding up the very usual depression in front of hip bones and at coupling. Good length is desired—the distance from root of tail to center of forehead should be about the same as flank and heart measurement. The legs should set well out at corners of body and be straight, tapering nicely to feet with short pastern joint and toes set close together. The bone can be heavy, if short, although a medium bone, if of good quality—sufficient to carry a heavy body—would doubtless suit the packer just as well. A big coarse bone and long leg are very objectionable and hogs with such legs very seldom have the uniformity and quality to bring a top price. The coat should be smooth and soft to the touch, which usually indicates a thin hide and good quality of meat. Probably the most important point of all is the body surface, which must be perfectly smooth and free from wrinkles or creases. The flesh must be firm to the touch—soft, blubbery flesh that puts on unevenly being almost as undesirable as a thick, wrinkled hide. Evenness and smoothness are the things most desired by the packer.

While some of the other breeds have been in existence long enough, possibly, to have established one and a distinct type, it is not so with the Poland-China, which I handle, and the only breed with which I am at all familiar. I think the last named breed could very consistently be said to furnish two distinct types, which some refer to as the round or "barrel" type and the "block" type. The former covers the broad backed, round ribbed, high-flanked variety.

Of these two types the block type is more in favor and would cut out better on the block than the other type. To make this clearer, I have taken the measurements of the best boar that I have ever bred from a packer's standpoint. This boar has just turned a year and will weigh, in only breeding and good growing condition, approximately 350 pounds. His heart and flank measurements are the same—54 inches; length from root of tail to center of forehead, 53½ inches. His hind leg at smallest place measures 8 inches. He is 9 inches from lower point of ham and 11 inches from top of flank to ground. The distance across top between two sticks standing perpendicular and just touching point of ribs is 14 inches, while he is 19 inches in depth.

For the sake of illustration, take a box 14 inches wide, 19 inches deep and 53½ inches long, round off the edges about half an inch and you have the shape of the best proportioned and most symmetrical boar I ever bred or owned. Before you can breed a certain type of hog it is essential to have that type clearly fixed in your mind, and I would recommend that those desiring to become expert judges, hunt until they find an animal of the type desired and then study that particular animal until the entire outline is indelibly impressed on his mind. Not until I saw the sow, Darkness, did I come to realize how distinct and clear cut an outline of a hog could be. This sow was more of an educator to me than information received from all other sources combined.

CALIFORNIA DRAFT COLTS.

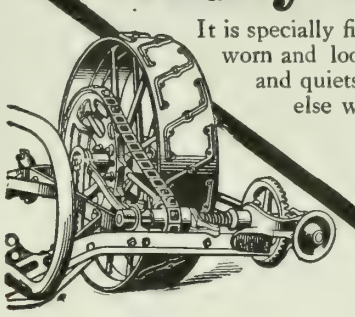
Mr. George J. Read of Los Angeles county gives the Breeder's Gazette some weights which justify California's claims for great things: I have two Percheron yearlings, one a horse colt foaled March 31, 1908, and the other a filly foaled May 5, 1908. I did not weigh either of them until August 25, when the horse weighed 725 and the filly 610 pounds. September 10 the horse weighed 800, the filly 680; September 30 the horse 850, the filly 710. Up to October 31 they had run with the mares. Then they were weaned, their weights being 950 and 820 pounds, respectively. After this I just fed them good hay, and January 1 the horse weighed 1100 and the filly 1000 pounds. In March they were turned on a pasture and are still there. March 31, the birthday of the horse, he weighed 1150 pounds and the filly 1080; and then on May 5, the filly's birthday, she weighed 1150 pounds and the horse 1225. Two months later the horse weighed 1250, filly 1200. They have never been fat, but in good growing fix. As they are entered for the Alaska-Yukon-Pacific Exposition in September, I will soon have to take them up and give them better care.

I also have a Percheron horse colt foaled April 21, 1909. I did not weigh him until May 21, when his weight was 325 pounds. On June 21 he weighed 450 and today, July 6, his weight is 505

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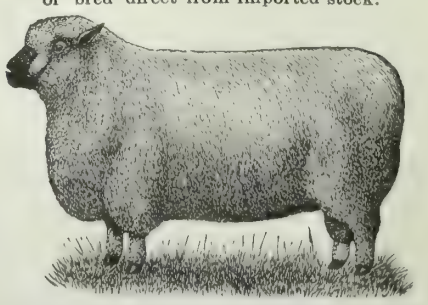
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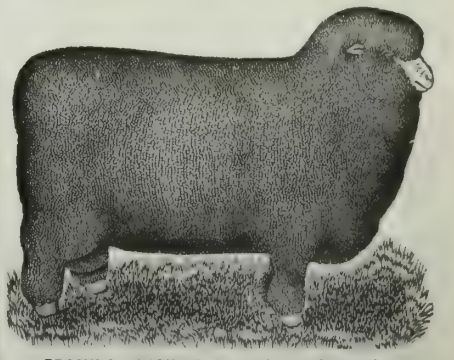
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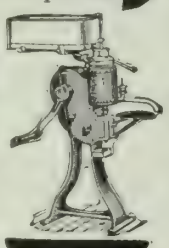


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pounds. The mare is running in a dry pasture. This shows what can be done in California, where the stock run in the pastures the year round.

THE GOAT AS A PREVENTIVE OF ABORTION IN COWS.

The following is from an English paper:

"Were all cow-keepers consulted as to the depreciations they dread most, 99 out of every 100 would declare abortion their worst enemy. The complaint is extremely prevalent. Indeed, it occurs more or less in every herd. We have a record from a farm on which 400 cows are kept, where 60 of them aborted in 1908. The veterinary profession has many propositions to stay its development or stamp it out, but who can say these are effective. We cannot, for unfortunately the proofs are to the contrary. There is an old-fashioned idea that running a goat with the cows is a preventive. Truth to tell, we have faith in this. We know of very great cow-keepers who persist in the plan, and thus testify to their belief in it. In Ireland, where two or three cows are all that very many families have between them and starvation or the workhouse, a goat is found on nearly every holding. The crofters in Scotland adopt the same precaution, and instances among all classes are so numerous that its efficinecy can hardly be gainsaid. The goat has a peculiar odor, which in the cowshed supersedes the doubtful disinfectants often employed."

[We print the above for the humor of the reason assigned for the fact—if it is a fact, which we doubt. The English commentator seems to cling to the old idea that a bad smell is probably a disinfectant. And so far as a bad smell goes, we should rather consider it a cause than an antidote or preventive.—EDITOR.]

NEW OUTLET FOR LIVE STOCK.

A dispatch from Klamath Falls, Ore., rejoices that the completion of the railroad from Weed, Siskiyou county, to that place will open a wider market for the cattle raised in that section. Heretofore the stockmen were able to ship their cattle to California markets only. Now they can reach all Pacific coast markets. When the Klamath Falls-Natron road is completed the market for stock from that section will be made wider.

With the shipping point near at hand the feeders of stock find that they can get the cattle to market in much better condition than when a drive of sixty miles was necessary. The result will be that the Klamath stock, which has long been known as the best on the coast, will reach the markets in still better condition. The development of this section does not mean the discontinuance of the stock industry, but rather marks the beginning of a new era in the stock industry.

CALIFORNIA WAYS WITH COYOTES.

Mr. J. C. Cunningham of Merced county, Cal., gives in the Breeder's Gazette a detailed account of his experience with coyotes in this State which cannot fail to interest and perhaps to help many of our stock and poultry growers:

Nothing is more destructive to poultry, sheep, pigs and calves than coyotes. They are found in great numbers in all the Western States, especially in the stock-raising sections, and though bounties are paid for the scalps in nearly all the counties they are far from being exterminated.

On many of the big cattle ranches in California, Australian stag hounds are used in killing them. A man is employed to ride over the range with the dogs and do nothing else but hunt coyotes. Some ranches keep as many as 30 dogs, using the pack alternately so as to rest them. Out of 30 dogs hunting this way several are always out of commission on account of lameness and other injuries. The sight of this species of canine is something wonderful, as they will detect a coyote as far as the average person can see. One large full-grown dog, well trained, will kill a coyote alone when a man is around to encourage him, but they work better in packs. Two or three of them will tear their game to pieces in less than a minute.

Poisoning and trapping are the principal modes of destroying them. To do this successfully requires experience, as everything else, for you have a very foxy animal to contend with. It is almost impossible to trap a full-grown coyote. I have placed eight large steel traps around a carcass of a yearling calf and they have eaten it entirely without springing a trap. The most successful method to employ in trapping them is to drag an old carcass around the pasture, along narrow gulches and through narrow passages of rock, and place traps along the route, always covering them with dust, small twigs or grass. The best possible thing to drag about is a dead skunk, placing two or three traps around it when you are through. Coyotes will follow the scent of a skunk for miles and when they find it will always lie down and roll on it. The skunk is also good to drag around the field to lead them to a dead carcass that has been poisoned, or to drop strychnine baits on the trail of it.

If possible, never touch a bait with the hands. Use some means of putting the poison in it, or on it without its touching any part of the person, even the shoes. Any kind of meat is good for a bait, but of all fresh meat, liver is the best. Rabbits, squirrels and doves are also good. Kill them and insert the poison while the body is warm so it will circulate through the system. Fresh meat baits of any kind rarely give the same satisfaction as dried meat for the reason that buzzards, hawks and other birds of prey detect it ofttimes before the coyote and carry it off. When dried meat bait is used, which is no doubt the best of all (meat of any kind will do); it must first be sprinkled with poison, or insertions of poison made in it, and then it must be hung in the sun thoroughly to dry. This kind of bait can be carried easily and placed almost anywhere without being molested by the fowls of the air. It will keep for months if placed where it will not get wet.

If you desire to poison a hog pasture and it is impossible to remove the hogs to keep them from eating the baits, the best method is to procure a 4x4 inch scantling and cut it in a few foot lengths, then bore a hole 1 inch in diameter and 3 inches deep on each end of the block. Take equal parts of tallow and lard, melt just enough to make it run together; add poison and pour into the holes. Place these blocks in different parts of the field where coyotes are accustomed to prowl and you will get them. If possible roll a dead skunk over the blocks or put them on the trail where a dead animal has been dragged. This is also a good way where birds, hawks and buzzards steal baits.

In case a coyote is visiting your poultry yard and all means of trapping and poisoning have failed to get him, take a chicken, a white one is the best, and a sick one, too, for that matter, pull a few feathers out of its back, sprinkle pulverized strychnine in the place and stake it out by the leg where you suspect Mr. Coyote. The chicken will usually live long enough to capture him. If this is too cruel, place a small chicken coop inside of a large one, equal distance from all parts, and fasten securely. Then put several chickens in the small coop—one or two good crowers are the best. Take the coops and chickens to a place frequented by coyotes, place traps all around the coop, cover and leave them until you catch your thief. It may be several days but feed the chickens and leave them there and you will be rewarded.

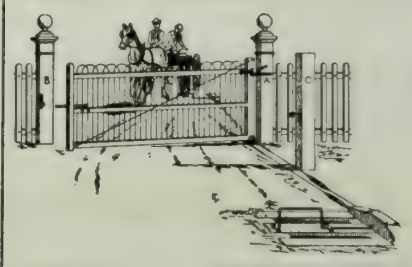
Strychnine is the most effective poison for coyotes and should be used sparingly as it does not require much to kill. If they start to eat a bait and it is too bitter with the poison they will drop it from their mouths and never afterwards touch anything that smells of strychnine. Enough pulverized strychnine to cover half an inch of the point of the small blade of a pocket-knife is enough to put in each bait.

The best time to poison is when they prowl about in packs, as they eat nearly everything thing they find. The reason of this is that several discover the bait at the same time, making a rush for it and the first one getting it eats it in haste, without suspicion, to keep the others from it.

The carcass of a young calf makes an excellent fresh meat bait. Drag it about the field on horseback before poisoning, then put the poison in the ears, nose, mouth and chest. Unless there are quite a number they will only eat part of it the first day, usually commencing with the flank and devouring the hind quarters. This will not kill them, so encourages them to come again and perhaps bring others with them. You will likely get several, as they eat nearly everything of a young calf, even the head.

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THE WORK HORSE PARADE IN SAN FRANCISCO.

One of the most interesting autumnal events will certainly be the parade of work horses in this city on Admission day, September 9, and many of our readers in remote parts may arrange to have some business here at that time. A new association has been organized called the Work Horse Parade Association, as an offshoot of the San Francisco Society for the Prevention of Cruelty to Animals, which donated $500 as a nest egg for the new organization. Since that time the parade association has received donations from the various business men interested in the welfare of work horses to furnish prizes to be donated in the parade to be held on Admission day, September 9, were decided upon. The list of prizes was drawn up along similar lines to the awards given in the horse parades in New York and Boston. The first prize is a blue ribbon with a bronze shield as a harness ornament. The second prize will be a red ribbon rosette, the third prize will be a light blue ribbon bearing the words, "highly commended." In the parade each division will consist of the work horses used in the several business lines in the city and the committee will distribute prizes to the amount of $300 to the several divisions, the number of which is expected to be about 50, aggregating some 2300 vehicles.

The $3000 which has been received by the association to be distributed as prizes is approximately donated as follows: Hay dealers, $1000; wagon and harness industries, $750; veterinary surgeons, $500; Association of Horse Shoers, $250, and the horse dealers, $500.

The prizes in the parade will be divided between the drivers of the vehicles which make the best showing and the stables in which the vehicles are kept. The Draymen's Association has set aside $350 to be awarded in prizes to the member of the association which receives honors in the parade.

One of the features will be a team of 96 splendid horses, probably the largest team ever hitched together, pulling an old cable wagon, as seen in the city during the days before the fire. George Renner, Sr., vice-president of the Draymen's Association, will hold the reins in control of the team. The horses will be hitched eight abreast with a postillion in control of every four horses, making a corps of 24 drivers in control of the great team. Several other features along a similar line are in contemplation by the committee.

R. M. Tobin of the Hibernia Bank has informed the committee that he will present a $50 cup to the association each year to be awarded in the annual parade, as they see fit. Shreve & Co. have donated a $65 cup, which will be awarded this year to the four-horse team making the best showing.

The San Francisco Work Horse Association is organized as a permanent association and will hold annual parades. The purpose of the association is for the betterment of the welfare of draft horses in the city and the development of a better breed of animals. It is the desire of the association to encourage drivers to use considerable care in handling their horses and to take a pride in their charges. The association also proposes to reach the stablemen, each of whom will receive a prize and stimulate interest in the improvement of quarters for the animals.

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As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. ☞Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

AMERICAN BREEDERS ASSOCIATION MEETING.

The sixth annual meeting of the American Breeders' Association is called for December 8, 9 and 10, at Omaha, Neb., in association with the National Corn Show held at that place December 6 to 18. A program of addresses by prominent breeders of live stock, prominent breeders of plants, and scientists prominent in the study of the heredity of plants, animals and men in being prepared.

W. M. Hays,
Secretary A. B. A.

Washington, D. C., July 30, 1909.

Enjoyed Increased Trade.

The Schmeiser Manufacturing Co., Davis, Cal., has enjoyed a very profitable season. This company manufactures an automatic derrick, among other harvesting devices, which is used for stacking and, beyond doubt, is operated successfully wherever introduced. In a recent letter from J. T. Rogers, foreman of the State University Farm, the writer compliments the Schmeiser Company on the success attained by their stacker, and insists that in that feature "it leads, as it cannot be beaten." Mr. Schmeiser, when seen by a Rural Press representative last week, was highly optimistic, and expressed a prophecy for a much greater demand next year for all the several devices his company is manufacturing.

ANGORA GOATS IN FOREST SERVICE.

The experiment of the forest service in using Angora goats in constructing firebreaks through the chaparral in the Lassen National Forest, has met with such success that the government officials believe, with careful handling, the areas grazed over by the animals can be entirely denuded of its present growth of brush.

Two bands of goats were sent into the experimental area early in July. One was composed of ewes and lambs, but owing to defective handling not as much was accomplished by them as by the other band, which was more ably handled.

The goats took to their new duties with a relish, and the way in which they devoured the brush along the trails which had been constructed for them was a striking demonstration that their task met with their approval.

Another valuable disclosure of the experiment is the propensity of the animals to nibble at the bark of the manzanita trees, the destruction of which results in the death of the tree. The experiment of the forest service will be fully carried out, and it is expected that the thinning out of the heavy brush growth and the destruction of the crooked manzanita will result in the safeguarding of the Lassen National Forest from destructive fires.

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one and two years old, large, heavy shearers, good wool, at one-half price on account of retiring from business; can be seen any time at the ranch, 6 miles east of Elmira, Solano county; correspondence solicited.

A. J. BROWN, Elmira, Cal.

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AMBOY, CALIFORNIA.

THE VETERINARIAN.

Answers by Dr. E. J. Creeley of the California Veterinary College, 1818 Market street, San Francisco.

Chronic Indigestion With Complications.

To the Editor: Will you please have the veterinarian tell me what is the matter with my mare. I bought her only a few days ago, not knowing there was anything wrong with her. She was thin in flesh, but I thought she was only worked down. But I have found out since that she has not been worked since last fall. She seems to eat well and digests her food well. By spells, sometimes several times a day, she acts collicky; will lie down and get up repeatedly and sometimes will roll a little, and sometimes looks around at her right side. She urinates with difficulty, only a little at a time and only two or three times a day. The urine is thick, strong and a deep yellow.—W. A. B., Cottonwood.

This mare has chronic indigestion with kidney complications.

First. Have a qualified veterinarian fix the teeth.

Second. Feed dry rolled oats or barley without bran. Give a bran mash twice weekly. Use plenty of salt, admixed with the feed. Place a handful of whole flaxseed in one gallon of water and boil until it is thick like mucilage. Add this to all water she drinks. Give the following powder thrice daily:

Bismuth subnitrate	3 oz.
Soda Bicarb.	6 oz.
Pulv. Acacia	1½ oz.
Iron sulphate (desiccated)	1½ oz.

Mix and make 12 powders. Give one powder morning, one noon and one at night.

The Poultry Yard.

POULTRY OTHER THAN CHICKENS.

Written for the Pacific Rural Press
By M. Russell James.

Why is it that there is so much said about chickens and so little about other poultry and pigeons? This is a question often put to poultry publications. The answer is simple: Chickens are of just that much more importance than other poultry and pigeons. This does not mean that these latter are not important. There is good money in turkeys and geese and ducks, but they require special conditions, while chickens grow and crow and lay and return a porfit in all or any conditions if given half a chance. One may keep enough hens in the corner of a city lot to supply the table with fresh eggs, and without in any way disturbing the peace of the neighborhood (if the fowls are kept at home). Not so with other poultry. Turkeys must have a range; so must geese and ducks, besides the latter two are too noisy and filthy to have near the dwellings.

In regard to pigeons, quite a few may be kept in limited quarters and without offense if cleanliness and a proper house and fly are provided. Children are very fond of these pretty birds, and parents should arrange for them to keep a few of some one of the showy breeds. It pays even if there is no money in it.

Keeping thoroughbred birds, especially Homers, for breeding stock is a good business when one understands it and advertises extensively through show records and the poultry columns. In squab raising for profit, however, the following points should be duly considered before going very deeply into the undertaking: Our market for squabs is not to be compared with the Eastern market; it requires expert feeding and care to secure the plump squab when the prices for same are attractive; it costs as much to keep a pigeon as a hen; while said hen will lay the ever marketable egg without assistance from the male, and even the hatching egg requires but one male to from ten to twenty hens; the pigeon must be paired and the cost of keep doubled. Again, the only product from the pigeon is the squab, and our market is not constant for that, while with the old birds I have known of many instances when they could not be given away. On the other hand, with chickens even the toughest old rooster is marketable for boarding house soup.

Pigeons are subject to the same dis eases as chickens, and unless kept clean and supplied with clean water daily for a bath, will soon be alive with mites and lice. The drinking water should be kept separate from the bathing water and in a closed fountain that they cannot get in it to bathe. A large basin some 3 inches in depth should be filled with clean water and placed on the floor of the fly in the morning; when the birds have bathed the basin should be removed. In keeping pigeons and poultry care must be used that the drippings from the pigeon quarters do not run into the quarters of the chickens. We have known of serious outbreaks of disease among chicks traceable to this source.

The following excellent points on pigeon keeping are from Farmer's Bulletin No. 177, and were written by William E. Rice of New Jersey, a practical and successful breeder of pigeons for squab growing:

Summary of Squab Raising.—It will pay to go into the pigeon business for squabs only provided one gets the right kind of stock and gives careful attention and proper management.

The best breeds to use is straight Homers. Successful breeders use Homers almost exclusively because they are the best workers and feeders and raise larger squabs in four weeks's time than any other variety.

One large pigeon house is better and more economical than several small ones, but in no case should a house be built to accommodate more than 250 pairs. A room 8x10 feet will accommodate 50 pairs very well. The fly should be extended 32 feet if possible.

Pigeons should be fed twice a day; in summer time at 6:30 a. m. and 4.30 p. m.; in the winter at 7:30 and 3 p. m.

The best kinds of feed to use are cracked corn, red wheat, Kaffir corn, millet, peas, hemp and rice. In the morning give wheat, cracked corn and peas in equal parts; in the afternoon give equal parts of peas, cracked corn, Kaffir corn and millet.

Always clean out the fountain and water the birds every morning before feeding.

Bathing is essential to the health of pigeons. In summer they should have an opportunity to bathe at least every other day. In winter only on bright sunny days.

It is essential to clean house every week. After cleaning the nests, put powdered carbolated lime in all cracks, corners and damp places. Sprinkle the floor with lime and a bucket of sand over the lime.

The author's 425 pairs of pigeons produce in one year 4400 squabs for market. Any one with good stock and giving as good care and feed ought to do as well.

Common cause of chilled eggs and dead squabs are fighting cocks, unmated birds, mice in the breeding quarters and lack of vitality in the breeding stock.

In the purchase of breeding stock, the buyer should endeavor to secure young, vigorous, mated birds, free from disease and lice. He should secure all available information about the birds offered, and if possible a written guaranty.

Food Accessories for Pigeons.—Keep three small boxes for these. Fill two-thirds full, one with fine table salt, one with cracked oyster shells, pigeon size, and the third with ground charcoal, about like ground coffee. These three substances are very essential to the health of pigeons. Do not neglect to keep the salt before them all the time; their health demands it.

Questions and Answers.

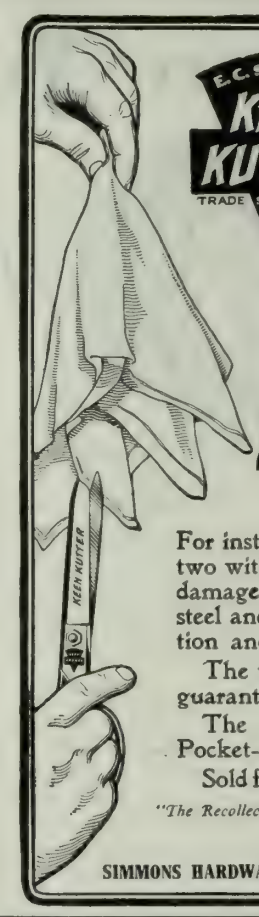
A Location Suitable to Raising Fancy Poultry.—W. S. T. of Illinois, an importer and breeder of show birds and breeding stock, writes: "I am writing to you regarding the climatic conditions and the locations which are most suitable to raising fancy poultry in your State, and especially for developing a superior type of table fowl. For 15 years I have bred the fowl most generally known as Indian Game, and I am thoroughly satisfied that the developing season here in northern Illinois is too short and it is impossible to produce three generations of progeny the equal of their ancestors imported from Cornwall, England. Our aim is to produce a type very broad and deep and short on legs. It does not do to force the chicks intended for breeders, as by so doing they become elongated in body and too tall. What I seek are long springs and autumns and little or no winters and mild summers. On the other hand, I wish to avoid sudden and extreme changes of temperature, temperature above 90 degrees or below 20 above zero, and damp foggy weather. I have in mind three localities: Falfurrias, Texas; Canyon City, Col., and Beaumont, near Redlands, in California. There may be more suitable or more adaptable locations in California, and if so I would be glad if you would advise me; would also appreciate any information as to whether the altitude would affect the prospect of securing good hatches, and your opinion as to whether your best locations are superior to the best in Colorado."

After a careful reading of the above, our opinion is that the central Pacific coast region would suit your requirements best in regard to climate. Here you will find "long springs and autumns and little or no winter, and mild summers," and "no sudden nor extreme changes of temperature"—but there are fogs and dampness! Still, it should be considered that our fogs fresh from the salt sea are very different from the fogs which prevail inland. As a matter of fact you may find almost any climate and altitude that you would be likely to want, and in a radius accessible to the markets of San Francisco and Oakland which are among the best in the world for poultry products.

Just over the low foothills of the Coast Range and but a few miles back from the coast are the San Ramon and Livermore valleys, with a warm climate and sandy soil. But in the warm sheltered valleys the mercury climbs higher than 90 degrees during a portion of the summer. So that the most equable climate is found directly on the coast. As far as the Pacific coast climate per se is concerned it is ideal for the development of fine fowls. There is not a day in the year when they may not get out on the ground. We have the most lovely weather "between showers" in the winter, and our long winter rains are uniformly gentle and warm.

When the fowls are provided with good shelter such rain is beneficial to them, and they greatly enjoy rustling about in it for the springing grass and worm. True, there is much disease of a roupy nature among the poultry on the coast and elsewhere in the State, but it is due to improper housing and care.

The two other States you mention have dry healthy climates; but said climates are subject to "change without notice" and to extremes of temperature; and in Texas, at least, the insect plague is "something fierce" to contend with in poultry raising. So far as natural advantages for poultry breeding are concerned, California can furnish the best of locations, bar none. The editor of Poultry in your State, who has made a study of this coast for poultry purposes, says that if the world's record in laying now held by Australia is ever equaled in this country it will be done on the Pacific coast.



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Sold for over 40 years under this mark and motto:

"The Recollection of Quality Remains Long After the Price is Forgotten."
—E. C. Simmons.

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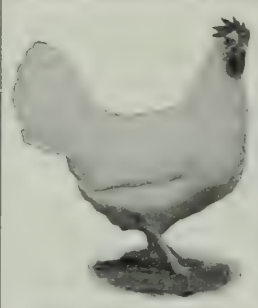
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PATENTS

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1105-6 Merchants Exchange Bldg., San Francisco. Established 1860.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

The Home Circle.

The Dreamer.

I am tired of planning and toiling
In the crowded hives of men;
Heart-weary of building and spoiling,
And spoiling and building again.
And I long for the dear old river
Where I dreamed my youth away,
For a dreamer lives forever,
And a toiler dies in a day.

I am sick of the showy seeming,
Of a life that is half a lie;
Of the faces lined with scheming
In the throng that hurries by.
From the sleepless thought's endeavor
I would go where the children play;
For a dreamer lives forever,
And a toiler dies in a day.

I feel no pride, but pity
For the burdens the rich endure;
There is nothing sweet in the city
But the patient lives of the poor.
Oh, the little hands so skillful,
And the child-mind choken with weeds,
The daughter's heart grown willful,
And the father's heart that bleeds.

No, no! from the street's rude bustle,
From trophies of mart and stage,
I would fly to the wood's low rustle
And the meadow's kindly page.
Let me dream as of old by the river,
And be loved for the dream alway;
For a dreamer lives forever,
And a toiler dies in a day.

—*John Boyle O'Reilly.*

A Little Story of French-Canadian Life.

"Me, I tell him go, and go quick; I say to him, 'Va vite!'" Clarisse told it in vim of pride, but Constance took up the story with a slighting glance.

"Me," she said, "I tell him I t'ink he's crazee. I say to him, 'Tu parles comme un homme insense.'"

The other girls drew breaths of admiration—all save Esperance, who raised her pretty head with disdain and said:

"Huh! I talk him sharp, me. I say, 'Va vite! I know you crazee.'"

At this the girls who had previously spoken turned in a hurry on Mathilde, the gentle little scapegoat of the school.

"Et toi, what are you going to say, Mathilde, when das crazee Michel come to see you?"

"Oh," Mathilde cried, scared at the thought of it, "I don't reckon he's going come see me, maybe."

"But, yes, he's going come see you," Constance declared and Clarisse put in pitilessly:

"Ha, you t'ink das crazee Michel ain't goin come in middle of night and sit in flower bed under your window and cry and ask you make him coffee so he won't have headache tomorrow. Ain't he start at head of bayou and go down? First he come to my house, den to Constance, den to Esperance. Next time he get drunk he's going to Felicie Santerre. And den, you see. Next time he will come to you. Ha, Mathilde, if you t'ink he ain't ever going come cry in your garden you're crazee as Michel is."

Clarisse was so indignant that her mates thought it best to soothe her, and so cried in chorus:

"He's crazee!"

"Mais, oui! He's crazee. All de bayou say das."

And, indeed, this was the verdict that the kindly folks on Bayou Bienvieu had at last been forced to render.

When Michel Lireau first came among them with a nice bunch of cattle and a slick team the bayou folks had pronounced him a fine straight chap, and joyously offered him the glad hand. All the messieurs found his farming thrifty, all the mesdames found his manners perfect, and all the girls bought new ribbons to wear to church because of his handsome face. No boy's horse was more admired; no boy's laugh was better liked than Michel Lireau's until that first dance sent him sobbing at midnight to sit in the flower bed under Clarisse's window and beg for coffee.

Even then the bayou, knowing well the effect of anisette, excused his conduct, saying:

"He was drunk, maybe?"

But when the next dance sent Michel to sob under Constance's window, nothing could be said. And when the end of the third dance found him sobbing and pleading with Esperance the verdict fell—had to fall. If he had gone to the same flower bed every time the bayou could have understood it. But to go to a different one each time—not even being drunk would excuse a man for doing that. No, the kindest thing to say then was that Michel was crazy, and so the bayou said it—all but the big, slow spoken M. Moise, who, after looking for a long time at his distant pine tops feathering into the far light, deliberately voiced a doubt, saying: ing:

"I don't know, me, if he is crazy or not."

The girls knew. And as they gathered each day at recess many were the savage things promised to be said if Michel ever came to their flower beds again.

Mathilde, listening, could only pray in a panic that the crazy Michel would never come to cry under her window. If he should the girls would all demand to know what she had said. And what would she be able to say?

"I don't believe, me, I can tell him ya! I know me, I can't tell him I t'ink he is crazee. Oh, I pray God, me, he won't ever come cry wit' me."

But though she prayed much and earnestly Mathilde found her doom descending daily. The very next dance sent the crazy Michel to plead for coffee under the window of Felicie Santerre—just as Clarisse had said it would. An the day after the girls were gathering eagerly demanding:

"And what 'tis you say to him, ha, Felicie?"

"I laughed," said Felicie.

That reply was not to be wondered at. Felicie would have laughed at a ghost, but the girls found it disappointing.

"I wish to know for why you laugh?" Clarisse cried, indignantly. Felicie laughed as she answered:

"Oh, ma foi, it was funny. You know dose old maids by my window? How tall dey grow? Bien, 'twas moonlight and, me, I was look out de window. When he set down in dose old maids he shake dem some. Dey was all nod de head and Michel he was nod de head aussi. Ma foi, it was funny!"

Maybe it had been, but the girls were so plainly disgusted that Mathilde shivered to think what they would say when she should be forced to confess.

"I just play sleep, me, I don't let him know I hear."

And that was the course Mathilde foresaw she should pursue, admitting helplessly:

"I know, me, I can't talk him rough if he is crying."

There were moments when Mathilde in her praying had gleams of hope. When she saw Michel so straight in the saddle cantering across country to drive up his steers, or going, whistling blithely, with his loaded team to the mill; at such times she wondered if it could be true what the girls said—if any man so glad and good to look upon could really do such crazy things.

"Maybe dose girls tell it worse dan 'tis. I hope, das, me."

But her hope was destined to go the way of all fond delusions. For one fair moonlight night Mathilde was awakened by the sound of a heavy sob, and her heart went wild at the sound of it. The crazy Michel had come. He was out there among the four o'clocks under her window. Mathilde knew it because the broken blossoms were pouring out their perfume.

Anothed sob, and another, heavy, heartbroken. But no, the girls had not told it worse than it was.

A choked voice began to plead:

"Make me some coffee, s'il vous plait. Dere ain't nobody in my house to make me some, and tomorrow I will have mal de tete. Make me some coffee, s'il vous plait."

Mathilde caught her breath and held it. The crazy Michel pleaded on.

"Make me some coffee, moi va voire mal de tete. Make me some coffee. Dere ain't nobody in my house to make me some. Aie pitie de moi." And then the sobbing, broken and pitiful, began again.

Mathilde's hands shut with pain. Oh, but no. The girls had not told at all how bad it was. It was terrible to hear the big, strong man sobbing like that all by himself. And it was true what he said. There was nobody in his house to make coffee for him.

"S'il vous plait," pleaded the voice from among the four o'clocks; "s'il vous plait."

Mathilde from trembling with fear began to quiver with the thought of a daring deed. There was a little coffee in the kitchen. It was cold, but it would keep him from having a headache on the morrow. If only she could get hold of that little cup in the supboard she would hand it to Michel from her window and tell him to drink it. She would—she would.

But how was she to get hold of that little cup ? Slip on her clothes, tiptoe, barefooted, down the back steps, run quick to the kitchen, snatch the cup and fly back. She could do it, yes, if she dared. But she did not dare?

The sobbing out there in the lonesome night was growing desolate. The voice had ceased to plead. In another minute maybe the crazy Michel would get up and go away to his empty house. A rage of compassion made Mathilde brave.

"I can't stand to have him do das," she whispered, dressing. "I can't stand to hear man cry. No, not if he is crazee." She opened her window and said softly:

"Reste tranquille, M. Michel. I will bring you some coffee."

Michel stopped sobbing; and when Mathilde had run bare-toed to the top of the back steps she found him resting tranquilly enough at the bottom of them. Very tall and straight he stood there, and his voice, free of tears, was full of gladness when he said:

"I ain't drunk, Mathilde. Sit down on steps. I wish to tell you how 'tis."

Mathilde sat down on the steps. She had to. And Michel, standing bareheaded beside her, told the story of his craziness:

"My mamma died when I was a little chap, and den my papa make marry again. 'Tis good woman he make marry wit. She keep clean house and have nice garden, and she make good gumbo. But she ain't got kind heart, no. When my papa go to dance and drink anisette, she don't make him some coffee when he come home. No. She talk rough to him. Mon Dieu, she talk rough to him! And when I was hear her talk like das, I make my swear. I ain't going make marry till I find girl das have kind heart. Since I have house for wife, I been trying find girl das have kind heart. Till now I don't have much luck. Some say to me, 'Va!' Some say, 'I t'ink you crazy.' Some laugh. 'Tis only you, Mathilde, say to me, 'Reste tranquille.' So, me, I wish to make marry wit' you. I know you have kind heart."

The moon stooped over tenderly and the stars winked bright to see, but Mathilde's eyes were all wet with womanhood, and she could only feel the cool, thin ring that was slipped on her finger with a touch, tentative at first, then finding itself not repelled, closing swiftly and deepening into a clasp.

"I love you for say das to me, cherie. And all time I will love you. Reste tranquille! 'Tis das how woman should say to man she make marry wit', and 'tis how man should say all time to his femme. Reste tranquille!"

Eh bien, that crazy Michel, he was not so crazy, no! He drew Mathilde's yielding hands to his breast and bent his head to tell her again of his joy, whispering it softly in French:

"Je t'adore!"—The Sphere.

FAVORITE SUMMER DISHES.—Among the vegetables most relished on the farm in the summer time are green corn and green beans; and when these two are combined we have the double favorite and ever welcome succotash. To make this dish, string and wash crisp green beans; then holding several firmly together on a bread board slice them in quarter-inch lengths. To every pint of the sliced beans allow an equal amount of tender sweet corn after it is cut from the cobs. Put the beans to cook first; when they are partly done pour off all the water but enough to complete the cooking without any surplus; add the corn, cover tightly and let cook slowly till beans and corn are thoroughly done; season with salt and pepper and a liberal amount of butter. The succotash may be made with the green shelled beans in the place of the string beans. Allow the same proportions. First scald the shelled beans and pour off the water, then put them into boiling water and let cook 15 minutes, when add the green corn and cook 30 minutes longer.

The Hamlin School
SAN FRANCISCO, CAL.

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THE MARKETS.

San Francisco, August 11, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Buyers have steadily held off from the market for the last week, as the level of prices was considered higher than conditions warranted. The Government crop report, indicating a material increase in production over last year, has also had a depressing tendency, and lower quotations are given on all grades. The local market is still rater quiet, while the northern markets are well supplied, and values are now on an export basis, though so far comparatively little grain has been moved for shipment.

California White Australian	$1.87½ @ 1.90
California Club	1.77½ @ 1.80
Northern Club	1.77½ @ 1.80
Northern Bluestem	1.87½ @ 1.90
Russian Red	1.75 @ 1.77½
Turkey Red	1.87½ @ 1.90

BARLEY.

Shipping grain continues nonimal here, though considerable movement is expected in this grade. Brewing is offered freely at easier prices, but is so far in no great demand. Feed grain is lower, and has been arriving in large quantities all week, giving the market a much easier tone than before.

Brewing	$1.42½ @ 1.45
Shipping	Nominal
Chevalier	1.50 @ 1.60
Good to Choice Feed, per ctl.	1.40 @ 1.42½
Common Feed	1.37½ @ 1.38¾

OATS.

Seed reds are higher, and choice feed is quite firm, though ordinary stock is easier. Otherwise the market shows little change, blacks being held steady at former prices, with little demand, and Texas reds being lower. Northern white oats for future delivery are steady.

White, per ctl.	Nominal
New Red, choice	$1.80 @ 1.90
Common	1.70 @ 1.77½
Red, seed	2.00 @ 2.15

CORN.

Supply and demand remain about the same as for some time past in the local market, with a rather light movement and limited stocks on hand. California grades are steady, but lower quotations are given on Western corn in bulk.

California Small Yellow	$1.80
California Large Yellow	1.75 @ 1.85
Western State Yellow, bulk	1.65
Mixed, in bulk	1.63
White, in bulk	1.69
Egyptian	Nominal

RYE.

The prices quoted are not very well established, as business so far has been of very small proportions. Spot offerings are held at top prices, but plenty of grain is offered to arrive at the lower figure.

Rye	$1.60 @ 1.85

BEANS.

The supply on hand here is about 18,000 bags less than a year ago, and some varities, especially pink beans, show a tendency to advance, while all other descriptions are steady at the comparatively high values formerly quoted. Small whites are still quite firm. The crop so far is in good condition, and with continued favorable conditions there should be a large crop. The lima crop is expected to show a larger yield than last year, with unusually good quality. Numerous inquiries have come in for early shipment of the new crop, and all varities are expected to bring good prices.

Bayos, per ctl.	$4.50 @ 5.00
Blackeyes	3.25 @ 3.50
Cranberry Beans	Nominal
Garvanzos	2.50 @ 3.00
Horse Beans	1.90 @ 2.20
Small Whites	6.75 @ 7.00
Large Whites	4.50 @ 5.00
Limas	4.20 @ 4.25
Pea	Nominal
Pink	2.85 @ 3.05
Red	Nominal
Red Kidneys	3.50 @ 3.60

SEEDS.

The market is extremely dull, and will probably remain so for several weeks. Prices are accordingly more or less nominal, though the quotations are steadily held by dealers.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00 @ 25.00
Brown Mustard, per lb.	4 @ 4¼c
Canary	4¼c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

Flour shows little feature at present, values being still maintained with some firmness, while buyers as a rule look for some easiness to develop in the near future. They are still keeping their purchases down to the smallest possible limits, and the market is quiet.

Cal. Family Extras	$6.60 @ 7.00
Bakers' Extras	6.60 @ 7.00
Superfine	5.50 @ 5.70
Oregon and Washington	5.50 @ 6.50

HAY.

The arrivals have been somewhat larger than last week, and the season's arrivals so far have been somewhat larger than at this time last year. As the buying interest has been much less active than at that time, dealers express surprise that prices have been maintained at the present range, especially as there is practically no export movement. Some hay, however, is being shipped to Humboldt county. The local market remains dull, with little inquiry for anything but choice wheat hay, though prices are quoted a little higher on some descriptions. Dealers are frequently making concessions, however, to effect sales. Alfalfa hay is arriving in larger quantities than before, and is inclined to weakness.

Choice Wheat, per ton	$17.00 @ 18.00
Other Grades Wheat	12.50 @ 16.50
Wheat and Oat	13.00 @ 15.50
Tame Oat	13.50 @ 16.00
Barley	10.00 @ 12.50
Wild Oat	10.00 @ 12.50
Alfalfa	10.00 @ 12.50
Stock Hay	7.00 @ 9.00
Straw, per bale	50 @ 70c

MILLSTUFFS.

Prices on the leading millstuffs have been steadily held for some time, and conditions remain about as before. Miscellaneous feedstuffs are also in steady demand, with no change in values.

Alfalfa Meal, or mealfalfa, per ton	$22.00 @ 24.00
Bran, ton—	
White	29.00 @ 30.00
Red	28.50 @ 29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	26.00 @ 27.00
Corn Meal	39.00 @ 40.00
Cracked Corn	40.00 @ 41.00
Middlings	36.50 @ 37.50
Mixed Feeds	25.00 @ 30.00
Oil Cake, per ton	38.50 @ 40.00
Rolled Barley	31.00 @ 32.00
Shorts	31.50 @ 33.00

VEGETABLES.

The market is still quiet liberally supplied with onions, but prices are a little more firmly held. Changes in miscellaneous lines are comparatively small, some descriptions being a little stronger on account of lighter arrivals. The market has been rather depressed most of the week, however, as a surplus of poor stock in some lines tended to depress prices. Tomatoes and summer squash are doing a little better, but green peppers, cucumbers, egg plant and okra are lower. Pickle cucumbers are still in good demand, but the arrivals have greatly increased. Peas and beans are also lower, most offerings being of poor quality.

Onions—New Yellow, per ctl.	70 @ 75c
Garlic, per lb.	4 @ 5c
Green Peas, per sack	75c @ $1.00
String Beans, per lb.	1 @ 3c
Lima Beans, per lb.	4 @ 5c
Tomatoes, per box	60c @ 1.00
Green Peppers, per box	40 @ 60c
Green Corn, per sack	50c @ 1.00
Summer Squash, large box	35 @ 60c
Turnips, per sack	1.00 @ 1.25
Cucumbers, large box	50 @ 65c
Pickle Cucumbers, per box	75c @ 1.00
Egg Plant, per box	60 @ 75c
Okra, per box	65 @ 75c

POULTRY.

The market has been inclined to drag most of the week, as there has been no great demand, and the small amount of stock offered has generally been unattractive to buyers. All choice poultry, however, meets with prompt sales at full prices, and a car of eastern stock which came in at the beginning of the week was moved off without difficulty. The only change in chickens is a slight advance in large young roosters, small roosters being easy.

Broilers	$ 3.25 @ 3.50
Small Broilers	2.50 @ 3.00
Fryers	4.00 @ 6.00
Hens, extra	8.00 @ 10.00
Hens, per doz.	6.00 @ 7.00
Small Hens	4.50 @ 5.50
Old Roosters	4.00 @ 4.50
Young Roosters	6.50 @ 7.50
Young Roosters, full grown	8.00 @ 10.00
Pigeons	1.50
Squabs	2.00
Ducks	5.00 @ 7.00
Geese, per pair	1.50 @ 1.75

BUTTER.

The demand has continued quite strong for extra butter, and with limited arrivals the market has kept closely cleaned up most of the time. Prices have accordingly been very firm, but so far there has been enough stock on hand to prevent any further advance. The lower grades are moving fairly well, and are held steady to firm.

California (extras), per lb.	34 c
Firsts	27 c
Seconds	26½c
Fresh Packing Stock, No. 1	24½c

EGGS.

Fresh extras have made quite an advance this week, and continue firm, with a steady demand and diminishing supplies. The advance on extras is turning more business to the lower grades, which are now moving well, though prices are quoted as before. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per doz.	34 c
Firsts	29 c
Seconds	25½c
Thirds	23 c

CHEESE.

Supplies have been moderate this week, and with a fairly strong demand prices have been firmly held at last quotations. The only change is an advance of ½ cent on Y. A. firsts. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	16 c
Firsts	15½c
New Young Americas, fancy	16 c
Oregon Flats	16½c
Oregon Young Americas	16 c

POTATOES.

There is still a fair demand for shipment, which is keeping the surplus fairly well cleaned up, though offerings are more than sufficient for the local market requirements. Prices, however, are a little higher than before.

New Potatoes—Boxes	50 @ 75c
Sacks, per ctl.	75c @ $1.00

FRESH FRUITS.

Arrivals of berries are beginning to fall off, and raspberries show some advance. Strawberries and blackberries, however, are in small demand, and are lower. Watermelons have been more or less neglected, as the weather has been unfavorable. Cantaloupes show a wider range of prices, but nutmegs are steady, with a good demand. Tokays are coming in, and bring good prices, though other grapes are lower, seedless especially being weak. Apples are firm as before, and pears are rather scarce and in strong demand, surplus lots being taken readily by canners. Apricots show a sharp advance, and are becoming scarcer. Peaches, however, continue very plentiful, and are inclined to drag at low prices. Plums and nectarines are also lower. Figs are arriving freely, but choice lots find a good market at about former prices.

Melons, Cantaloupes, crate	$ 1.50 @ 2.25
Nutmeg, per box	50 @ 75c
Watermelons, per doz.	1.00 @ 2.00
Raspberries, per chest	8.00 @ 10.00
Blackberries, per chest	1.50 @ 3.00
Strawberries, large varieties	3.00 @ 4.00
Huckleberries, per lb.	12½ @ 15c
Grapes, Seedless, per crate	50 @ 65c
Muscat	90c @ 1.00
Tokay	1.25
Other varieties	50 @ 85c
Apples—	
Fancy Gravensteins, per box	1.25 @ 1.50
Fancy Red	1.00 @ 1.25
Common	60 @ 85c
Figs, per box	65c @ 1.25
Apricots, per lb.	2½ @ 4c
Peaches, per box	30 @ 50c
Lug boxes	30 @ 65c
Plums, per box	40 @ 75c
Prunes, per box	50 @ 75c
Nectarines, per box	50 @ 75c
Pears—	
Pears, Bartletts, No. 1, box	1.00 @ 1.25
Canning, per ton	25.00 @ 37.50

CITRUS FRUITS.

Everything in the citrus line is in fair demand, considering the cheapness of deciduous fruits, and all arrivals are readily disposed of at former prices. Everything in this line stands as last quoted.

Choice Lemons	$ 2.50 @ 3.50
Fancy Lemons	4.50 @ 5.00
Standard	1.50 @ 2.00
Limes	5.50 @ 6.00
Oranges, Valencias	2.25 @ 3.00
Grape Fruit	2.50 @ 3.00

DRIED FRUITS.

While the larger markets in the east have taken on very little dried fruit of late, the total movement last month was of large proportions, with a good inquiry from both foreign and domestic markets. The foreign shipments from San Francisco have been much larger than last summer, Germany being the heaviest buyer. Prices remain about the same, the only changes being somewhat lower figures on white figs, and a slight advance in apples. New figs will begin to arrive about the end of the month. New peaches are now arriving in considerable quantities, and show more firmness, owing to the fact that a larger proportion of the crop than usual is being shipped green. The eastern markets are accordingly taking more interest in this fruit, though so far the movement has not been large. Quotations here are no higher, but packers are asking full prices on goods for shipment. Prunes are rather quiet in the east, but are moving well in other quarters. Apricots are steady, but not especially active at present. Raisins continue very quiet, though occasional sales are being made, some of them below the quoted figure. Old stock is very weak, few offerings bringing as much as 2 cents. The eastern market is holding off owing to the uncertainty of conditions.

Evaporated Apples, per lb.	7½c
Figs, black	2 c
Figs, white	3 c
Apricots, new crop	7½ @ 8 c
Peaches, new crop	3¾ @ 4¼c
Prunes, 4-size basis	2 @ 2¼c
Pears	3 @ 5 c
(New Crop.)	
Loose Muscatels, in sweatbox	2¼ @ 2¾c
Thompson Seedless	2¼c
Seedless Sultanas	2 c
London Layers, 3 crown	90c @ $1.00

NUTS.

Prices are quoted at the former range, but the figures are largely nominal, as there is little old stock moving, and business on new almonds has been too small to determine the market with any definiteness. The regular movement will begin about the end of the month.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

The local market is still inclined to weakness, prices being easy at the former range. The local movement is still very small, though buyers show a little more interest than last week. Prices are still held pretty firmly in producing districts, however, and several large lots have been sold to outside interests.

Comb	10 @ 13 c
Extracted, water white	6 @ 7½c
Old extracted	3½ @ 4 c

HOPS.

All reports have tended to increase the firmness of the market, as the crop outlook in Europe is very unfavorable, and the production in this country will fall behind that of last year, while the estimated stock on hand is considerably lower. Prices for both spot and new crops hops show a further advance, but most of the yield has already been contracted for, and the market is quiet.

Hops, Old, per lb.	11 @ 14c
New Crop	18 @ 21c

WOOL.

The only feature at present is the arrival of a few small lots of lambs' wool, which is moving at irregular prices, and is not sufficient to establish a definite value. Otherwise the market is nominal, as the regular fall clip will not begin to move for a week or two more.

Spring Clip	Nominal
Fall Lambs	8 @ 12c

MEAT.

The advanced prices on hogs are bringing more into the market, and the feeling is easy this week, as there is no great demand, though prices are unchanged. Some descriptions of cattle and beef are higher, and all lines are firmly held. Live sheep are a little higher.

Beef: Steers, per lb.	6½ @ 7¼c
Cows	5½ @ 6½c
Heifers	5½ @ 6½c
Veal	7 @ 9 c
Mutton: Wethers	7 @ 8½c
Ewes	6½ @ 7½c
Lambs	9½ @ 10 c
Hogs, dressed	9½ @ 12 c

LIVESTOCK.

Steers: No. 1	3¾ @ 4¼c
No. 2	3½ @ 3¾c
Cows and Heifers: No. 1	3 @ 3¼c
No. 2	2¾c
Bulls and Stags	1¾ @ 2 c
Calves: Light	5 @ 5¼c
Medium	4½ @ 4¾c
Heavy	4 @ 4¼c
Sheep: Wethers	4 @ 4¼c
Ewes	3½ @ 3¾c
Lambs	5 @ 5¼c
Hogs: Grain fed, 100 to 150 lbs.	7½c
150 to 250 lbs.	7¾c
250 to 325 lbs.	7¼c
Common Hogs, lb.	4 @ 4½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Aug. 10.—Yesterday 270 carloads of California deciduous fruit were sold in the East, being the bigegst day so far of the season. Of this number the California Fruit Distributors sold 214 cars. Most of the auctions were strong, though New York was overloaded with peaches. Cars grossed from $736 to $1498.

The prices realized were as follows:

Boston—Bartletts, $1.75; Crawfords, $1.00; Tuscans, 70 cents; Elbertas, $1.45; Thompson Seedless, $1.32; Eggs, $1.25; Germans, $1.15.

New York—Bartletts, $2.10; Silvers, $1.15; Elbertas, 85 cents; Crawfords, 60 cents; Fosters, $1.00.

Philadelphia—Bartletts, $1.65; Crawfords, 90 cents; Elbertas, 95 cents; Sugars, $1.20; Germans, $1.40; Thompson Seedless, $1.05.

Chicago—Bartletts, $2.05; Tragedies, $1.55; Gros, $1.50; Giants, $1.50; Peaches, 75 cents; Thompson Seedless, 85 cents.

The California Fruit Exchange makes the following report of Eastern markets:

Chicago—Bartletts, $1.45 to $2.20; Susquehannas, 40 cents to 90 cents; Elbertas, 60 cents to 90 cents; Hardys, $1.60; Peaches, 30 cents to 80 cents; Crawfords, 45 cents to 70 cents; Fosters, 55 cents to 70 cents; Frees, 55 cents; Crawfords, 70 cents to 75 cents; Thompson Seedless, 75 cents to $1.55; Malagas, $1.55 to $1.65; Hungarians, $1.25 to $1.95; Tokays, $2.25 to $2.75; Robe de Sargents, $1.00; Kelseys, $1.65 to $2.05; Egg plums, 65 cents to $1.40; Tragedies, $1.30 to $1.65; Bradshaws, 90 cents to $1.20.

Pittsburg—Bartletts, $2.10 to $2.25, average, $2.20; Sugars, 70 cents to $1.00, average, 90 cents; Elbertas, 85 cents to $1.10, average 95 cents; Frees, 70 cents to $1.00, average 85 cents; Crawfords, 60 cents to $1.00, average 75 cents.

Philadelphia—Elbertas, 60 cents to $1.10; Crawfords, 60 cents to 75 cents; Thompson Seedless, 75 cents to $1.05.

Boston—Bartletts, $1.00 to $2.60; Elbertas, $1.30 to $1.60; Crawfords, 50 cents to $1.15; Tuscans, 50 cents to $1.00; Late Crawfords, $1.05 to $1.15; Egg plums, $1.05 to $1.45; Malagas, $1.25; to $1.40; Thompson Seedless, $1.50.

Total shipments to August 10, 1909, 5542 cars. Total shipments to August 10, 1908, 4349 cars.

WEEKLY LETTER.

Sacramento, Cal., Aug. 10.—The following gives number of cars of deciduous fruit shipped to all points by all members of the California Fruit Distributors for the week ending Monday night, August 9, 1909:

Plums and Prunes (135 cars)—Shipment of plums is dropping off quite rapidly and will continue to decline until the end of the week, when the crop will be nearly all off.

Peaches (542 cars)—This week will finish the heavy movement of peaches and after that time there will be a comparatively small number of cars available for Eastern shipment until Salways are ready. Quality of the fruit moving out this last week has been very good and the same will be true of all fruit going this week.

Pears (336 cars)—The Bartlett pear shipment is rapidly dropping off and will be practically concluded this week. A few cars will be available for shipment after this time, but not many.

Grapes (79 cars)—Grape shipments are increasing, but not rapidly. There will be no considerable quantity moving before the 20th of the month, when car lots of Tokays are expected to be available for shipment. Thompson Seedless and Malaga constitute the bulk of the present offerings. Rose de Peru, or Black Prince, will be available for shipment in straight cars the latter part of the week.

No further trouble has been experienced through lack of cars, and owing to the fact that shipments will be considerably less after this week no further trouble is expected.

Citrus Market Report.

Los Angeles, Cal., Aug. 10.—The Valencia market appears to be just a wee bit stronger at the opening auction of the week and the general average for the twenty-nine brands sold in New York City on Monday was $2.68, while the general average in the city for the past three weeks has been $2.50. Nearly all of the other markets were also some stronger than they have been.

Lemons have been extremely weak, owing to the poor quality of the stock offered and the heavy accumulations from both California and Sicily. The weather has been very favorable for lemons and it is expected that they will clean up rapidly under existing conditions and that there will be a good demand for the best stock right away. The new tariff law took effect upon being signed and it is thought that this additional duty of one half a cent a pound will make the importers hesitate about bringing in any great amount of weak fruit. The amount available within the next thirty days is 205,000 boxes, about 600 cars, as against 126,000 boxes in 1908 and 220,000 in 1907.

Says a shipper: "There will be better conditions right away in lemons. There will be a moral strengthening even before there is a physical, or in other words, the knowledge that the importers will not be likely to flood the market with cheap stock and that the California supply is limited, will strengthen the market even though there is an ample supply on hand to cover all wants for the next thirty days. I believe that the figures given us as the amount available mean les at this time than ever before, for certainly over one half of this 200,000 boxes they report has not yet been landed and is subject to the additional duty and much of it will no doubt be diverted."

Valencia quotations are the same as for the last month and run all the way from $1.35 for the poor stock to $1.90 for the better goods. Orders are very few and the jobbers appear to be buying about all they need on a delivered basis at 25 cents to 50 cents a box less than price quoted at this end. There is no settled basis for lemon prices and all are waiting to see what the next few days will bring forth.

The citrus fruit shipments to this date have been 29,307 cars of oranges and 5458 cars of lemons. To same date last season they were 23406 cars of oranges and 4136 cars of lemons.

Reliable Live Stock Insurance.

As it appears elsewhere in this issue, the Indiana and Ohio Live Stock Insurance Company of Crawfordsville, Indiana, is preparing to assume risks on horses, mules and cattle.

Upon interviewing Mr. Cleverdon, of Cleverdon & Hooper, who has recently been appointed State agent during a visit last month of the company's president, the Hon. John R. Bonnell, we learn that the company's policy protects an owner against death of the animal from any cause, which includes fire, accident, disease, etc. The company also has recently issued forms of policies covering loss due from castration and foaling which will likely be appreciated by the insuring public.

This company has been in business since 1886 and has proven very successful, having at the present time accumulated assets of $350,000 and we understand that the present paid-up capital of $100,000 will on October 1st be increased to $200,000, affording the company the privilege of entering every State in the Union. As the record of the company for prompt settlement of its claims is well known throughout the United States, it will no doubt receive liberal patronage from the farmers, which business is looked upon with special favor.

Mr. Cleverdon advises us that the company is about to appoint agents in all the principal communities and is now receiving applications from responsible parties.

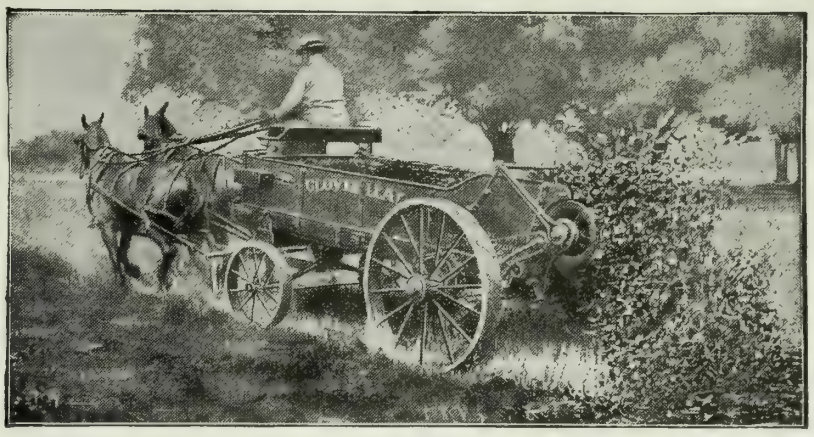
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Shepherd's Manual, by Stewart	1.00
Clovers, by Shaw	1.00
The Hop, by Myrick	1.50
Farm Grasses of the U. S., by Spillman	1.00
Animal Breeding, by Shaw	1.50
New Rhubarb Culture, by Morse	.50
New Onion Culture, by Greiner	.50
Home Pork Making, by Fulton	.50
Profitable Dairying, by Peck	.75
The Potato, by Fraser	.75
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Chemistry of the Farm, by Warrington	1.00
Cereals in America, by Hunt	1.75
American Grape Growing and Wine Making, by Hussmann	1.50
Broom Corn and Brooms	.50
Soiling Crops, by Shaw	1.50
Book of Corn, by Myrick	1.50
New Egg Farm, by Stoddard	1.00
Dairyman's Manual, by Stewart	1.50
American Cattle Doctor, by Dodd	1.00
Greenhouse Management, by Taft	1.50
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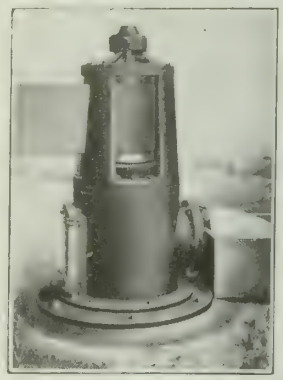
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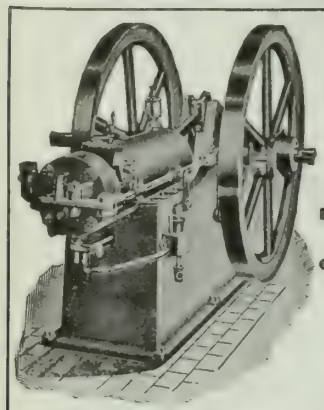
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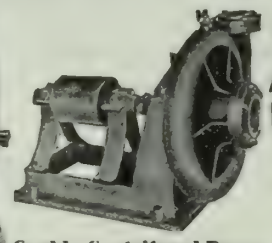
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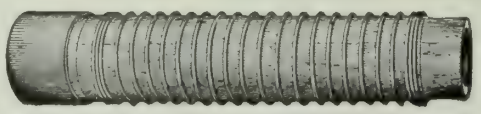
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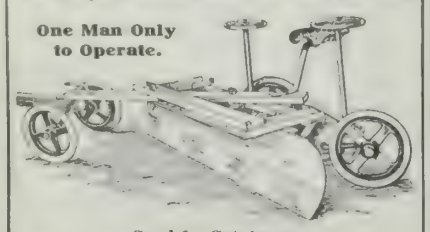
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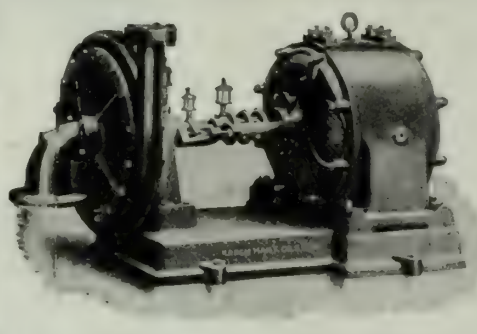
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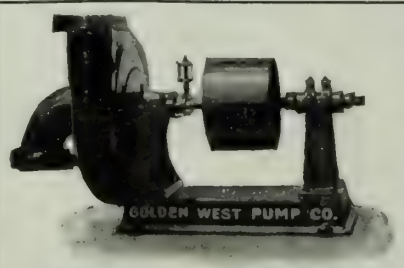
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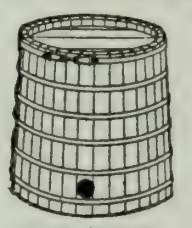


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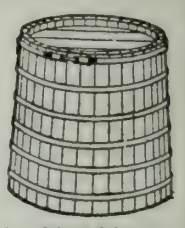
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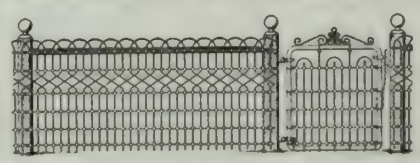
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Vol. LXXVIII. No. 8. SAN FRANCISCO, SATURDAY, AUGUST 21, 1909. Thirty-ninth Year.

Beet Pulp for Cattle Feeding.

Written for the PACIFIC RURAL PRESS
By Mr. PAUL PARKER.

Beet pulp as a food for fattening cattle is becoming more popular every day. This is due to the number of beet sugar mills scattered over California. When the sugar factories first tried to sell the pulp to the stockmen, they had difficulty in getting rid of this by-product, as these men thought that the cattle would not eat the pulp because of its rank odor. It did not take the sugar manufacturers long, however, to prove that the cattle would eat even the rankest pulp in preference to hay. The demand for beet pulp has been growing so steadily since then that a large percentage of the pulp is contracted for before the beet crushing season commences.

As a result of the popularity of pulp as a cattle food, many silos and pulp feeding farms are springing up around the sugar factories. Beet pulp is very heavy (being about one-third water and sap), so that it has been found more profitable to place the feeding grounds near the factories and thus save large freight bills. Probably the largest and most extensive pulp feeding farm in the West is found on the Alisal Rancho near Salinas. It is located about five miles away from the Spreckels sugar factory and is run by two of the most experienced stockmen in California—Henry Miller, the "cattle baron," and Sam Matthews. A more ideal spot for handling and fattening cattle could not be found; what nature overlooked in the makeup of the place, man has erected. The hay which is used in connection with the pulp feeding is raised in the fields close by, thereby doing away with any long hauls of this necessary auxiliary feed. The feeding corrals are in a wind-protected canyon which is covered with oak trees, so that the "feeders" are not compelled to keep moving during a cold spell or rainy weather and thereby losing weight. The soil of the feeding corrals is gravel and slightly sloping; this prevents the ground from becoming muddy except in continued wet spells, and as there are several extra corrals for just such weather the cattle suffer little by it. The ranch is located far enough away from houses or roads that the cattle are not disturbed by dogs or people. In this regard it may be said that stockmen are just commencing to realize the importance of quiet and peaceful feeding grounds for cattle; it is being demonstrated every day that the cattle which feed in localities where there is no shooting or people will fatten quicker and on less food than those animals in a noisy place.

Another important feature of this ranch is the narrow-gauge railroad which runs from the mill to the silo, bringing pulp right into the feeding stalls when it is desired. Also the Southern Pacific railroad is only three miles away; since all the cattle are shipped by this road the short drive saves many pounds of fat and incidentally dollars, because nothing reduces the weight of corral-fed stock more than long drives. When a thousand cattle lose a few pounds apiece on a drive it soon runs into dollars.

The wise cattlemen of today are placing their fattening corrals near enough to the shipping point so that there is only a short drive, and yet far enough so that the cattle are not continually being disturbed by passing trains.



Pulp Feeding Yards of Miller and Matthews, on Alisal Ranch, Near Salinas.

The Alisal Rancho also has a historical setting. The first college in California was built not far from the feeding corrals shown in the picture. The buildings were built in 1828 by Mr. Hartnell, an educated Englishman who had settled in Monterey several years previous to this time. Gertrude Atherton and many other writers on early times in California have centered several of their stories around the building which now serves as sleeping quarters for the vaqueros. The ground on which the feeding pens are located was formerly used by the students for horse racing and other early California sports.

The square feeding corrals shown in the picture contain about five acres each and there are sixteen of them on the ranch. They were made larger than is absolutely necessary so as to give plenty of room for the feed boxes, thereby preventing the cattle from crowding and hooking each other when feeding, and also providing a place for the weaker cattle to feed undisturbed.

When pulp feeding was in its infancy no corrals were used, but the cattle were fed out in the open fields. This has been discontinued, however, as better results have been obtained by feeding in enclosures. It is cheaper, not requiring so much help; better watch can be kept on the cattle, the proportion of pulp and hay per animal is easier regulated and not so much feed is wasted.

The pulp boxes or bins on this ranch are filled with great ease and rapidity because of a track that runs through the center of the feeding corrals. Since some 2000 cattle are fed at a time and over 50,000 tons of pulp distributed in a season, it requires some such means to expedite matters. The cars come down from the silo by gravity and the men pitch the pulp into the feeding boxes along side the track as they pass by. Those feeding boxes not bordering on the track are filled by specially constructed dump carts, holding about 3000 pounds of pulp, and which can be backed right into the silo and loaded.

It is absolutely necessary in pulp feeding to keep the corrals dry, and it is a very difficult thing to do under the most favorable conditions, because a large percentage of the feeding is done in winter, when everything is wet and muddy. Then add to this natural dampness of the ground, large quantities of urine which pulp-fed cattle pass and the water in the pulp. When all this water is tramped into the ground a quagmire is sure to result, no matter how well drained the corrals are. This phase of pulp feeding has been given special attention on the Miller-Matthews ranch, and well drained gravelly soil was selected on which to build the corrals. Then several extra corrals were built, where the cattle could be fed when the other enclosures became too muddy. By this method the corrals are always kept in fine condition. They also constructed the pulp boxes so that they slide over the ground very easily, and in this way, when the ground becomes muddy around the feed boxes, it is an easy matter to move them over a few yards to dry ground, and the cattle are not compelled to wallow in the mud while eating.

Many experienced cattlemen have made a failure of pulp feeding because their corrals were wet and sloppy. When old cows or steers are being fattened it does not make much difference, as they know how to look our for themselves, but with the young bullocks it is different. It will take them a month longer to fatten in wet corrals than in dry. A young bullock is a fastidious creature.

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The Week.

We are rather glad now that we did not try harder to comprehend what five billion dollars worth of century-gold-bonds for irrigation, forestry, river improvement really meant because the Irrigation Congress treated the billions as recklessly as a black kid handles a copper cent—they pitched the proposition at a committee and it never rolled out again. We contended along that millions were large enough and that they would come fast enough as developed land returned them. Possibly that was too narrow a view but when bubble-blowers begin to blow billions one has to get into a crevice somehow. In view of the fact that the thing was not billionated we are willing to concede that the congress did well in resolving an annual appropriation of $10,000,000 for a period of five years to aid in irrigation work. This is only fifty millions in all and that is only 5% of the first billion and 1% of the contemplated five billions. Really the congress was very self-contains and rational, for by the time that money is spent we shall be very much wiser in the economies of irrigation development than we are at the present time.

The most sensational thing at the Irrigation Congress at Spokane last week was the clear cropping out of conflict between Mr. Gifford Pinchot of the Forest Service, and Mr. Ballinger, Secretary of the Interior of President Taft's cabinet. There has been plenty of talk of such discord and now that the issue has come out in quite definite terms some measure can be taken of it. At the congress Mr. Pinchot said:

"Equality of opportunity, a square deal for every man, the protection of the citizen against the great concentrations of capital, the intelligent use of laws and institutions for the public good and the conservation of our natural resources, not for the trusts, but for the people—these are real issues and real problems. There could be no better illustration of the unwearied absorption by capital of the rights which belong to all the people than the water-power trust, not yet formed, but in rapid process of formation. This statement is true, but not unchallenged. We are met at every turn by the indignant denial of the water-power interests. They tell us that there is no community of interest among them, and yet they appear year after year at these congresses by their paid attorneys, asking for your influence to help them remove the few remaining obstacles to their perpetual and complete absorption of the remaining water powers. They tell us it has no significance that the General Electric interests are acquiring great groups of water powers in various parts of the United States and dominating the power market in the region of each group. And whoever dominates power, dominates all industry. The time for us to agitate this question is now, before the separate circles of centralized control spread into the uniform, unbroken, nation-wide covering of a single gigantic trust. There will be little chance for mere agitation after that."

Mr. Secretary Ballinger did not speak upon this particular subject at the congress, but he spoke by telegrams from Washington in a way to indicate that Mr. Pinchot's charges were accepted as an arraignment of the present administration and would be treated as such. The following may be taken as points from Mr. Ballinger's reply to Mr. Pinchot:

"President Taft intends to sustain Secretary of the Interior Ballinger in his conservation policy. Secretary Ballinger, in refusing to go beyond the law, may in some degree endanger the full realization of all the plans, but in placing the responsibility upon Congress for any failure that may come, he does not separate himself from the President. Officials of the Administration feel embarrassed by the charge that the Roosevelt conservation schemes are not to be promoted, and they ask the public to suspend judgment until President Taft has spoken in the West and until his next message to Congress is read. They predict that the friends of conservation will find that they have a strong leader in the President. At no time during the administration of Secretary Ballinger have any power sites been filed on in Montana. The only water-power sites on the watersheds of the Missouri river not now under the control of the Government, under Secretary Ballinger's orders of suspension, are sites which have been in private ownership for several years," says Schwartz, "and two additional sites which are improved and developed to run the street cars and lighting of Helena and Butte and the mines in Butte. These rights, however, are merely revocable permits as distinguished from vested easements, and these permits were approved jointly by the Department of the Interior and the Forest Service in the years 1907 and 1908."

We have then the issue fairly joined. Mr. Pinchot claims that the people's heritage in the shape of power sites are fast going to the trusts. Mr. Ballinger denies the claim and asserts that they have not budged an inch in that direction. It ought not to be difficult to show exactly which is right unless it be a matter of opinion and not of record and if that is so each is entitled to his opinion and the people will avail themselves of their own rights to form opinions also. There is, of course, some comfort in the declarations that the records are clear of entries to trust representatives and no doubt the people will arise in their might to keep them clear. Even if Mr. Pinchot's attitude serves only to bring the issue to the attention of the people it is a great public benefit. That was evidently the decision of the congress, for it almost threw itself at Mr. Pinchot's feet in an ecstacy of adoration—and we have no objection to that either for it did so in a strong, vociferous American way.

Lest a few timorous people should shiver over an impression that the nation is hanging over an awful chasm with great power cables around its neck by which it may be drawn into a seething torrent plunging over natural rock barriers or dams of concrete, they should be assured that the whole wordy conflict is armed to the jaws with politics. Old republican war horses who have side-stepped and lost their hitchings to the main chain; old republican war horses who have always pulled true; young republican colts anxious to get attached either to side or center lines according as the greater promise appears to them; old and new democrats, socialists, nationalists and all others who are naturally in opposition to dominant interests—all these are working their jaws and pens overtime to save the people in their respective ways and they are all doing something for the public good and their own. The people must, therefore, constantly regard the conflict attentively and seriously but not be depressed or discouraged by it. It is merely the American way to secure the prevalence of the right. None of the contestants are as bad as painted by their opponents, and there are very few who, when it comes right down to right and patriotism, are not really very good citizens. But there are political issues; the country must not only be saved but saved in particular ways—which probably means that it can be saved in several ways. The great question now seems to be who really has the custodianship of Mr. Roosevelt's way of saving the country and the contest is honorable, for it is a very good way.

Just now the issue comes upon the question of using and conserving national resources. The great phenomena of nature and the wealth-seeking ambitions of enterprising men are being used as stage properties in the great new play entitled: "Who will be the next President of the United States." We are glad of one thing: yea, two things. First, that the issues are those of industry and real up-building of the country. Second, that the great West is the arena in which the several chief actors and their supporters must make good. It is hard to conceive of a greater advantage in the way of making the West better known and better appreciated as the future strength and hope of the nation than the issues which have now sharply arisen. Great universal principles are involved which are everywhere applicable and significant. The illustrations are to be drawn from western accomplishments and western opportunities. It is really a very interesting phase of American advancement. The great industrial congresses of which there are several held annually constitute the forum in which the leaders clash and make the people wiser. The wide discussion which follows the uncovering of leaders' plans and motives is really a referendum which determines relative strength of men and measures. The West is moving toward its true place in shaping the policies of the nation.

Turning from national to local affairs, we note again the tokens of Los Angeles' activity in various parts of the State to which we recently alluded in another connection. It seems to us very significant and interesting that Los Angeles merchants do not propose to buy potatoes in San Francisco, but intend to get them in the growing districts. This is a fair chase. If San Francisco cannot gather and distribute spuds on a broad open-trade plan let the world rush in and serve itself. The account from Los Angeles is that a merchant of that city has just returned from the Sacramento and San Joaquin valleys and says there are 26,000 acres planted to potatoes there, and although San Francisco, Oakland and Sacramento have hitherto considered those regions their exclusive territory, he is determined Los Angeles shall share in the business. He remarked: "We have put a boat on the San Joaquin river and expect to show the northern dealers we mean business. The people who have practical control of the northern potato business have always looked upon the entrance of an outside firm with animosity. But we are in the business to stay, and our boat is on the waves." Good for

you. Get aboard and do all the business you can. San Francisco needs waking up to the fact that she must fight less and work more.

The producing area of California is just bursting with capability of production and everything narrow must be blown wide open. Old ideas are becoming too small for the present day with vastly increasing population and higher development of lands. Even what was planned last year is chock-a-block and must be doubled in capacity in some cases. For instance take the news which comes from the great ice and pre-cooling plant erected by the Pacific Fruit Express at Roseville, and put into operation this season for the first time. The outfit has proved to be entirely inadequate after an expenditure of a vast sum of money. Its capacity of 250 tons of ice daily has been forced to 300 tons, and 11,000 tons of ice held in reserve have been used, but still many cars of fruit go out only partially iced, to be finished at Truckee or Boca. Six thousand six hundred refrigerator cars owned by the company have proved inadequate to handle the deciduous fruit crop of northern California, and many cars have been borrowed from other companies. A large number of new refrigerator cars ordered will begin to arrive in October, but shipping will be all but finished then. Immense storage houses probably will be built at Roseville in which to store ice during the winter. That all sounds good too. Eastern prices for California fruits this year have been good and they seem able to take any quantity we can deliver in good shape. The whole country seems now to have fully awakened from the recent financial funk; the tariff is all right and there ought to be a new era of industrial activity. Speaking especially of fruits and this year's shipping experience, it is clear that there will be an unusual planting demand for trees. Nurserymen should start right in with the announcements of what they can supply this year and catch the fore-handed trade which will file orders early. It ought to be a very good year for all planting activities.

Queries and Replies.

Promoting Alfalfa Mills.

To the Editor: A party in this district is trying to work the farmers here into a scheme to build an alfalfa mill, the party to put $35,000 into the mill and the farmers to put up $65,000 as working capital. The party claims the grinding process increases the value about three times (which I think is extravagent). In other words he proposes to buy the hay for $8 and sell the meal for about $24 to $26. Any information you can give in regard to the enhanced value of alfalfa when ground or approximate estimate of cost of an alfalfa mill would be interesting.—Farmer, San Joaquin.

We cannot give an opinion as to what profit there may be in various schemes and enterprises which are projected, except to make the general remark that, such promoted affairs, including creameries, fruit canneries, etc., often yield more profit to promoters than to those who put in the money. The method of creamery promoters was to get the farmers to put in all the money that was necessary to purchase the machinery and to give the promoter his profit. The promoters' claim to put in anything has been generally a pretense. We, of course, do not know what kind of men you have to deal with, and say nothing about them or their undertaking, but simply give you a historical suggestion about what has been done by other people in other affairs.

The grinding process does nothing to the nutritive value of alfalfa. It may, however, increase its digestibility, but we have serious doubt as to whether any such addition amounts to anything like as much as the increase in price at which it is sold. We cannot give you any information concerning the cost of machinery for grinding, nor where it can be obtained, though we believe it can be bought at points in the central west.

Difficulties with Potatoes.

To the Editor: They have difficulty raising potatoes up here in Humboldt county, and I didn't know but what there might be something lacking in the soil that could be added by the way of fertilizer or something of that kind. If you will give me your opinion you will oblige me very much.—Farmer, Humboldt county.

Failure of potatoes is generally due to one or more of three causes: First, varieties once productive are apt to run out and new varieties should be introduced.

Second, production is sometimes largely decreased by the work of the potato blight, which should be prevented by early spraying with the Bordeaux mixture.

Third, if the trouble is in the soil it can generally be remedied by the application of fertilizers containing potash. If the last mentioned is the line to pursue you can easily get suggestion of it by applying a moderate amount of wood ashes to a part of the soil and noting the growth of the potatoes as compared with other places not fertilized. Land can generally be improved for potatoes by a liberal application of stable manure, following that with a grain or clover crop, after which potatoes will generally make a better showing.

Are Your Olives Thirsty?

To the Editor: Will you kindly advise me what to do with some olive trees I have which are planted in light, sandy soil and seem to be dying. They are about 20 years old and the trees of the same age in the hard land are in good condition. I tried fertilizing with gypsum on one tree and it seemed to improve it somewhat. Would you recommend that or some other fertilizer, and when should I use it as regards irrigation?—Grower, Stanislaus county.

Are you sure that the olive trees on the sandy land are receiving water enough. Hard land is more retentive and may be able to retain moisture to support the growth of trees while with the same rainfall they might fail utterly on sandy land. We should be sure of the moisture supply of the trees before undertaking any recourse to fertilization. Try more water on a few trees and some stable manure and more water on a few more trees and compare both groups with others not given either and you can calculate what fertilizers you can use to advantage later.

Irrigating Potatoes.

To the Editor: Having just moved to California this spring, wish to ask a few questions regarding raising and irrigating potatoes and other garden truck. When should potatoes be irrigated? I planted some June 4; they are up and almost in bloom. I irrigated the ground before planting, and they have some moisture yet. Will plant some more the first of next month.—Newcomer, Glenn County.

It is good practice to irrigate potatoes, providing you cannot get moisture enough in the soil before planting to carry the tubers to satisfactory size. In some places this can be readily done; in other places where the soil is a little less retentive irrigation must be used to continue the growth of the plant. In irrigation the water should be taken down between the rows and kept away from the plant as much as possible, moistening it by percolation through the soil rather than by direct contact. Water should be applied before the plant becomes in stress for it, because if it becomes partly dormant and then water is supplied, second growth is started, which is not desirable. Water should be used to keep the plant growing thriftily, and yet not enough to cause an excessive growth of top. You will have to learn how to do this on your own soil by the results of your own experience.

Eucalyptus Contract Planting.

To the Editor: Some time ago I purchased ten acres of land planted to Eucalyptus rostrata, and at present the trees average five feet in height. My original agreement was to have the planters care for it for two years at no additional cost to me. In the meantime they have concluded to care for the land five years instead of the two years as agreed in my first contract. They now send me a new contract to sign up extending the care of the tract the other three years. The question to me is whether I can afford to let them have the trees that they will trim out in the next five years, or whether I can have the trees thinned out myself and save quite a profit by so doing. The company plants the trees out 1,210 to the acre, and agrees at the end of five years to turn over to me 650 trees to the acre. That would leave quite a number for them on each acre, and would seem to me that if they continue to make the growth they have on the start, that I would be paying them a good price for the handling of my tract for the extra three years. I will appreciate any advice that you may give me relative to this matter.—Contract Buyer, Iowa.

We hesitate to give an opinion about any contract planting and care of eucalyptus groves, because we are prejudiced against the system. From what you say, however, we should conclude that the sooner 600 trees were taken out of each acre the better, and we can think of no way in which you could turn the surplus stuff of such thick planting to any account, unless you were on the ground to look out for it yourself. Your contract for 650 trees to the acre seems to protect you fully, if the company is responsible, which we know nothing about, for if you get 650 trees to the acre at that time you will have to remove half, or more than half, of them for the benefit of the rest. Some of the computations based upon obtaining large numbers of large trees to the acre are simply ridiculous.

Lupins, Fruits and Moonshine.

To the Editor: Is there any other way of killing out lupin or wild bean than by the grub hoe? What is the proper time to graft peaches into almond stock, and also, plums into almond stock? Is there any truth in the saying that you can kill out willows and other brush by cutting down in the dark of the moon in August?—Reader, Napa.

Keep the lupins from seeding by grubbing or mowing before blooming or by feeding close with sheep—whatever way is most convenient to prevent bloom and seeding. Graft all deciduous fruit trees during the dormant season, that is, before the buds swell for the new growth. Cutting brush to kill in August succeeds because that is the end of the upward push of sap, and the root is weakest and most likely to die. The moon has nothing to do with it.

Walnuts on the Bay Uplands.

To the Editor: Will English walnut trees grow and bear on the lands east of the Bay and in San Francisco?—Reader, Oakland.

Concerning the growth of walnuts on uplands, the California black walnut is a good grower, if moisture conditions are favorable. In dry soil the growth is much restricted. After these trees get to growing you can graft them with the English walnut very successfully and the product will be directly proportional to the favorable conditions of soil and moisture which promote vigor in the tree. So far as the climate goes, it must be considered favorable.

Horticulture.

NOTES ON PEACH GROWING.

Mr. W. R. McIntosh recently gave the Fresno Republican a very interesting sketch upon what we may call progressive peach growing, because it urges a number of reasonable considerations which are certainly a little in advance of the usual practice.

The past decade has witnessed vast improvements in culture methods of the peach. The handling of nursery stock, preparation of the soil before planting, the pruning and training of the young orchard trees, have all been fairly well executed by our growers.

There is one matter, however, relating to peach-culture which needs re-iteration a few scores of times in order that peach growers may be well-grounded in the practice. I refer to the evil of permitting very young trees to bear fruit, and the allied folly of over-production.

Peach trees should not be permitted to bear any fruit at all under three years' growth, and then only a limited crop. During the fourth year about one-third of a crop may be left on the trees; half a crop the fifth year; two-thirds of a crop the sixth year and a full crop the seventh year.

If this plan be carefully followed the grower will have an orchard which, under proper pruning and thinning will last for a quarter of a century, increasing its production in quality and quantity up to twenty years at least.

There have been scores and scores of peach orchards about Fresno utterly destroyed in a few years by over-production of fruit when the trees were too young to stand the strain of growth and fruit-production at the same time.

But the worst practice of all in relation to peach-culture remains to be related. It is that of permitting the trees to over-fruit. Recent observations in several peach sections in Fresno and adjoining counties convinced me that not more than one orchard in a hundred had the fruit been thinned severely enough. In most instances the trees were over-loaded by one-half. There was, in consequence, much undersized fruit, to commence the complaint. This insures the lowest price for such peaches as are acceptable at all by the packers and shippers.

Fruit economists everywhere have been telling the producer for a quarter of a century, at least, that pit-production comprises the greatest exhaustion to the trees, and that trees over-burdened with too many pits, one year, will certainly show a light crop the next year; and that the only way to secure regular fruiting, year after year, is to keep down the production of fruit by systematic thinning.

By over-production the average grower fancies he will secure a large crop of fruit for immediate sale. He may fail in the actual amount of tonnage, by his zeal for a heavy crop.

How much better it is to secure your tonnage by means of extra-large peaches than by many small ones. You have saved the vitality of your trees by severe thinning, in the first place; you have produced the same tonnage in the second place; and you have produced the largest peaches possible, and will get top-notch prices for your fruit which will rank as "extra fancy" in the market.

Big, fancy peaches bring from one, to two cents a pound better than "common" fruit in the Fresno market. This ratio has been maintained for years and should be a "knock-down" argument in favor of big peaches. But, strange to remark, only a few growers avail themselves of it, simply and only because they don't have the fruit of the size to demand these extra high prices. Why? Simply and only because they do not thin sufficiently.

Undersized fruit of any kind is almost worthless. When prices are ruling low much of it is rejected and becomes frequently a total loss. Large fruit, fine fruit is always in damand.

One of the saddest cases of a grower's disappointment came under my observation a few years ago. It is worth relating as a warning, and an "object lesson." Some years ago an orchard of Elberta peaches bore an enormous crop for the first time, one-half of which should have been pulled off when it was the size of quail eggs. The owner, it seems, knew nothing about the practice of thinning peaches. Early in the season he saw the branches of his trees bending with their enormous load of fruit, and smiled in the thought of his future income from so promising a crop.

There was a brisk demand for peaches that year at good prices, and, in consequence, buyers were scouring the country over for contracts.

The orchard under discussion was near a public road out of Fresno. Anxious purchasing agents passed and re-passed it daily—looked at it, and went on. Finally the owner started out to find a buyer for his precious Elberta peaches. When he called on the largest packer in Fresno he learned to his amazement that his crop was well known to its field agent who told Mr. Grower that he did not want his peaches at any price. Why? Too small. He applied to another establishment, which made a memorandum of the place and sent its agent out to see the crop the next day. This man looked over the orchard, shook his head and said: "Too small; we can't use them."

Later in the season, after trying in vain to dispose of his crop to the canners, this grower sold his "beautiful peaches" to a neighbor who fed them to a bunch of hogs.

LIME SULPHUR FOR APPLE SCAB.

Mr. F. L. Griffin, of the plant disease division of the Oregon Experiment Station, tells of a contrast of sprays for apple and pear scab and the manner of spraying.

The writer partially explains the presence of the scab on the sprayed leaves by the inefficient spray nozzle. It is practically impossible to use such a mist spray effectively even under a high pressure and especially in the face of the high winds.

The trees which showed best were coated with a driving spray from Bordeaux nozzles under 180 to 200 pressure, enabling the operator to direct the spray upon the under surface of the leaves, even against the wind. The fruit and the lower surface of all the leaves must be thoroughly coated with the spray if best results are to be obtained.

Although the fungus has a foothold in many if not in all orchards, growers who begin spraying at the first sign of scabs with any good brand of Lime Sulphur solution, using the proper dilution and thoroughly coating the fruit and leaves at least every three weeks, can feel reasonably sure of picking scab-free fruit.

SKUNKS IN A TRAY HOUSE.

To the Editor: Noting a query in a recent issue regarding "Skunks in Tray Houses," I thought perhaps my experience might prove interesting to "Marysville Reader."

We were greatly bothered with the pests digging into a ground-floor chicken house. On putting out an egg poisoned with strychnine we caught the skunk the first night, but even the biddies refused to occupy the quarters for several days, and as there seemed to be "his cousins and his aunts" left we set a box trap, such as is used to catch foxes and coons, baited with a bacon rind or a small piece of fresh meat. The next morning the trap was sprung and we had a second skunk. We dragged the trap to a ditch and left it in the water until the skunk was dead. Evidently the creature was so badly frightened and so busy trying to free himself that there were none of the disagreeable after effects as when suffering poison pains, for it proved the same with the following nineteen skunks caught that winter. Some of these were even caught on the back porch and remained in the traps overnight. We have tried different poisons and shooting, all with same result as with the above mentioned poison, so it would seem the box trap solves that problem.

In case there is no convenient ditch I would advise shooting the skunk in the trap after removing it from the tray house. It is very easy to put a square window in front of trap, covering it with a couple of strong wires, thus leaving an opening to shoot through. After shooting it, sulphur the trap thoroughly to remove all traces of the slaughtered animal, as the skunks are very timid and might scent danger and refuse to enter. If the ditch is handy, that is the best method, but be sure to leave him in the water a good three-quarters of an hour, as they are like a cat, very hard to drown. The first one we caught came to life and had to be submerged the second time.

I trust this will prove of some assistance.

E. I. C.

Uvas, Santa Clara county.

Another Success With Eggs.

To the Editor: Referring to question, "Skunks in a Tray House," in your issue of August 7, I will say that if "Reader, Marysville," will take some eggs, punch or drill small hole in ends, put some powdered strychnine into the hole and close this hole with a stiff dough (flour and water) and place these eggs where the skunk family can get to them, he will soon have the satisfaction of noticing results.

G. H. H.

Woodland.

Citrus Fruits.

CULTURAL GOSSIP.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

A friend from Rialto writes me to say that he thinks Valencias turn green for the simple reason that they have quit growing; that the tree is through with them, and that this happens in July; that when touched with frost they go green earlier, at Rialto in June. He says: "We shipped fine highly colored Valencias last year as late as October 20, this, however, was exceptional."

He believes that the drop this season was owing to the cool spring followed by the five piping hot days the last of May and first of June. Rialto will have about one-half a crop of navels. Groves that were in prime physical condition and had water running on them immediately prior to the hot spell will have a fine crop.

He further says: "My observation has been that groves that were poorly cared for—in poor physical condition, and consequently did not have a heavy July growth—split badly. If there has been a good rank growth in the summer it, in a measure, protects the young oranges in the 'inside' of an orange tree. Keep your trees vigorous, use plenty of fertilizer, and you will have the minimum of loss through split oranges.

"We must take puffed oranges apart from splits. The concensus of opinion here seems to be that cover crops turned under late in spring save us from both drop and puff. Cover crops keep the ground cool and this prevents an early flow of sap, and oranges neither puff or drop to any great extent."

They were discussing fertilization and both grower Smith and grower Jones agreed that much fertilizer hurt the quality of the navel orange and did the tree itself no good but that any kind of a seedling tree would be benefited. Said Smith, "the more you feed a valencia or a seedling the greater you increase the size of the tree and the greater the fruit bearing area of that tree with no consequent depreciation in the quality of the fruit. However, if you force a navel tree in the same manner, while you may raise more fruit for a time, you have hurt the keeping and eating quality."

"I believe you," said Jones, "and moreover, while seedling trees will go on bearing for an unlimited number of years the navel tree seems to reach the height of its bearing capacity at not over 15 years of age. The navel is a freak tree and like all freaks in nature, does not seem to have the stamina of standard stock. I do think, though, and am sure that I have proven it in my own case, that you can renew the youth of a navel tree by cutting it back to the stump whenever it has shown that it has gone beyond the limit of it's productiveness. Of course you lose the product of that tree for two years, but as far as my expedience goes, the tree is good for another like period of usefulness."

The case of Smith and Jones is typical of what happens whenever two growers meet together and in a small way they hold horticultural

conversations and who can say that much good does not come from such conversations. One may have fads and theories that the other would discard on the spot and yet on the other hand might give advice that would prove of value. Smith was a great believer in individualism, that is he would treat each tree according to it's needs, as children are now to a large extent being treated in the public schools and not as a group with no consideration of individual ability or the lack of it. Said he, "Trees are like children or animals. Some are workers and some are not. Some have ability to bear better than others, they have their ills and their needs and I try to find out what these needs are. I do not, like almost every grower, fertilize twice a year, so many tons to the acre and let it go at that. I give each tree what I think it needs, four to five times a year, though probably in a year's time I use no more plant food than the other fellow does."

Something like carrying a bone to a dog instead of letting it have the run of the whole butcher shop. This is a great deal in line with the ideas of Manager Hemphill of the Chapman Ranch; sounds sensible. Big dogs need much meat, smaller dogs less, and sick dogs need medical treatment. So do citrus trees, and the successful grower is the one who can correctly diognose the ailment and treat it correctly.

The scene was laid in Pacoima, time, 1905. A disgusted lemon grower was slashing his lemon trees, loaded with fruit at the time as they were, preparatory to budding to valencias. He had experienced several bad years and his lemons had paid him nothing. He saw the very fine prices then being paid for valencias and wanted some. Tons of good lemons went to the ground and just when the work was complete, something happened. The lemon boom of 1905 arrived and prices went as high as $8.50 f. o. b., California. A neighboring rancher was loading a car of lemons and needed a few boxes to make out the total. He went to our grower and asked him if he wanted to put in 16 boxes. He would accomodate his friend, but would not be liable for any expense if fruit did not bring freight and packing charges. The neighbor picked the 16 boxes from the branches as they lay on the ground, filled his car and caught the beginning of the boom, returning to Mr. Orchard Slasher over $60.00, net, for the 16 boxes he had borrowed. This man's valencia buds are just beginning to come in and prices are the lowest they have been for years. By the time his orchard is in full bearing, probably 10,000 cars of valencias will be produced in California, and prices may be still lower. On the other hand lemons, I believe, will be higher, and, I trust, we will never again see the very low lemon prices of the past. The story should have been headed, "A Tale of Hard Luck, or Poor Judgment," and several like tales could be told about orchardists who murdered their lemon orchards to make valencias.

A lemon grower said the other day, "Keep your eye on W. H. Harris, president of the Chula Vista Lemon Association. You will hear of him some day as one of the leading lemon experts of the country." I inquired about Mr. Harris and learned that he had formerly been a consulting superintendent with the Steel Trust, and so I began to take some stock on what my informant was telling me. He did not go into details but advised me to go to Chula Vista and see for myself that Mr. Harris was working wonders in the way of growing, curing and packing lemons and he predicted that lemons from this district would in a short time have a reputation up with the best. I do intend to go to San Diego soon and will be glad to report what I see down there.

Speaking of lemon culture I should say that the one great point all the experts are after is to make the tree bear summer fruit. A lemon grower was telling me about the theory of "starving" trees for two months in summer and then irrigating them very heavily. He allowed that trees in this manner would bloom very heavily and might produce an abundant May crop, but that the fruit would be small and that the trees would suffer. I quote from a horticulturist who went to Sicily to study the lemon industry, on this point. He says: "I was struck with what are called out of season crops. In one grove one-half was bearing a fine crop of lemons ready for the second gathering. On the other half there was hardly a ripe lemon, but the trees were carrying a good crop of fruit about one-fourth grown. I found that it was a fairly common practice to force trees into bearing such crops. If trees are deprived of irrigation during July and August and abundantly watered in September, a prolific amount of blossom will generally result, producing a valuable May crop. This cannot be done every year, for trees suffer from privation mentoined, and it takes a season to recover normal conditions. Still, the May fruit is of fairly good quality and the price obtained compensates for the scanty succeeding crop."

I understand that this method was tried out thoroughly at Corona one season but has never been repeated so I suppose the results were not at all satisfactory.

I have received the following communication from a Pomona orange grower and it tells it's own story. He says: "I have read with much interest your article in the Pacific Rural Press of July 17th, anent gum diseases. My own experience with this trouble was similar to that of Mr. Jackson. There is no question in my mind but that allowing the ground immediately at the base of the tree to get soaked and then to pack, is productive of gum disease and is one of the many conditions which are recognized as causes of the trouble. I do not believe that it is the most frequent cause, else the disease would be unknown in orchards where the above condition has never existed. I owned an orchard of old seedling trees, growing in adobe soil. The lower two rows of trees had always been irrigated in checks, or basins, and when I acquired the place over 50% of the trees in these two rows had the disease. Some of these trees were past saving but most of them were cured by thoroughly breaking up the soil at the base, which had not been disturbed for years, and giving the usual treatment with the paint brush.

"I noticed that nearly all of these sick trees were corrugated at the base to a large extent and the inference was that they had been checked in expanding by the tight crust of adobe, which had solidified to a depth of 12 inches. Whether gum disease was the result of the water or of the tight soil, it is hard to say, but there is little doubt that it was caused by either one or the other, or both.

"In opening up this subject once more, you are likely to start another controversy. Every grower has his own ideas about gum disease usually based on the action of his own trees. In my opinion, any condition which has a tendency to stunt or hold back the trees, is likely to produce it and relieving that condition will usually restore the tree to health, provided it is not too far gone.

"To attain the best result in any orchard, where the ground is liable to pack hard, I believe it is necessary to keep the soil loose around the base of the tree. The best cures are always the preventive ones.

Another grower writes me regarding the amount of fertilizer to use. He says that in general it is safe to fertilize heavily after a heavy crop and lightly after a light one, on the principle that the heavy crop has taxed the strength of tree harder and taken more out of the soil, and vice versa. Am inclined to think that this would not work out at all times for there are some tight wads who never spend enough money for fertilizer and in consequent never do have any heavy crops and this theory would be right in line with their close fisted policy, but would not work out for the betterment of the orchards. Trees must be fed just like animals. You remember the story of the fellow who put green goggles on his horse and fed it on sawdust. You can't fool a tree that way, it may not die like the horse did, but it might just as well be dead for all the good it does the owner.

An old lemon shipper, not a grower, told me this week that he believed the poor carrying qualities of lemons is caused by the fertilizer used. He ought to know better than that. The growers are using about the same this year as last and last year there was not half the trouble with decayed fruit that there has been this year. "The wet and cold spring is the cause," says a lemon man, "I never in my life saw lemons picked right after a rain or an irrigation that would hold up. You can't fill lemons full of water and then have them keep."

The Vineyard.

A VINTAGE FESTIVAL.

California is to have a Vintage Festival. The first one in the history of the new world is to be held this year on the 9th of September, with the project in view that the festival may become an annual affair authorized by the Governor.

Napa county will initiate the ceremonies and the nucelus of the brilliant scene will be placed at Aetna Springs. A committee has been formed to proceed with all details that the vintage may be accompanied by all the ancient and honorable customs followed for years in the old countries. Europe has always opened her vintage season with official proclamation by Mayor or Burgomaster, though that cannot be done here until a day is set aside by law.

Andrea Sbarboro, Charles Bundschu, Frank Coombs, of Napa, and Len D. Owens, of Aetna Springs, are drawing the arrangements to a focus for the night of September 9th at Aetna Springs, where a barn dance will be held and the guests will go in costume appropriate to the occasion.

Costumes are to be an important feature of the festival and the actual type of those worn by the German girls of Schloss Johannesburg is to be copied in simplicity, and so firmly is this to be enforced that two prizes will be given at the dance. The first will be for the prettiest gown costing no more than $2.50 for materials; the second prize will be given to the gown containing the prettiest designing and workmanship.

Beneath this initiation of fun and good cheer there is a serious movement on foot by the wine-growers of the State to preserve and increase the interest in the vineyard land of the State representing a commercial value of $100,000,000. California is now the only grape-growing district which does not accompany its vintage season with a harvest festival. In addition to the celebration at Aetna Springs a three-days' celebration will take place in the Napa valley, beginning September 7th to the 9th, and will be observed both at Napa City and at Calistoga.

The details of the Aetna programme are not fully worked out, but are in the hands of Mrs. Frona Waite Colburn, author of "Wines and Vines of California."

VINIFERA GRAPES IN ENGLAND.

It is interesting to note that England is to try vinifera grapes in the open air. They have grown them all along under glass and probably would have had them largely in the open if something did not interfere which is hard to overcome. However, they are trying again and it is interesting to know of it. The Royal Horticultural Society planted an experimental vineyard three or four years ago with the object of discovering whether there is a good variety of vine that will flourish in the open air in that country. This experiment is now proving interesting to the experts, who are just beginning to be able to distinguish between good and bad. A July account says that the majority of the vines are now in flower and several are set for heavy crops of fruit if the next six weeks give seasonable warmth and sunshine. By the end of August there will be much useful knowledge gained about the possibilities of English vineyards.

There are eleven rows of vines in the vineyard, representing several scores of varieties of black and white grapes, most of them from Continental wine districts. The vines are placed fifty in a row, each one a distance of ten feet from its nearest neighbors, and the rows twelve feet apart. Along the rows there are stakes driven firmly into the soil, carrying a line of tarred hemp at a distance of 18 inches from the ground. The vines are not allowed to grow tall, but are tied down to the hempen line, so that they spread close to the soil and obtain as much as possible of the warmth conserved by it.

AGRICULTURAL REVIEW.

Horticultural Notes.

Redlands has shipped over 4,450 cars of oranges for the season and has about 50 cars yet to be sent East.

The J. K. Armsby Co. will establish an orange packing house at Oroville, to ship fruit from that point the coming season.

The Apple Growers' Association, of Humboldt county, estimates the apple crop it will handle to be 75,000 boxes this season.

Almond picking is now being rushed in many orchards. The crop will not be as large as last year, but the price will be better.

The lemon growers of Highlands, San Bernardino county, perfected a selling organization last week. W. H. Evans was chosen president; E. D. White, vice-president; A. J. Wilkins, secretary.

The last of the pear crop from the Cone ranch in Tehama county was shipped last week. From the 100 acre orchard 800 tons of pears were shipped, prices ranging from $35 to $40 per ton or $280 per acre.

Wine grapes on a 135-acre vineyard near Lodi, controlled by Japanese, are reported to have been sold for $14 per ton. The grapes are to be delivered on car.

Black Prince grapes are being shipped from Lodi this week.

The Sebastopol Times reports that the Rayford Peterson vineyard near Forestville, one of the largest in Sonoma county, has contracted the crop of Zinfandel grapes at $15 per ton and for fancy varieties is to receive $17.50 per ton from the California Wine Association.

The national commission that was appointed to investigate sulphured fruits, spent the last two weeks in California, going from San Jose to Fresno and then to Sacramento. Every facility was given for investigation—but so far no intimation is made as to the findings.

After a thorough investigation of the citrus fruit prospect in the Highland district, San Bernardino county, Capt. J. L. Hattery says the crop will reach two-thirds of normal. Fruit is now setting well, and growers anticipate a good market during the season.

In a recent interview given out by Percy Morgan, president of the California Wine Association, who had just returned from a trip to Europe, the statement was made that the outlook for wine grapes was very gloomy. While no price was given out, it is thought that last year's rate of $6 per ton will be what the growers will receive this season.

A report to the effect that $20 per ton had been offered growers for Thompson seedless grapes in Sutter county, is pronounced unfounded. There is a large crop of grapes in Sutter county, and the growers are anxious to sell, fearing low prices for the dried product. However, they are shipping heavily the fresh fruit to market and receiving fair prices.

At the meeting of the San Jose grange last Saturday, the subject of prune drying was discussed. The present way of curing prunes by first dipping them in lye to soften the skin is not satisfactory. I. N. Leonard who had been experimenting in processing prunes with hot water, showed samples which had been on the drying trays but a week that were in excellent condition.

A new variety of muskmelon is on exhibition at the State Board of Trade in the Ferry building, San Francisco. The melon was raised by W. E. Hickson, of Calexico, Imperial valley, the seed was planted May 16th, and the melon was picked early in August. It weighs 23¾ pounds, looks like a watermelon, but its rind is rougher and finer mottled. The seed is said to be from Turkestan, and its eating quality is stated to be fully equal to the smaller varieties, while the claim is made that if wrapped in hay and put in a cool place that it will keep till spring.

In its last issue the Sanger Herald says: "So far this season, up to yesterday morning, the shipments of green grapes from this station to Eastern cities has aggregated 17 carloads. In a refrigerator car can be placed from 900 to 1200 crates of grapes weighing about 26 lbs. each. Of green peaches there has been shipped to the canneries at Fresno and Visalia, 40 carloads, averaging 10 tons to the car. This means about $10,000 paid to the growers hereabout for the fruit and nearly as much more to the men and women engaged in picking, hauling and packing the fruit. Growers are offered from $12 to $16 per ton for freestone peaches, and $15 to $20 for clings."

General Agriculture.

Twenty bales of hops recently were sold at Santa Rosa for 21 cents per pound, being the highest price paid for several years.

A farmer's institute is to be held at Klamath Falls, Oregon, September 6th, which will be conducted by instructors from the Oregon Experiment Station.

Fifty cars of alfalfa hay have been shipped from the San Fernando valley this season, for which the growers have received an average price of $13 per ton.

Geo. W. Moore is the new manager of the Orange County Celery Growers' Association, and W. H. Bentley is to be the Eastern representative, with headquarters at Chicago.

Some remarkable crops are reported to have been raised from the reclaimed lands near Knightsen in Contra Costa county. One ranch of 525 acres planted to barley about May 15th, has produced two tons of hay per acre. Other tracts in the district are showing up fine with barley and potato crops.

It is now given out from Washington that the Yakima reservation of 2,000,000 acres of land will probably be opened for settlement next spring. The land is south of the Yakima valley, in central Washington, and is said to be very fertile, can be irrigated, and will produce grain or fruit in abundance.

Commission men from Los Angeles have entered the Sacramento and San Joaquin valleys in an effort to secure part of the potato crop. Heretofore the crop has been marketed in San Francisco, and the Bay cities largely, and the action of the southern commission houses will stimulate the market for the potato growers.

The Healdsburg Enterprise reports the largest deal in hops recently closed in Sonoma county, of any for the past four years. R. W. Peterson contracted to furnish Uhlman & Co. with 100,000 pounds of hops at 21 cents. Although several sales are reported at 21 cents, yet this is the highest price for such a large order since 1904.

The California Farmers' Union, which has its headquarters at Fresno, opened branch offices at San Francisco last week. The new office at San Francisco will enable the union to keep in closer touch with the markets, and will be particular benefit to the Santa Clara valley, aiding that section to a great extent in the marketing of its prunes.

The Lima bean growers on the San Joaquin ranch in Orange county, held a meeting last week to organize a marketing association which will work with the Ventura county organization, in an effort to enlarge the market and secure better prices. The San Joaquin ranch has 16,000 acres planted to beans—the largest bean farm owned by one man in the world.

A dispatch from Yuba City states that Johnson grass is spreading in the Yuba City slough and steps are to be taken to remove this pest of the farmer and

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Both have been tested for many years; both are free from blight; are good and regular bearers. Nuts are of the best commercial Grenoble type.

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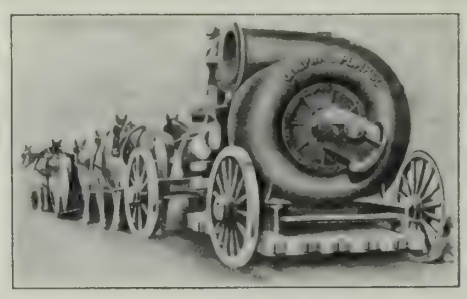
on California Black Walnut root; grafts taken from grafted, bearing trees. SEEDLINGS ARE ABSOLUTELY UNRELIABLE. We have a large stock of these grafted trees, in sizes up to 8 ft. Correspondence solicited; sample nuts on request.

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Powdered Caustic Soda and Pure Potash
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fruit man. T. H. Stafford reports that the grass has lately been discovered in places along the Feather river and along the route of the Live Oak slough. He expects to call on the District Attorney and see what remedy is provided by law for the extermination of the grass.

T. M. Adams, a farmer near Roseville, Placer county, reports great success in tobacco growing experiments. Some of the leaves are eighteen inches long and from twelve to fifteen inches wide. The tobacco seed was sent here by the Government to the Chamber of Commerce, with requests that it be planted and results reported. Mr. Adams formerly grew tobacco in Kentucky, and reports his plants here equal to any raised in that State.

The Sutter County Farmer tells the following story of a new wheat that is apparently proving good: "The Yuba City Flour Mills recently received a shipment of fine Australian wheat from the Dooley farm northeast of Nicolaus, for which much above the market quotations was paid. This wheat is of good milling quality and makes a large yield when the season is at all favorable. Many of the farmers are endeavoring to secure some better wheat seed and especially of a good hardy milling quality."

Our friend, C. H. Dwinelle, of Fulton, Sonoma county, sends us the following item, which is interesting in relation to the article we recently published concerning the cork oak. "There is on display in the rooms of the Santa Rosa Chamber of Commerce a fine piece of commercial cork tree bark presented by C. E. Ogburn and grown on his place near Hilton. This tree is one which the bark is peeled from while growing every few years, and a new bark grows in its place, which in turn is again stripped off."

Geo. A. Murdock, of Orange county, is now shipping onion sets in carload lots to various points East and South. He expects to ship during the season about 200 tons of sets. Mr. Murdock will also ship about ten cars of winter melons, besides having 1,000 barrels of tomato pulp for catsup, 2½ tons of tomato seed, $5,000 worth of other seeds and a quantity of horseradish and 25 tons of pickling onions. Seed raising has been carried on by Mr. Murdock for years and he has built up the largest seed farm in the south.

What is claimed to be a world's record in the production of hay was established by H. D. Heltzel, a farmer near Waterloo, in San Joaquin county. This year he used eleven sacks of Chilean wheat in planting fourteen acres, and instead of cutting it for wheat he decided to make hay of the lot. He secured eighty-six tons, and though early in the season, he sold the output for $15 per ton, netting $90 to the acre. This is said to be most unusual both as to quantity and quality.

Hop picking commenced in the district around Wheatland last week, with a large force of people on hand to gather the crop. Trouble arose this week, however, over the hop picking machines, that have been greatly perfected from what they were last year. A general strike in the hop fields was called Tuesday, which was only partially successful. Whether or not the machines will be a success has not been fully demonstrated, and the large crowd of workers that has been collected feel that fair treatment has not been given by the owners in the selection of help.

Stock and Dairy Notes.

Fall sheep shearing on the ranges has commenced. The clip is reported good and the price of wool is still high with a firm market.

Six hundred head of wild Texas cattle were driven to Oxnard last week, where they will be fattened for market on sugar-beet pulp.

J. S. Nesbit, of Kingsburg, recently purchased eleven head of registered Holstein cows from the Welch ranch at Los Banos, paying an average of $120 per head.

J. P. Murphy, of Kingsburg, has been appointed one of the State dairy inspectors. He will have the dairies of Fresno, Kings and Tulare counties under his supervision.

The apple shipping season from the Pajaro valley has opened and about three cars of fruit are being sent out daily. The regular shipping will commence about September 1st.

Two of the finest prize winning Hereford cattle of the David Jacks corporation at Monterey, were sold to a party at Menlo Park last week, and other cattle from the Jacks' herd will soon be shipped to the Hawaiian Islands.

In a recent round-up of cattle on the Armstrong ranch, east of Gonzales, Monterey county, it was discovered that 125 head of cattle were missing. The sheriff of the county offers a reward of $250 for the recovery of the stock and arrest of the thief.

According to a report published in the Hanford Sentinel, the Lucerne creamery produced more than 70 tons of butter during July, making an average of 4,544 pounds of butter for each of the 31 days of the month. For the butter fat the dairymen in that vicinity received $42,000.

Miscellaneous.

The Nevada Wine Company are erecting a winery 100x50 ft., one story high at Santa Rosa.

A bond election will be held in Merced on September 18th, to vote on a proposition to issue $745,000 in bonds to build good roads throughout that county.

A meeting to discuss the formation of an irrigation district in the Paradise and Magalia sections was held at old Paradise, Butte county. It is proposed to impound in reservoirs water sufficient to irrigate 10,000 acres of land.

The Sacramento Valley Irrigation Company, with capital stock of $10,000,000, was incorporated last week, for the purpose of acquiring and irrigating lands in the Sacramento valley. The corporation is an auxiliary of the Delaware Trust Company, of New Jersey.

A petition is now before the Supervisors of Fresno county to form a reclamation district to exclude the flood waters of the Kings river. The lands are partly in Fresno and part in Kings counties and cover a wide area in the Zalda district.

The Pittsburg Syndicate which has been buying the water rights, canals and land in the upper Sacramento valley, added another tract last week to their already large holdings. The Garnett ranch of 3,100 acres, lying near Williams, Colusa county, was purchased at $35 per acre.

The National Irrigation Congress held at Spokane last week, endorsed the work of Pinchot and Newell in the Forestry and Reclamation Bureaus, asked a $10,000,000 irrigation fund from Congress and commended the Mississippi deep-waterway. The next meeting of the congress will be held at Pueblo, Colo.

Farmer's Institute Dates.

In a letter from J. B. Neff, of Anaheim, conductor of Farmers' Institutes for Southern California, he states that arrangements to hold institutes at the following places and dates have been made: La Mesa, August 23-24; Chula Vista, August 25; Escondido, August 26-27; San Juan Capistrano, August 28; Elsinore, August 30-31; Orange, September 1-2; Fullerton, September 3-4; Highlands, September 13-14; Redlands, September 15-16; Rialto, September 17-18.

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PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J St., Sacramento, Cal. Send for catalogue.

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2 inch 25 for $1.25; 50 for $1.75; 100 for $2.50; 1000 for $17.50.

2½ inch 25 for $1.50; 50 for $2.00; 100 for $2.75; 1000 for $20.00.

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San Dimas, California.

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Plant Seed Suitable to the Season. For reliable seeds and reliable information

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AGGELER & MUSSER SEED CO.,

113-115 No. Main St. Los Angeles, Cal.

Entomological.

NO WORMY FRUIT FOR UTAH.

To the Editor: The California State Board of Trade is in receipt of the following letter from the State Inspector of the Horticultural Commission of Utah:

SALT LAKE CITY, July 29, 1909.

California State Board of Trade: I beg to call your attention to section 14 of the new horticultural law, which bars from the Utah markets fruit showing evidence of the work of the codling-moth and San Jose or other scale insects.

We feel that you are deeply interested in this matter, inasmuch as there is considerable fruit coming from your State into our markets. It is not our desire in executing this law to work any hardships on the fruit growing interests, and as there are a number of markets which will take this class of fruit, this market can be avoided. The law will be rigidly enforced here, and no doubt by giving this publicity among our fruit growing interests you will save considerable financial loss to any shippers who might unknownigly send fruit infested here.

It is our desire to co-operate with all shippers and assist them in every way possible, and thus avoid loss through condemnation. Kindly let us hear from you.

J. EDWARD TAYLOR,
State Inspector.

The section 14 to which reference is made reads in part as follows:

Horticultural Law of Utah, chapter 48, session laws of 1909. Unlawful to sell or offer for sale diseased fruits.

Section 14.—It shall be unlawful to sell or dispose of, or offer to sell or dispose of, or to have in one's possession for sale or barter, any fruit which is or has been infected with San Jose scale, or other scale insects, or the larvae of the codling-moth, and the fact that any fruit bears the mark of any scale, or is worm-eaten by the larvae of the codling-moth shall be deemed conclusive evidence that said fruit is infected within the meaning of this section; and the State and county inspector and the deputies are hereby given power to seize and destroy such infected fruit whenever they shall find that the same has been packed, sold, shipped or offered for sale, or is being held in any warehouse, store, salesroom or other place for the purpose of being sold, bartered, shipped or exposed for sale or bartered.

In effect since March 11.

We ask that you give this matter publicity, so that fruit shippers may be advised of the situation.

CALIFORNIA STATE BOARD OF TRADE.
A. L. MCDONALD, Secretary.

The Field.

KANSAS AND CALIFORNIA.

If wheat from the same sample were to be planted in Kansas and California, and the results were different, the difference might be ascribed (1) to the difference in soil, (2) to the difference in climate, or (3) to both together. But if a sample of Kansas soil were to be brought to California and seeded to wheat, any difference between the two wheats grown in California must be due to the soils, since the climate is identical. Conversely any difference between Kansas-grown wheat and that grown in California on Kansas soil must be due to the climate, since the soils are the same.

Such an experiment is now being tried by the Experimental Agronomy Department at the University Farm near Davis, under a State appropriation. Two ton samples of soil have been exchanged with Kansas and Maryland, and planted with Durum wheat; and the effects of soil and climate, respectively, upon the gluten contents of the wheat kernel are being carefully studied through collation of the results obtained at all three stations. The soil samples make plats about five feet square and three feet deep.

Conclusive results have not yet been obtained from the experiments. Even when the results are ready, they will be of little immediate practical value to the individual farmer. But the Agricultural Department of the University, by correlating these investigations into the influence of soil and climate upon the composition of grains with the results of fertilizer tests, rotation experiments, and other studies, will have the necessary scientific basis from which to reason in its work of directing the agricultural development of the State. Ultimately the results of such experiments will come to the individual farmer in such form as will help him to make the fullest and most economical use of all the resources of soil and climate which are at his disposal.

Apiculture.

BLACK BROOD.

Concerning this rather new bee trouble which we recently mentioned as having cropped out in California, the United States bee expert, Dr. Phillips of Washington, writes to Gleanings as follows: It would certainly appear from our records that the European foul brood disease is spreading to new localities. Of course it may have existed in some of these unknown for years, but this hardly seems possible. In 1897, when it broke out in New York State, it was not recognized elsewhere in the United States, but now it is found in Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Maryland, Virginia, West Virginia, Ohio, Michigan, Indiana, Kentucky, Illinois, and probably on west across the Mississippi river. It is also found in western Mississippi and in the San Joaquin valley, California, with another small outbreak in the West this year, reported to be in only one apiary.

I doubt whether these cases all spread from the New York outbreak, for it seems probable that that outbreak was due to buying colonies in a southern State. At any rate, the situation is a serious one; and wherever no inspection is provided, steps should be taken to get this disease under control. The history of the New York outbreak shows what this disease can do, and the good results of the inspection in that State should point out to bee-keepers the proper steps to take.

European foul brood seems to spread more rapidly in an apiary than American foul brood. It is probably not more difficult to cure. If there is any difference, European foul brood responds more readily to treatment. The chief difficulty is that bee-keepers generally expect to find ropiness in diseased larvae; and when they do not find it they often attribute the trouble to chilling of the brood or to the so-called "pickled brood." In this way the disease gets a bad start before it is realized that there is a disease present.

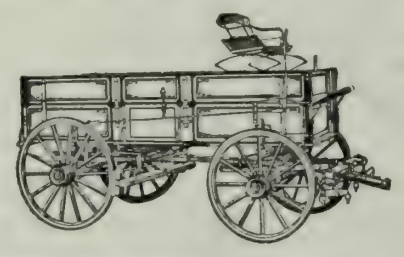
There is good reason to believe that in several parts of the country the bee industry is very poorly developed simply because disease has killed off most of the bees, and it has been attributed to "bad luck." This condition should not continue, and every person interested in bees should learn to look for brood diseases whenever anything goes wrong.

The Bureau of Entomology at Washington is anxious to get samples of both American foul brood and European foul brood from every locality where they exist.

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Live Stock and Dairy.

CHANGES IN THE RANGE SHEEP INDUSTRY.

Even though California flock owners are remote from the central range regions they feel the influence of changes occuring in that vast country to a greater or less degree. An interesting account of such changes is made by the Breeder's Gazette on the basis of interviews with knowing ones in the business. Formerly Eastern feeders did not handle range lambs because they were mostly pure-bred Merinos and poor feeders. Even if decently fattened they did not meet a warm reception on reaching the market and mutton consumption was small. But the advent of the fat open-wool Idaho lamb was responsible for an almost instantaneous change. Yearlings were first tried in feed-lots and then the feeder went to lambs with a vengeance. Whole counties in Michigan, rendered sterile by grain raising have been re-fertilized by feeding Western lambs, so that the change in Western breeding methods has been beneficial in more respects than one. It has developed three market channels for the breeder, who now sells wool to the wool dealers, fat lambs to the killer and thin lambs to the Eastern feeder. The killer has been able to build up a lucrative mutton trade, which was impossible before the open-wool era, and the people of the East have been put in possession of an abundant supply of the most wholesome meat ever grown on grass. The Eastern feeder has been able to restore his run-down grain lands and everybody has been benefited, including the transportation companies, which have gained an enormous increase in traffic.

Gradually the mutton type of sheep is extending its scope of influence, although the bulk of the fat lambs with quality that reach Chicago and Omaha from the northwestern range in August, September and October come from Idaho. Even New Mexican breeders are abandoning old types and using open-wool rams. Each year brings a larger proportion of fat lambs and fewer feeders. In sections where no mountain range exists the straight Merino band will always exist, as open-wools are not suitable for sage brush range. The excellent qualities of the Merino will always preserve that strain even where cross-breeding is the rule, and its disappearance would by common consent be an error, but the tendency is toward the dual type as the most profitable line of action.

Having established a combination type the rangeman is practicing new economies and inventing other methods of increasing revenues. March lambing under cover enables him to get his lambs on Eastern markets early, thereby avoiding the gluts that demoralize prices when the heavy movement is in progress. He is growing alfalfa, close herding during periods of inclemency, thereby avoiding winter loss and insuring a large percentage of lambs. His holdings are decreasing as quality increases and provision against mishaps has become his specialty. He is even leasing stubblefields in the dry-farming and irrigated regions for the purpose of holding thin lambs that would otherwise glut the fall feeder market, until later when part of them may be made fat enough for the killer and the tail ends command more money from the feeder.

Not many years have elapsed since the whole West was on a Merino basis and an open-wool sheep on the range a novelty. When the sheepman avoided a railroad, even when such transportation was available, and lamented the gradual closing of the trail, and all these conditions have been obliterated meanwhile. Trails are closed and the nearer the flock is the grower is pleased. The nomadic band of sheep has practically disappeared. Here and there stretches of the trails that led from Oregon to Nebraska may still be detected, but no ovine life frequents them. Even open range is threatened with extinction, and the sheep grower who has not insured a permanency for his business by securing land is seriously considering the advisability of cleaning up. The federal government has assumed control of mountain ranges, administering discipline with a firm hand and the sheep business of today differs radically from that of a decade ago.

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EXPERIENCE WITH ALFALFA AND DODDER.

To the Editor: I notice that considerable is being said through the press generally in favor of Turkestan alfalfa as compared to the common varieties. It may be of interest, and I will state that I have been producing what I believe to be Turkestan alfalfa for a number of years. It is growing on well drained loam along side of the common variety under conditions favorable for making a test, and from my experience I would pronounce it an inferior variety. It sometimes produces a large crop, but has the habit of taking a rest immediately afterward.

In the production of alfalfa I have had much trouble with its natural enemy, dodder. If there is a good effective way to get rid of it without destroying the crop, I would like to be shown. I have only been able to make headway against it by use of fire. To do this I cut the alfalfa while the dodder is growing and before it seeds. After it dries sufficiently, I set fire to the hay and burn it over. A running fire does not injure the alfalfa, and where it is well burned at the right time, the dodder does not seem to reappear. The small patches I burn out by moistening with distillate and quickly throwing a lighted match onto it. The Swedish matches are the best for the purpose. Unless done with care it is a dangerous operation.

FARMER.

Stockton.

THE WOOL CLIP IN AUSTRALIA.

Consul John F. Jewell of Melbourne reports that the wool clip of Victoria for the 1908-09 season amounted to 68,930,200 lbs., a decrease, as compared with the 1907-08 season, of 10,189,772 lbs. The weight per fleece of the 1908-09 clip was 5.45 lbs., against 5.52 lbs. in 1907-08. The total quantity produced in 1908-09, including wool stripped from the skins and on skins exported was valued at $17,748,126. Notwithstanding the decrease in the clip of 1908-09, the exports to the United States amounted to 15,087,300 lbs., valued at $4,860,346, or 7,133,100 lbs., valued at $2,615,200 in excess of the exports of the previous year.

H. H. H. LINIMENT

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WOOL IMPORTATIONS.

Now that the tariff on wool is continued and the outlook for the local industry brightened, it is interesting to note that wool importations into this country in the last fiscal year amounted to 266,500,000 lbs., the largest recorded during any year except 1898, according to statistics by the Department of Commerce and Labor. The value of the wool imported was $45,000,000, while that of the decade ending with the last fiscal year was $213,000,000. About one-third of the wool consumed in the United States is imported. The total consumption of wool in the United States in the decade just ended was 4,750,000,000 lbs, of which 38 per cent was imported. Over $29,000,000 worth of clothing wool was imported during the last year, Great Britain leading other countries in this respect.

DON'T TRUST BULL.

We are always giving this advice, and yet it always seems necessary to do so. Last month a hired man on a ranch near Santa Barbara was pawed to death by a prize-winning Ayrshire bull. Neighbors saw the tragedy, which took place in a pasture lot. A man hearing the trouble rushed to the spot and found the infuriated beast had broken out of his pasture and attacked the hired man in the adjoining field. The animal, which was hornless, was standing with both feet on the man's chest when he arrived. He began pawing the body and pushing it along the ground with his nose. The rescuer killed the animal with two shots, but the hired man was already dead from the battering he received.

THE "BALANCED RATION."

Professor Jordan, of New York State Experiment Station, at a New York Breeders' Association: "The nutritive ratio, or in other words, the protein supply for feeding milch cows, is a subject which is just now receiving a great deal of attention. There is undoubtedly a reaction against feeding standards, largely, I feel sure, because the place and function of these standards were so long a time misunderstood. Much is said about a balanced ration, as though it were a nutritive formula which is to be applied to all animals under all conditions. There is, however, no such thing as a balanced ration universally applicable. The needed protein supply for the forty-pound cow, capable of producing fourteen pounds of butter per week, is entirely different from that of the avarage cow producing 200 pounds of butter per year. Equally true is it that thirty pounds of rich milk make a much larger demand upon the protein supply than thirty pounds of poor milk. A balanced ration then, in the true sense, is one that is

adapted to the work of a particular individual animal."

[Of course this does not interfere with the general principle of balanced rations but rather relates to the way to apply the principle.—Editor.]

AN AQUATIC WEED.

To the Editor: I am sending you a sample of a pest weed. I am trying to get it out of a small pond which has about six inches of water. It has been growing in water for two years. This year I tried to dry it out by draining the pond, but where the mud got baked and dry it grew rank. Where the mud stayed soft and damp the roots rotted upward and the stems seemed to live on the damp air. The soil has been dry for two months. I would like to know the name of the weed and how to get rid of it. Would salt kill it all out? Did I make a mistake by draining the land?—Amateur, Moss, Monterey county.

ANSWER BY DR. HALL.—This is a species of Cotula (Cotula coronopifolia) which has come to us from South Africa, and is now common in low, moist situations almost throughout California. It is probably impossible to get the ground sufficiently dry in the Monterey district to kill it. Salt, in ordinary quantities, would only tickle the plant, for it revels in a moderately saline soil, in fact seems to require more or less salt or alkali. It is not a deep-rooter, although a perennial. If the pond could be drained and three or four inches of the surface earth removed this should catch all the roots. It is, however, a heavy seeder, so care should be taken to remove all seed-contaminated earth and to check all growth of new heads.

A LOW LAND LOTUS.

To the Editor: Enclosed herewith is a sample of grass which is growing quite abundantly on one of the river bottoms. Will you kindly tell through your paper what grass this is?—Subscriber, Stanislaus county.

ANSWER BY DR. HALL—This is some kind of lotus, but in the absence of both flowers and pods it is impossible to name the exact species. It is a native which would afford considerable forage if it would grow plentifully, but it seldom occupies any considerable area to the exclusion of other plants. Since it belongs to the pea family, it is a nitrogen gatherer, and its growth should be encouraged on land not adapted to better plants.

PORK PRICES.

Hogs at $9.05 per 100 pounds live weight in the Portland market, says the Oregon Countryman, challenges attention. Seventy-three head of an average weight of 164 pounds were sold at that figure yesterday. The day before more than 14,000 pounds weight brought $9 per 100 pounds. The earlier lot was sold by Hecker Brothers, of Benton county, and yesterday's by a McMinnville grower.

The figures are of course out of the usual. They are in fact the highest in the history of the Portland market. Obviously they are the product of the high prices of wheat and the perennial scarcity of hogs that is prevalent in Oregon.

But the figures invite reflection. Experiments at the Oregon Agricultural college have demonstrated that wheat fed to hogs that are sold at 6 cents per pound yields $1 a bushel. The same institution has proven that as feed for hogs alfalfa in two months will earn $29.50 per acre for the land. With these experiments as a basis the possibility of a most profitable hog industry in the State at only average prices for pork products seems completely proven.



The Veterinarian.

REPRESSING TUBERCULOSIS.

How to gradually work tuberculosis out of a herd has long been a question with those who were not ready for the sacrifices of the killing on the spot method. It may still be argued that such immediate exclusion is the surest and best in the end, but still all should understand what is meant by the Bang method for the repression and final eradication of this disease. Dairy farmers and breeders of dairy cattle are, or should be, especially interested in a study of this question. Prof. Bang is considered the leading authority on cattle tuberculosis in Europe. The following is a definite statement of the Bang method as prepared by the author and printed with his approval in Bulletin No. 172 by the Department of Agriculture for the State of Pennsylvania:

1. The herd is subjected to a careful physical examination.

2. All cattle with tuberculosis of the udder, or with open tuberculosis, should be killed.

3. The herd is tested with tuberculin by an officially designated veterinarian.

4. The cattle that react to tuberculin are separated from those that do not react.

5. The premises that are to be occupied by the non-reacting cattle are to be well disinfected.

6. The reacting and non-reacting divisions of the herd are kept as far apart as is practicable. If possible, it is best to maintain them on separate farms or in separate buildings. In any case they must be kept in quite separate apartments and be fed and watered separately. If they are cared for by the same attendants, the healthy cattle are to be attended to first and afterwards the tuberculous. Separate boots or overshoes and overalls should be kept for each stable. The two sets of cattle are to have separate pastures and watering places.

7. The milk (also the skim-milk and buttermilk) from the reacting herd shall be pasteurized before it is used as food for calves and swine. It is sufficient to heat to 176 degrees F. for one minute, or to 150 degrees F. for ten minutes.

8. The calves from the reacting cows should be removed from their mothers immediately, or, at latest, on the second day after birth, and thereafter fed milk from healthy cows or the pasteurized milk (heated as above) from reacting cows.

9. As cases of open tuberculosis develop among the cows of the reacting division, they are to be slaughtered.

10. The healthy division and the young cattle are to be tested with tuberculin, by an officially designated veterinarian, at periods of six and twelve months. Cattle that react on such retests are to be isolated with the reacting division, or they are to be slaughtered according to their condition and value.

11. As modifications of the above plan, the following is proposed:

(a) In case the herd is highly tuberculous, instead of testing the mature cows, treat them as though all had reacted to tuberculin. That is, keep them apart from non-reacting cattle, separate their calves and gradually rear from the

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old herd a new herd free from tuberculosis. The young cattle should be tested every six to twelve months, so that any that have accidentally become infected may be placed in isolation with the old herd.

(b) In case it is not possible to feed calves pasteurized milk, the calves may be permitted to nurse from non-reacting cows that do not show signs of open or udder tuberculosis. But the calves must be left with the cows, and in the premises the cows occupy, as short a time as possible and only at feeding hours, two or three times a day. The cows must be confined in stalls so that they may not lick the calves and the cows and cow stable to which the calves have access must be kept unusually clean. The calves must be stabled in a separate stable or shed and shall be tested by an officially designated veterinarian when they are six months old before they enter the non-reacting herd. By this method, as is explained in detail in Professor Bang's paper, it is possible to check further progress of tuberculosis among the cattle of an infected herd and to grow a healthy herd from tuberculous ancestry.

The Bang method for dealing with bovine tuberculosis is especially recommended in relation to herds of pure bred cattle and in other good breeding of herds.

Fruit Products.

THE MAKING OF CIDER VINEGAR.

This timely subject, which will appeal to all apple growers, is discussed by Dr. Van Slyke, of the New York Experimental Station:

When apple juice is left exposed to the air, it is gradually changed, losing its sweet taste and giving off bubbles of gas more or less vigorously. The most prominent change is the conversion of the sugars into alcohol and carbon dioxide gas. This change is known as an alcoholic fermentation and is caused by a vegetable ferment or an enzyeem which is produced by ordinary yeasts. Cells of the yeast plant are so widely distributed that they get into apple juice abundantly under ordinary conditions.

Theoretically, we should be able to get from 100 parts of apple juice about fifty-one parts of alcohol. In actual practice, we are not able to obtain this amount, because some of the alcohol is lost by evaporation and some is lost by certain chemical changes that take place along with the alcoholic fermentation. In general we may expect that in the usual fermentation of apple juice, 45 to 47 parts of alcohol will be obtained from 100 parts of the sugars of apple juice.

It may be mentioned that in freshly expressed apple juice prepared from sound fruit, I have never been able to find any alcohol. Sweet cider, is therefore, a strictly temperance beverage; but, perhaps not every one could be trusted to tell just where the dividing line is between "sweet" and "hard" cider.

The rapidity of alcoholic fermentation depends largely upon temperature. In ordinary cellar storage, at a temperature of about 50 F., it takes about six months to convert the apple juice sugars entirely into alcohol. At a temperature of 75 to 85 F., this time can be reduced one-half or more. The higher the temperature, the more rapidly is the fermentation. There is one serious objection, however, to temperatures above 75 F., and that is the loss of alcohol by evaporation. This is favored also by the rapid escape of gas when the fermentation is very vigorous.

After alcoholic fermentation is completed, another change takes place—the alcohol is converted into acetic acid, and the final object of the vinegar maker is the production of acetic acid. This change is brought about through the agency of micro-organisms, called acetic bacteria, these being entirely different from those that change sugars into alcohol.

For the effective conversion of alcohol into acetic acid or of cider into vinegar, there are needed: (1) Acetic bacteria; (2) an abundant supply of air, and (3) a temperature of between 65 and 85 F.

There is commonly noticed in vinegar a very elastic, slimy, tough, transparent skin of a yellowish-white color; this skin is commonly known as "mother" of vinegar. This appears to be formed by the growth of the acetic bacteria on the surface of the liquid. When one skin has formed, it settles sooner or later and in its place another is formed, and this formation and replacement continue as long as air is supplied under favorable temperature conditions and as long as unchanged alcohol remains.

The chief change that takes place in the acetic fermentation of alcohol is the taking up of oxygen by alcohol, which is thus changed into acetic acid. Hence air is an absolute essential.

Acetic fermentation as usually conducted by farmers, takes place much more slowly than the alcoholic, often requiring 18 months, and in some cases two or three years. The most satisfactory results of acetic fermentation have been obtained by us at temperatures between 65 and 75 F.

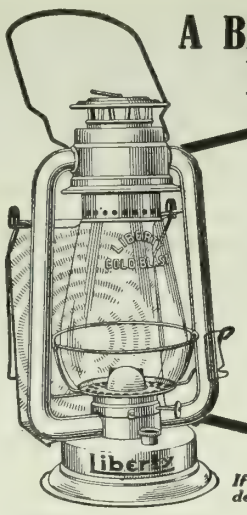
The following is a practical method of inoculating cider with acetic bacteria: When the alcoholic fermentation has stopped, which, under favorable conditions should be in one to three months, the cider is placed in barrels, filling half full and then adding one-fourth volume of old vinegar. Mother of vinegar is then prepared as follows and added: Expose in a shallow, uncovered crock or wooden pail a mixture of one-half old vinegar and one-half hard cider at 80 F. In three or four days the surface should be covered with a gelatinous coating, which is "mother" of vinegar. A little of this carefully removed with a wooden spoon or flat stick should be laid gently on the surface of the mixture of cider and vinegar prepared as described above. Do not stir it in, because the acetic ferment grows only on the surface where it can have an abundant air supply. In three or four days, the coating should spread itself over the entire surface. This coating should not be broken or disturbed as long as the acetic fermentation is going along satisfactorily. When this method is followed, the vinegar should be complete and marketable in one to three months after the alcoholic fermentation is finished.

In this connection we may mention also vinegar-eels, which are as unpleasantly common in many home-made vinegars. They are produced by the small flies that infest exposed or decaying fruits. One method of keeping them out is to keep the apple juice from continued exposure; the placing of a loose cotton plug in the bung-hole of the barrel in which fermentation takes place, effectively keeps out the flies after the juice is barreled. When vinegar is found to be badly infested with eels, the only safe remedy is to heat the vinegar to 185 F., not above this, and strain, cleaning and steaming the barrel before replacing the vinegar and keeping the bung-holes closed. Vinegar-eels, besides being offensive to consumers, cause the vinegar to deteriorate sooner or later.

CHICAGO AS A WOOL MARKET.

Wool is worth about 100% more than a year ago, says the Breeder's Gazette. At that time sheepowners wore long faces and walked the floor nights devising ways and means of evading the sheriff's clutches. That it was an abnormal season was recognized, but it was not until the establishment of a wool mart at Chicago was determined on that the trade encountered a veritable boom. Boston, proud of its supremacy as the leading wool mart of the country, woke up. Eastern middlemen determined that western enthusiasm over the warehousing proposition must, if possible, be nipped in the bud and a campaign of discouragement was vigorously commenced. Buyers swarmed over the West long in advance of shearing time bidding such tempting prices for the 1909 clip that even shareholders in the National Wool Warehouse & Storage Company, the legal title of the Chicago enterprise, accepted their proposals. Nothing daunted by such tactics, the promoters, backed by nearly 500 wool-growing shareholders, proceeded with the consummation of their plans, the result being the erection at Forty-third and Robey Streets (a site accessible by 26 railroads) of the largest and best equiped warehouse in the United States, with a capacity of 12,000,000 pounds of wool, of fireproof construction, five stories in height, and covering an area of 100x250 feet. Confidence by the promoters that such a plant would fill a long-felt want has been justified by developments, and consignments were on track before the structure had been completed, although from the day ground was broken until the contractor turned the building over to the company only six weeks elapsed—a record-breaking piece of construction even in Chicago. So popular has the warehouse proved that provision for additional storage space is already imperative and another building of equal capacity is contemplated.

Chicago will probably not monopolize the wool trade of the country. Such is not the object of the promoters of this enterprise, but Chicago's prestige as a wool market will increase rapidly during the next half decade. It is the object of the company to develop a direct-from-grower-to-manufacturer trade. "The best and most appreciative customer is the manufacturer," said Manager D. I. Baker, a veteran and expert wool man. "Our aim is to grade the wool of our shareholders so that our brands will be standard and the millman will take it on our guarantee. Already we have developed an extensive trade with mills tributary to Chicago and as time wears along this will develop to large proportions."


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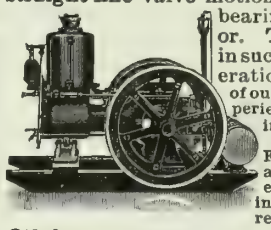
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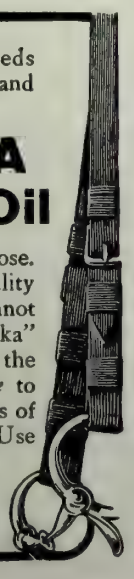
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The Poultry Yard.

THE SEASON'S WORK.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

The special work in the poultry yard at this season, in addition to the general work which is always there, may be classified under the following heads:

Culling the flocks and disposing of the culls.

Keeping the young stock growing and in good condition.

Proper attention to the molting fowls.

Keeping free of insect pests.

CULLING THE FLOCKS.—We will begin with the cockerels. It is supposed that the bulk of these have been sold as broilers early in the season, but we have on hand quite a number of the likely ones saved to select the breeding stock from, and possibly a bird high enough up in points for the showroom. They will now be old enough to show their points, good or bad. Our first test should be for vigor, and this should apply to pullets as well as to cockerels. A chicken that has a long narrow head and body, stalky legs set close together, pale comb and sunken eyes, is lacking in constitution, and should be discarded no matter what points of merit is possesses. The chicken to retain is the chirky youngster with broad head, stout curved beak, full bright eyes, plump breast and broad back, and well set upon a pair of sturdy wide-apart legs. He is the chap that is first to get there at feed time, and first to greet the peep o' day with his lusty crow. Such cockerels as this, if of pure stock will be all right in the breeding pen even if a bit off in "points." For the showroom we must cull close for points according to the poultry fancier's text-book, the "Standard of Perfection." With this book in hand, after making ourselves familiar with the requirements of our special breed, we must study and compare the youngsters that look good to us with the ideal fowl of the class and breed and its description. Those which compare favorably—and their number will be few—we should take from the others and care for them and train them to appear in the showroom. They should be kept in clean quarters and in yards where there is plenty of shade as well as sunshine and sodded soil with mellow scratching places, so that their plumage and legs may not become sunburned and rough by baked soil and hot sunshine. Care should be taken in feeding that the birds do not drizzle water over their vests, or soil their plumage. On no account should milk, chunks of meat or mussy food be fed to them or allowed in their yards. For all the young stock have hard grain, green food, shells, grit and pure water always accessible to them, and only those of the same age yarded together. The cockerels for the showroom should have individual pens.

In culling the old stock do not be in a hurry in disposing of the hens. These late molters and fall layers are very profitable stock to keep until quite sure that they are done laying. A dozen eggs at that season will bring 50 cents—almost as much as you would get for the hen. And often such a hen will lay as high as four dozen eggs before going into a late molt. The late molter is a valuable possession if properly cared for. But hens that are droopy with pale combs and no appetite should be culled out. No cocks nor cockerels should be allowed with the hens at this season. When the fowls begin to drop their feathers is no time to save hatching eggs. Sell off all the male stock except those birds to be kept over for the next breeding season; yard these by themselves and give them the best of care, and the same with the hens which are to be kept through the molt. Dispose of the others as soon as they stop laying.

MOLTING FOWLS.—While molting is a natural function and not a disease, it is a critical time for many fowls, especially for those of the Mediterranean class. As a rule the heavy breeds are slow and moderate in molting as in everything else, often going through the molt without any noticeable change in their condition meantime. Not so the laying breeds; often the feathers will drop from these in a night, and the poor birds, naked and ashamed, shrink from the front, and if left to struggle for food with other fowls, harassed by male birds and cruel beaks, theirs is truly a pitiable condition. Humanity as well as interest should impel the poultry keeper to put these molters by themselves in warm quarters where they shall be protected from chill winds and hot suns, and to feed them generously with food rich in tissue-building elements—meats and green feed. Often such fowls have no appetite for anything but such kinds of food, which plainly indicates the fowl's needs. During the molting season it is well to put a little linseed meal in the mash, also a larger proportion of meat or beef scraps.

INSECT PESTS.—This is the height of the season for such—their swarming season, as it were—and this is the time when the fowls can least combat them. The poultryman must keep right on their trail. If the poultry quarters have been treated as recommended in a former article in the RURAL PRESS, he will only need to give the perches and nests every two or three days a thorough soaking of distillate. But if the quarters have not been attended to, the sooner he gets a wide paint brush and a can of fuel oil and gives the inside of the poultry houses a complete coating, the worse it will be for the lice, mites, ticks and fleas, and the better for his poultry business. The more experience the writer has with fuel oil—thinned crude petroleum—the more certain that this is the best insecticide known. It is also the best preservative extant for the houses and entirely harmless to the fowls and free from any nauseous smell. Many of the patent lice killers might be called chick killers as well. If the petroleum is thoroughly applied to the walls nothing can crawl up them or live in them. Hanging perches are but half a remedy for keeping off insects at night. If the insects are in the house, they will get there all right, hanging perches or not; in fact, will remain on the fowls in the daytime. With petroleum and distillate all insects about the quarters are exterminated, and the latter kept entirely free of them with comparatively little work.

Questions and Answers.

PHEASANTS IN CALIFORNIA.—Miss Eva V. D. asks: "Can you give me any information regarding pheasant raising in California, or give me the name of any one in that business? Would like to know if they could be raised on our ranch at Walnut Creek, Contra Costa county."

A State farm for the rearing and propagating of game and song birds has just been established near Haywards in Alameda county. It is the intent of the game and fish commission, who has it in charge, to give out game birds to the farmers of the State who are suitably located and who will pledge themselves to properly care for the birds and to protect them from animals which prey upon them, that the farmers may raise them for commercial purposes.

The superintendent of the game farm, says H. A. Crafts of Fruitvale, writing to the Tribune Farmer, gives it as his opinion that the Hungarian partridges and pheasants will become the leading game birds of California. These birds were imported direct from Hungary. A number were turned loose last year and they did better than was expected. At the bird farm four varieties of Hungarian pheasants will be bred at first. At the same time Hungarian partridges, quail and wild turkeys will be bred. This year between 4000 and 8000 young birds will be liberated from the farm in bunches of fifty to one hundred each. No bird will be given out until the proposed covers have been inspected by a competent person, and the applicants for the birds pledge themselves to take the best of care of the fowls and to make a business of trapping wild animals that would molest them. All parts of the State will be treated alike in the distribution of young birds. Many applications are now in.

Fur further particulars, would advise our inquirer to address Mr. J. A. Argabrite, superintendent State Game Bird Farm, Haywards, Cal.

HOW OLD IS BIDDIE?

English authors hold that there is no certain test of age for fowls. But they admit that, in general, the spurs, both of hens and cocks, will distinguish a two-year-old bird, says the Kansas Farmer.

There are exceptions, however, in which really young birds develop old looking spurs, while really second-year birds preserve the short, rounded spurs of a cockerel.

The texture of the leg is a guide to some extent, and so are the delicacy and freshness of the skin of the face and comb, but till an occasional hen will preserve her youthful appearance to a startling degree.

The skin of the body is a better test, as it becomes coarse and dryer-looking with age.

Formerly the wing feathers were considered and absolute test as between a pullet and a hen, even after the long practice of early breeding had made the molting of early pullets quite common.

An Austrian authority says that a pullet will show rose-colored veins on the surface of the skin, under the wings.

There will also be long silky hairs growing there. After a year old these hairs disappear, as also do the veins, and the skin grows white and veinless.

It is more difficult to judge the age of water fowls than of other poltry.

THE Oregon Agricultural College has a poultry exhibit all its own at the great Alaska-Yukon-Pacific Exposition at Seattle, Wash., in charge of Prof. James Dryden. One part of the exhibit shows a miniature poultry farm with the buildings and equipment necessary to successful chicken raising. Another portion demonstrates the productiveness of the average hen and illustrates the high efficiency of the hens in converting raw material into the finished product. A stuffed hen is displayed, beside it 100 pounds of the various foods necessary to keep the hen at work for a year, and a basket of eggs, representing the finished product. The electric hen is the point about the exhibit which attracts the most attention. This fowl has all the appearance of being alive. The electrified bird walks through a clover field, a grain field, a gravel bed and into a nest, closing the door behind her. At the end of each performance the hen lays two "fresh ranch eggs" a minute. The eggs are released by an electrical device, the purpose of the exhibit being to illustrate the egg-producing foods and the trap-nest, which is now in use by a number of experiment stations and large poltry farms.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

COTTONWOOD FARM, Pleasant Grove, Cal. Bees, Chickens, Geese, Hares, Pigeons, Turkeys.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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FEED NOW
EGG-MORE

Don't make the common mistake of supposing that you can let the fowls get all run down before or during molting and then bring them up by heavy feeding later. They must be kept in good condition and fed feather-producing and egg-making food. You can make your own "Egg Food," as good as anybody can make, by mixing Egg-More with shorts or other good grain products, according to directions. Egg-More is not a strong tonic, but a highly concentrated Poultry Food. Your hens will certainly lay more eggs if you feed it, just a little each day. 25-lb. sack, $1.90; 50 lbs., $3.60; 100 lbs., $7.00. If not kept by your dealer we will prepay freight within 300 miles, if you mention this paper.

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The Home Circle.

Old Times.

There's a beautiful song on the slumberous air
That drifts through the valley of dreams;
It comes from a clime where the roses were,
And a tuneful heart and bright brown hair,
That waved in the morning beams.

Soft eyes of azure and eyes of brown
And snow-white foreheads are there,
A glimmering cross, a glittering crown,
A thorny bed and a couch of down,
Lost hopes and leaflets of prayer.

A breath of spring in the breezy woods,
Sweet wails from the quivery pines;
Blue violet eyes beneath green hoods,
A bubble of brooklets, a scent of buds,
Bird warblers and clambering vines.

There's a tincture of grief in the beautiful song
That sobs on the slumberous air,
And loneliness, felt in the festive throng,
Sinks down on the soul, as it trembles along
From a clime where the roses were.

We heard it first at the dawn of day,
And it mingled with matin chimes;
But years have distanced the beautiful lay,
And its melody floweth from far away,
And we call it now Old Times.

—*Old Poems.*

Garden Notes.

In California, September is considered the best month to start a lawn. Naturally, August is a good month to make preparation for the lawn. Weeds are the most discouraging thing in lawn making; to weed the lawn is a tedious job to do an expensive one to hire done. It assuredly pays to reduce the weeds to the minimum at the start. This may be done by coaxing out the weeds and destroying them before planting the lawn, and by using great care in the seed, manure and soil. It is best to get the recleaned seed direct from well-known and reliable seed growers. Poultry manure, if kept in good condition, free of feathers and trash, is better for the lawn than barnyard manure. By removing the poultry droppings daily and keeping them in a covered box or barrel with a layer of dry dust over them, they make the very best fertilizer for lawns, flowerbeds and kitchen gardens. It is not alone richer than barnyard manure, its elements are more easily utilized, being almost as quick in their action as nitrate of soda, and it is free of the nits and larvae of grubs and flies, while barnyard manure is the habitat of all such. A comparison of these two manures made from the analysis of a ton of well rotted barnyard manure and a ton of poultry manure gave the following result: Of phosphoric acid there are 48.60 pounds in hen manure to 6 pounds in barnyard manure; of potash there are 40 pounds in the former to 10 pounds in the latter, and of nitrogen, 67 pounds to 11 in barnyard manure.

If the plot to be seeded to lawn is overgrown with dry weeds, it is a good plan to burn it over, as this kills many weed seeds and insects, and the residue is excellent fertilizer. In any case, rake up and burn all trash, then wet down and spade the ground, and thus tempt the dormant roots and seeds to show up. When these have covered the ground, turn them under and allow them to rot. Now spade deeply and mix well with manure, then sprinkle and leave for another showing of weeds, which cut out as fast as they appear. When there is no further growth of weeds, spade and grade or level the plot. A gentle slope away from the house is always desirable. Work the soil till it is like meal, then make it firm and compact with a heavy roller. Now it is ready for the seed, which sow with a sieve. The latter can be readily made by taking the bottom out of a small shallow box and tacking a piece of window screen in its place, and will always come handy about the garden. After the ground is thickly sown with the grass seed, cover with sandy loam put on with the sieve, then wet down with the sprinkler. Some mellow soil from the chicken yard is good for the covering, as the fowls will have scratched out all seeds and insects. The planted seeds must not be allowed to dry out, and the lawn will need to be sprinkled every evening in dry weather.

High Priced Daffodils.—In a single catalogue thirteen varieties of daffodils are listed at $75 a single bulb, and daffodils have been sold as high as $250 the last few years. That a single bulb of this gay spring flower, which may be seen in almost every garden, should bring such prices is a bit surprising at first glance. These are new varieties which are believed to be better than any other variety in at least one important respect, explains County Life in America. Sometimes only one bulb is in existance. Indeed, it is a question if every new variety that contributes a real improvement is not worth more than $250. For every new variety takes seven years from seed to flower, and after that the public must wait about eight years for the bulb to be common enough to be sold at a reasonable price. Would you be willing to devote fifteen years to anything for so small a sum as $250? The actual time spent in caring for the bulbs in one year may seem a small item, but the odds against you getting any real improvement are enormous. You are lucky if you get from 1000 seedlings one new variety worth naming. It takes a long time to make enough crosses to produce 1000 fertile seeds. It takes a deal of time to record those crosses, and there's many a slip between the seed and the flower. While daffodil bulbs have sold as high as $250 apiece in the last two years, the costliest bulb on the market is the Bedouin, which commands $150 a bulb, although it does not belong to the large trumpet section at all. It is a spectacular flower with its orange-scarlet cup set off by white petals.

An Invading Host.—The Empire State, says the Tribune, is today massing a great force of State and government authorities just above Port Chester where the deadly moth pest has just crossed the border line on its way West. If this advancing insect column is not checked at once it will cost the people of New York millions of dollars in the near future to make up for the depletion of its wild birds, due to years of lax laws. For years the millinery interests have prevented the farmers from obtaining real bird protection in New York State, it is pointed out, and now the whole commonwealth must pay the penalty. In other States in the path of this pest, where little legislation exists to prevent slaughter of insect eaters every effort is being made to rouse people to the seriousness of the situation. As the chief and essential natural check to the moth and other insect pests, attempts are to be made in every State in the Union to attract and increase bird life. The government experts estimate that insect pests annually cost the country $800,000,000. No more important work can be done than to keep before the public the great danger from the ravages of the gypsy browntail moths, and to urge the public to protect our native birds, especially by attracting them to live about our homes. Birds are a more effective remedy to prevent the increase of these pests than any other known means to that end. There are more than forty native song birds that feed on the gypsy and browntail moths. The most useful species to combat the moth plague are the cuckoos, orioles, catbirds, chickadees, blue jays, robbins, larks and the vireos. The crow is also a very useful moth destroyer.

In the above, the "millinery interests" bear the onus for lax laws in bird protection in York State, but we fear that some of the blame belongs with the farmer himself. On this coast the lark is about the only song bird we have, and yet its usefulness, its music and the law, all combined, do not save it from a certain class of our farmers; while even the law for its protection was saved by a shamefully small margin last winter in the California legislature. It is time there was an awakening on the bird question in this State. The gypsy and browntail moths are headed this way; in fact, there is no telling from what point they may attack us, for the New York State entomologist reports in the emergency bulletin on the subject just issued, that the browntail moth was found on nursery stock imported from France last winter. The pestiferous sparrow should be subdued and useful song birds invited and protected. They are needed in the interest of agriculture—and in the higher interest of the beautiful.

Clippings From the Fashions.

The extremes of fashion—which this season are the extremes of ugliness—prevail only in fashionable resorts and watering places. In the city and in homes of refinement and good taste simplicity rules. Smart tailored gowns in linen or duck or shantung, and pretty blouses or shirt waists; chic hats of medium size, trimmed with ribbon velvet or with a weatherproof wing; or an occasional novel restaurant gown, or something smart in motor apparel, are all one sees on the streets.

The one satisfactory way of getting along with a few things comfortably in a modest August outing is to have those same few things suited to such an occasion. The long cloak or redingote which the English importers call "over-alls" is one of the things appropriate to such occasions. It need not be expensive. The most attractive garments seen this year, in the way of dusters, are the plain ones in alpaca or linen, costing from $8 to $10. The same coats made at home and unlined need not cost more than $3 or $4. Such a garment is a boon in country driving and walking.

A bright idea is to have matched cravats and stocks for the filling in of these long cloaks or dusters in the front. Jabots of linen or shantung are particularly chic, and several may be made from the cuttings of one home-made duster. The value of these matched stocks and jabots is that they may be closed over a fresh collar and blouse so as to protect these latter from the dust of travel, or an old blouse may be worn under them while the fresh one is carried in the hand-bag to be put on at the end of the journey.

While the duster is a distinct economy for train or carriage travel, or for country walking, it is of no use on the ocean, or even on coastwise and lake steamers. Here something warmer and more roomy is necessary. Above all the wrap required must be of non-creasable and weatherproof material. To make the choice for such a garment truly economical, the shape, weight, color and pattern should be such as to give later service as a winter storm coat.

Black and white and white and black combinations are popular not alone in frocks but in millinery, hats in these magpie effects being in great demand. A fine black straw or crin hat with wide rolling brim and trimmings of a huge white lace bow or of white tulle or lingerie and lace, is a Parisian fad. Delightful bows, cocades, wings, etc., are made up of linen and lace, little overlapping, lace-edged plaited frills of the linen being laid on some firmer foundation to form the wings, etc. Huge white wings laid flatly over wide-brimmed low crowned black hats are another fancy of the moment; and one sees big shapes of white straw faced smoothly with black velvet, black straw faced with white velvet, white brims with full black velvet crowns, black hats trimmed in white plumes, white flowers, white bows, in endless variations. Many black flowers are used on white hats—big black daisies, lilies, etc.

Green Corn Pudding.—To every pint of grated sweet corn allow a cup of sweet milk, a tablespoon of butter, a teaspoon of sugar and a level teaspoon of salt; mix a level teaspoon of baking powder with a scant tablespoon of flour and work smooth with the butter, then stir into the milk and corn and add a well beaten egg. Bake in a well greased pudding dish for an hour in a moderately hot oven. A plate may be slipped over the top of the dish to prevent drying out. If the pudding is larger, a longer time will be required for baking. It should be a rich brown when done. Serve hot with plenty of butter.

"I suppose you have a cow and a garden and plenty of chickens," said the man who was looking for summer board. "Nope," answered Farmer Corntossel; "them things went out o' style several seasons ago. But we've got down the clothes line an' some mosquito nettin' and fixed up a real purty tennis court. We've also mowed off a patch in the medder for a golf rink, an' we've bought a phonograph that plays brass band music clear up till midnight."—Washington Star.

Black or green tea, Mrs. Rafferty?"

"Shure Oi've been readin' that pink tay is all the go. Oi think Oi'll be afther tryin' some of that."—Judge.

HOMES FOR CHILDREN.

HAVE YOU A BOY? If not, let us send you one. We want country homes for boys of all ages. Arrangements to suit. CHILDRENS' HOME SOCIETY, 2414 Griffith Ave., Los Angeles, or 923½ K St., Sacramento, Cal.

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Lectures are given by professors from the University of California, and a course of study for High School graduates and for young women who have left school is also offered.

School Reopens Monday, August 9.

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WIRELESS INSTITUTE OF CALIFORNIA,
Central Trust Bldg., San Francisco.

THE MARKETS.

San Francisco, August 18, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The market has been very weak, with little buying movement and a general pressure to sell, but for the last few days there has been a much stronger tone to the local trade. Prices on California grades show some advance, and buyers are coming into the market more freely. Buying for export in the north has so far been of moderate proportions, but is beginning to increase, as prices are being definitely established. Northern grain here is quoted lower than last week.

California White Australian	$2.05	@2.10
California Club	1.85	@1.90
Northern Club	1.70	@1.75
Northern Bluestem	1.80	@1.87½
Russian Red	1.70	@1.75
Turkey Red	1.80	@1.87½

BARLEY.

Spot prices remain unchanged, and values are steadily maintained, though futures are easy at the moment. The principal movement here is of feed, of which the arrivals a refairly liberal. Brewing grain is quiet, and there is little buying here for shipment, though more activity is reported in the interior.

Brewing	$1.42½	@1.45
Shipping	Nominal	
Chevalier	1.50	@1.60
Good to Choice Feed, per ctl.	1.40	@1.42½
Common Feed	1.37½	@1.38¾

OATS.

Offerings of red on the spot are held at former values, and black oats are also unchanged, with little movement. There is not much demand for any description. A good deal of outside oats are offered for future delivery, and northern whites are lower.

White, per ctl.	Nominal	
New Red, choice	$1.80	@1.90
Common	1.70	@1.77½
Red, seed	2.00	@2.15
Black	2.50	@2.75

CORN.

The arrivals, while not excessive, are quite ample for all immediate requirements of the market, and prices remain practically stationary. Some western grain has come in during the week, as well as a good sized shipment from the Orient.

California Small Yellow	$1.80	@1.85
California Large Yellow	1.75	@1.85
Western State Yellow, bulk.		1.65
Mixed, in bulk		1.63
White, in bulk		1.69
Egyptian	Nominal	

RYE.

The quotations are still largely nominal, as the demand is extremely small, and there is scarcely any business going on at present. All supplies immediately available are firmly held up to the top quotation, while stock to arrive is offered at rather irregular figures.

Rye	$1.60	@1.85

BEANS.

The market shows no important change this week, everything being rather quiet, with no pressing demand and small supplies. Pinks remain very firm, with some advance in price, and bayos are also becoming firmer, on account of the scarcity of stock. Very few white beans are in the market, and the quotation shows a sharp advance, but buyers are holding off in anticipation of the new crop. An unusually heavy crop is expected here. Some stock has already been contracted from growers at high prices, with a good inquiry for future shipment, but from present prospects some reduction is expected as soon as the beans are harvested. The outlook for the lima crop is also good.

Bayos, per ctl	$5.00	@5.25
Blackeyes	3.25	@3.45
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	7.00	@7.50
Large Whites	4.50	@5.00
Limas	4.20	@4.25
Pea	Nominal	
Pink	3.00	@3.10
Red	Nominal	
Red Kidneys	3.50	@3.60

SEEDS.

Seeds are not yet coming in in any large volume, and the buying movement is very slow. Dealers quote values at the figures which have prevailed for some time, and no change is expected for a month or two.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb.	4@4¼c
Canary	4¼c
Flaxseed	4 c
Hemp	4 c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

California and northern grades of flour are still held at the old prices, though some Eastern grades are a little easier. It is not believed that there will be any great decline, though prices are likely to fall off a little within the next few months. Local buyers are not actively in the market, but small lots are moving for export.

Cal. Family Extras	$6.60	@7.00
Bakers' Extras	6.60	@7.00
Superfine	5.50	@5.70
Oregon and Washington	5.50	@6.50

HAY.

The arrivals have been only slightly smaller than last week, and conditions are still unsatisfactory to dealers here. The supply, however, consists mostly of the lower grades, good to choice wheat hay being in very moderate supply and fairly firm at a slight advance. The poorer grades, however, are reported very weak, and while prices seem to be sustained at about the former range it is said to be impossible to effect large sales except at concessions. Dealers say that there are still large quantities in the country which must be marketed before the rains, but reports from some of the country districts indicate firm prices and a fairly ready market, with the surplus rapidly cleaning up.

Choice Wheat, per ton	$17.00@19.00	
Other Grades Wheat	12.50@17.00	
Wheat and Oat	13.00@15.50	
Tame Oat	13.50@16.00	
Barley	10.00@12.50	
Wild Oat	10.00@12.50	
Alfalfa	10.00@12.50	
Stock Hay	7.00@ 9.00	
Straw, per bale	50@ 70c	

MILLSTUFFS.

Bran, shorts and middlings show no particular feature, aside from occasional arrivals from the Orient. The demand here contniues about up to the average, and prices are held steadily at figures which have prevailed for some time. Other feedstuffs are unchanged.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00	
Bran, ton—		
White	29.00@30.00	
Red	28.50@29.00	
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	26.00@27.00	
Corn Meal	39.00@40.00	
Cracked Corn	40.00@41.00	
Middlings	36.50@37.50	
Mixed Feeds	25.00@30.00	
Oil Cake, per ton	38.50@40.00	
Rolled Barley	31.00@32.00	
Shorts	31.50@33.00	

VEGETABLES.

Supplies of onions are sufficient for all demands, and with little movement outside of the regular local market prices are weak. In miscellaneous vegetables there has been little change, though several descriptions show a slight advance, owing to a temporary scarcity. Green corn has been weak on heavy receipts, but the best lots are now moving readily at full prices. Tomatoes are also stronger, with choice lots being considerable advance. In most lines, however, there is still considerable overstock, and there is some difficulty in cleaning up the market from day to day. Summer squash is lower, and cucumbers are also rather weak. Good green peas are a little stronger, but string beans remain as last quoted. Egg plant and okra are unchanged.

Onions—New Yellow, per ctl.	65@	75c
Garlic, per lb.	4@	5c
Green Peas, per sack	1.00@	1.50
String Beans, per lb	1@	3c
Lima Beans, per lb	4@	5c
Tomatoes, per box	75c@	1.50
Green Peppers, per box	35@	50c
Green Corn, per sack	50c@	1.00
Summer Squash, large box	30@	50c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	40@	60c
Pickle Cucumbers, per box	75c@	1.00
Egg Plant, per box	60@	75c
Okra, per box	65@	75c

POULTRY.

The market continues in rather poor condition, with a very moderate demand, and as a rule only the best offerings receive any attention. Quite a lot of stock was held over from last week, and while two cars of Eastern stock which came in early this week were moved off without difficulty ordinary local offerings are inclined to drag. Roosters are a little lower, and the market as a whole is inclined to easiness, though choice offerings find buyers readily. A few turkeys are now coming in, and are held at 30c. per lb.

Broilers	$ 3.25@	3.50
Small Broilers	2.50@	3.00
Fryers	4.00@	6.00
Hens, extra	8.00@	10.00
Hens, per doz.	6.00@	7.00
Small Hens	4.50@	5.50
Old Roosters	4.00@	4.50
Young Roosters	6.00@	7.00
Young Roosters, full grown	8.00@	9.00
Pigeons		1.50
Squabs	2.00@	2.25
Ducks	5.00@	7.00
Geese, per pair	1.50@	1.75

BUTTER.

The market has been pretty well cleaned up of extra creamery butter, as the arrivals of this grade are light, and the demand is fairly strong. Receivers are accordingly holding pretty firmly, and the market is now quoted at 30c., with a further advance expected. There has been a little accumulation of lower grades, but most of the surplus has been moved, and firsts are higher.

California (extras), per lb	30 c
Firsts	27½c
Seconds	26½c
Fresh Packing Stock, No. 1	24½c

EGGS.

The upper grades continue in strong demand, and the increasing scarcity of extras has caused a further advance of 2½c. Firsts and seconds are also higher, as the high price of the extra grade is turning more attention to cheaper stock. In spite of large offerings of cheap eastern stock, low grade local eggs find a ready market.

California (extras), per doz	36½c
Firsts	33½c
Seconds	28 c
Thirds	23 c

CHEESE.

Prices have been quite firmly maintained on all descriptions, as the supplies are still rather light, while the demand shows no falling off. Fancy local flats are ½c. higher. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	16½c
Firsts	15½c
New Young Americas, fancy	16 c
Oregon Flats	16½c
Oregon Young Americas	16 c

POTATOES.

A continued shipping movement keeps the market in an active condition, and with cheaper sacked goods moving to other points, boxed lots for the local trade are bringing a good advance. Sweet potatoes are now arriving freely, and find a fair demand at the quoted figures, though some decline is looked for.

New Potatoes—Boxes	75c@	$1.00
Sacks, per ctl.	75c@	$1.00
Sweet Potatoes, ctl.	2.50@	2.75

FRESH FRUITS.

Strawberries and raspberries are again higher, on limited arrivals, but blackberries are lower, and ordinary offerings meet with little demand. Cantaloupes and nutmegs are in large supply, with no heavy demand, though watermelons are a little stronger on account of the warm weather. Seedless grapes find little demand, and other varieties are easier on larger arrivals. Apples find a strong demand for shipment as well as for the local market, and the market is kept cleaned up of choice varieties. Choice pears are also higher and rather scarce, with a steady demand. The figs now arriving are unattractive, and move slowly. Apricots are lower. Arrivals of peaches have been light for the last day or two, causing quite an advance. Ordinary plums and prunes are lower, but choice crated lots are in demand at about 90 cents.

Melons, Cantaloupes, crate	$ 1.00@	1.50
Nutmeg, per box	30@	50c
Watermelons, per doz	1.25@	2.50
Raspberries, per chest	8.00@	12.00
Blackberries, per chest	2.00@	4.00
Strawberries, large varieties	4.00@	5.00
Huckleberries, per lb	12@	14c
Grapes, Seedless, per crate	50@	75c
Muscat	90c@	1.00
Tokay	1.00@	1.25
Other varieties	50@	75c
Apples—		
Fancy Gravensteins, per box	1.40@	1.50
Fancy Red	1.00@	1.25
Common	60@	85c
Figs, per box	65c@	1.25
Apricots, per lb	1½@	3c
Peaches, per box	35@	60c
Lug boxes	65c@	1.00
Plums, per box	30@	50c
Prunes, per box	30@	50c
Nectarines, per crate	75c@	1.00
Pears—Bartletts, No. 1, box	1.15@	1.40
Canning, per ton	20.00@	37.50

CITRUS FRUITS.

Oranges are in comparatively little demand at present, and some unattractive stock is offered at reduced figures, though choice fruit is held at former quotations. Grape fruit is stronger. Fancy lemons are held as before, but the lower grades are weak.

Choice Lemons	$ 2.00@	3.50
Fancy Lemons	4.50@	5.00
Standard	1.00@	1.50
Limes	5.50@	6.00
Oranges, Valencias	1.75@	3.00
Grape Fruit	2.50@	3.25

DRIED FRUITS.

The market continues fairly active, with large quantities of new peaches and apricots coming forward. Export trade continues to be an important feature, though buyers in the east are taking more interest in some lines, and there is a liberal movement to the middle west. Prices remain about as before, though the packers are offering some descriptions at rather lower figures. Apricots are dull in the east, but there is still a fair export demand, and full prices are being paid for growers' offerings. There is a firmer feeling in peaches, and growers show a tendency to hold back choice lots at the present values, while the eastern market has a slightly better tone. Future prunes are still unsettled, and there is little doing in the spot market. So far there has been little business in new crop raisins, as growers are inclined to hold for an advance, while eastern buyers are waiting for more settled conditions. Some offers to sell are reported even below the current quotations. Old raisins remain very weak, with little movement.

Evaporated Apples, per lb		7½c
Figs, black		2 c
Figs, white		3 c
Apricots, new crop	7½@	8 c
Peaches, new crop	3¾@	4¼c
Prunes, 4-size basis	2 @	2¼c
Pears	3 @	5 c
(New Crop.)		
Loose Muscatels, in sweatbox	2¼@	2¾c
Thompson Seedless		2¼c
Seedless Sultanas		2 c
London Layers, 3 crown	90c@	$1.00

NUTS.

New almonds are still unsettled, as the transactions so far reported have been too small to establish prices definitely. Considerable stock is to be offered, however, within the next week or two, and prices will be pretty well known within a short time. Spot almonds are practically nominal. Walnuts are cleaning up, with a good demand and firm prices.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

Arrivals have been of fair proportions lately, but the demand locally is so far small, and the market is both dull and weak. Local dealers are holding steadily at about the former quotations.

Comb	10	@13 c
Extracted, Water White	7	@7½c
Extracted, Amber		6 c
Old Extracted	3½@	4 c

HOPS.

Conditions remain very much in favor of the seller, but the market is not very active, as most of the crop has been bought up by dealers. The quotations, however, are still held at the same range as last week.

Hops, Old, per lb	11@	14c
New Crop	18@	21c

WOOL.

The market is without any particular feature at the moment, as the fall clip is not yet arriving in any quantity. The top quotation on fall lambs is for the northern clip.

Spring Clip	Nominal
Fall Lambs	8@ 15c

MEAT.

Hogs remain very dull, and quotations on grain-fed stock are slightly lower, though common hogs are fairly firm. Live cattle, veal and lambs show some advance, mutton remaining steady at former figures. Dressed beef is quite firm, with a little advance on steers.

Beef: Steers, per lb	6½@	7½c
Cows	5½@	6½c
Heifers	5½@	6½c
Veal	7½@	9½c
Mutton: Wethers	7 @	8½c
Ewes	6½@	7½c
Lambs	9 @	10 c
Hogs, dressed	9½@	12 c

LIVESTOCK.

Steers: No. 1	4 @	4¼c
No. 2		3¾c
Cows and Heifers: No. 1		3¼c
No. 2		3 c
Bulls and Stags	1¾@	2 c
Calves: Light		5¼c
Medium		4¾c
Heavy	4 @	4¼c
Sheep: Wethers	4 @	4¼c
Ewes	3½@	3¾c
Lambs		5¼c
Hogs: Grain fed, 100to 150 lbs.		7¼c
150 to 250 lbs		7½c
250 to 325 lbs		7½c
Common Hogs, lb	4½@	5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Cal., August 17th.

Heavy shipments, averaging nearly 200 cars per day, have been the feature of California shipments during the past week. However, as pears and plums are about exhausted the shipments will be smaller from now on, though grapes will show a heavier volume for same time. The Eastern markets have held up well on fruit in good condition. Cars have grossed from $650 to over $1,300. On Monday the Chicago market was strong on Bartlett pears, weak on peaches. Pittsburg was firm on plums and pears, lower on peaches. New York was strong on pears and overloaded on peaches. Philadelphia was strong on pears and plums.

Prices realized in the East on Monday were:

Chicago—Crawfords, .60; clings, $1.65; Bartletts, $2.60; Elbertas, .65; Silver prunes, $1.20; Thompson's seedless, .70.

New York—Bartletts, $2.65; Tokays, $2.05; Elbertas, .75; Crawfords, .80.

Philadelphia—Crawfords, .75; clings, .75; Bartletts, $2.50; Tokays, $1.85.

Boston—Crawfords, .60; Bartletts, $2.70; Sugar prunes, $1.15; Burbanks, $1.15.

Total shipments to August 17th, 6,377 cars.

Total shipments, same date 1908, 4,977 cars.

WEEKLY LETTER.

Sacramento, August 17th.

The following gives number of cars of deciduous fruit shipped to all points by all members of the California Fruit Distributors company for the week ending Monday night, August 16th:

Plums and Prunes: 99 cars.—As indicated in our last report, shipment of plums has decreased materially and after this week there will be a further marked decline.

Peaches: 433 cars.—Shipment of Elbertas, Susquehannas, and other freestone peaches, is almost completed. Some fine Yellow Clings are now available and beginning with next week a limited number of cars of Salways will be offered. The crop of Salway peaches is materially lighter than last year and will probably not run more than 25 to 30% of last year's output.

Pears: 200 cars.—Bartlett pears are no longer quotable in straight car lots but it will be possible to include a few boxes in mixed orders for a few days to come.

Grapes: 222 cars.—Grapes are now moving in considerable quantity and from this time on will be available as wanted. The movement at present consists of Malagas and Rose De Peru mostly. Some straight carloads of Tokays will move to auction points this week and next week we should be able to quote them to the f. o. b. trade. The weather has continued very favorable for grape development. The fruit is filling out nicely and taking on color rapidly. From present indications the crop will be not only liberal in quantity but of desirable quality.

Special Citrus Market Report.

Los Angeles, Cal., August 17, 1909.

The weather continues to be very hot in the country east of the river, but lemon prices have not gone up as expected, no doubt due to the poor condition of the fruit and the large quantity available at points of sale. The foreign supply is heavy and the California Fruit Growers' Exchange alone has 180 cars of lemons rolling, sold and unsold between California and the East and probably an additional 20 cars would represent all the California supply now out, the Exchange being by far the heaviest shippers. Lemon prices in the auctions are very low but from the wide range it is easy to guess that much of the fruit offered is in poor condition. Shippers state that they are quoting at $3.00 to $3.25 for their best stock with a guarantee of not over 3% decay while other fruit is going out on consignment with a guarantee of $1.25 a packed box at this end, simply enough to prevent loss on freight and packing.

Valencias are none too strong and there are almost no cash orders being received. The asking prices are down to $1.75 for the average run of fruit from the best districts and much lower for other fruit not so good in quality. The sales in the different auctions on Monday showed a little better average than for some time, running to $2.56 in all markets.

The shipments for the past week have averaged something over 48 cars a day of oranges and 20 cars of lemons. The total shipments to date have been 29,591 cars of oranges and 5,576 cars of lemons as against 23,607 cars of oranges and 4,241 cars of lemons to same date last season. Since June 10th there has been 4,747 cars of oranges shipped. Allowing that as many valencias were shipped prior to that date as there were of other varieties afterward gives us the amount of valencias gone so far. The early estimates of the valencia crop were as high as 7,000 cars but as the fruit has grown but little for six weeks to two months it is probable the figures will fall short, at least many shippers think so and they say that a 25 car a day output for every one of the remaining 63 shipping days will probably clean up the remainder of the crop, which they now place at about 1,500 cars.

EXPERIMENTAL FARMING IN NEVADA.

Through the construction of large storage reservoirs and irrigation works, the United States Reclamation Service is preparing for agricultural usefulness large areas of land in the arid regions of the West. As these lands are largely taken up by settlers from the older States farther east who know little or nothing about the difficulties they will have to meet, the Reclamation Service some time ago called on the United States Department of Agriculture to establish experiment farms to assist in working out the problems involved in these new conditions. A number of such farms have been established, and it appears that the results of this experimental work will be of great value.

One of these irrigation schemes, known as the Truckee-Carson Project, is located in Western Nevada, and covers 350,000 acres of irrigable land lying along or near the main line of the Southern Pacific railway which runs from Ogden to San Francisco. The mining towns and camps of this region furnish an excellent market for all kinds of farm products, especially vegetables and hay. Alfalfa, cereals, and many vegetables and fruits can be successfully grown. But the peculiarities of the desert soils, and especially their lack of organic matter, make farming on these soils a difficult task for the inexperienced settler.

The Truckee-Carson Experiment Farm was established on a tract of desert land near Fallon, Nev., in the fall of 1906, the United States Department of Agriculture and the Nevada State Experiment Station being co-operators in its management. Experiments in crop growing were begun in 1907, and the operations have been greatly enlarged since. Considerable progress has been made in discovering the crops and methods best adapted to the conditions, and the results secured have just been given to the public in a bulletin of the United States Department of Agriculture (Bulletin 157, Bureau of Plant Industry). In fact, however, the experimental work on this project has only fairly begun, and it will take several years to fully determine the field and garden crops and the fruits which can be most profitably cultivated and the best methods of soil management.

TEXAS IS TRYING EUCALYPTS.

With the object of determining the possibilities of eucalyptus growing in southern Texas, arrangements have just been made by the Forest Service with Prof. E. C. Greene, in charge of the Bureau of Plant Industry Experiment Station at Brownsville, Texas, to start a very thorough experiment at that point. Approximately 10 acres of land will be cleared this summer and devoted to the planting of a number of different species of eucalypts which are commercially valuable, and which at the same time give promise of being best adapted to the climatic conditions of southern Texas. Mr. Rogers, who has just returned to the District office of the Forest Service at Albuquerque after investigating conditions in southern Texas, states that several varieties of eucalypts were found growing near Mercedes in southern Cameron county. Most of these trees were planted three years ago and have made very good growth. There is probably no single genus of trees which has received such world wide recognition as the eucalypts, or gum trees, as they are frequently called. Owing to many remarkable qualities, they have been introduced from their native home in Australia into California, Southern Europe, Africa, Asia, and many parts of South America. One of the extraordinary features of the eucalypts is that they not only grow exceedingly rapidly, but also produce wood of exceptional hardness. Among its many uses, the wood enters into the construction of buildings, ships, bridges, railroads, piers, poles, paving, vehicles, furniture and agricultural implements. Although they have been planted so generally throughout the world, their planting range within the different countries is very strictly defined by climatic conditions. Eucalypts thrive best in a subtropical climate, and for this reason southern California and portions of Mexico offer the best conditions for the growth of these trees on this continent. The particular factor with which the eucalypts have to contend in southern Texas is that owing to the warm, more or less even temperature during the winter the trees rarely become dormant, so that when a cold wave comes it is liable to injure them more or less severely. In regions where the temperature decreases gradually during the autumn the growth of the previous year has time to mature and the eucalypts are able to stand a considerably lower minimum temperature than they can in Texas.

Owing to their rapid growth the eucalypts make a very effective windbreak in a short time, and since windbreaks are greatly needed in this region these trees will probably be planted considerably for this purpose in extreme southern Texas, despite the fact that they are liable to be killed back to a certain extent by occasional frosts. If the trees are cut back, however, they generally sprout readily from the hole. A duration of favorable weather for a few years would also enable the planter to harvest a considerable crop of wood material. The possibilities of growing eucalypts for windbreaks as well as for the protection of forest crops, will be covered in this experiment which will be establised at Brownsville.

PUBLISHER'S DEPARTMENT.

The California Corrigated Culvert Co., of West Berkeley, managed by Harold W. Force, is making extensive additions to its plant, over doubling the size in factory building. This young industry has already built up a demand for its product, that warrants the management in expending $25,000 more in enlargement and improvement.

The Western School of Commerce, of Stockton, Cal., has been purchased and taken into the Heald Syndicate of Schools. The Western Normal will be conducted independently of the Healds, and will continue under the management of Messrs. J. R. Humphreys, L. W. Peart and H. W. Bessac, who founded the School of Commerce. New quarters at 632 Main street, that city, in an elaborate new block are being elegantly fitted up for the new school which will be settled in its new home about October 1st.

MOVED TO LARGER QUARTERS.

The Wireless Institute of California, formerly in the Hibernia Building, was compelled to move in order to secure larger quarters. They secured commodious offices in the Central Trust building, corner Van Ness and Golden Gate, San Francisco, where they have installed the latest and most improved apparatus for teaching telegraphy in all its branches.

Their railroad department has supplied the Southern Pacific Railway Co., and the Santa Fe Railroad Co. with its graduates for the past four years, and have been and still are in a position to place everyone of its graduates who become competent, with these companies. They are the recognized institute on the Pacific Coast for the wireless telegraph companies, to furnish operators in the wireless field.

They are in need of young men and women to take their course of instruction and fill positions awaiting them on completion of the course.

AN INTERESTING BOOKLET.

The Pacific Oil and Lead Co., of San Francisco, have issued a neat and suggestive booklet, entitled "General Feeding Hints from a Protein Basis," that will interest the farmer and stockgrower of the Pacific Coast generally. The booklet contains a discussion of scientifically selecting food stuffs, dealing with the general composition, enabling one the better to determine the real feeding value. The booklet quotes from Bulletin No. 164 of the University of California, and technically touches upon the properties of construction and solidification. It shows the worth and the percentage of protein in the several grains, and compares them with linseed oil cake meal, or cocoanut oil cake meal, practically the product of the Pacific Lead and Oil Co., and this comparison shows the linseed and cocoanut oil cake meals to be the cheaper in price, an dthe heavier in protein, which is the flesh and muscle producing product in all live stock. We would suggest that every stockgrower should take steps to secure this booklet. A card addressed to the Pacific Oil and Lead Co., 155 Townsend street, San Francisco, will secure one by return mail to any address on the Coast.

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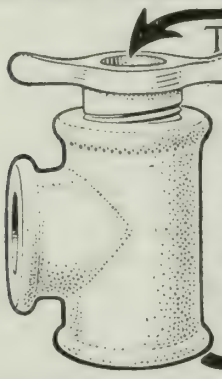
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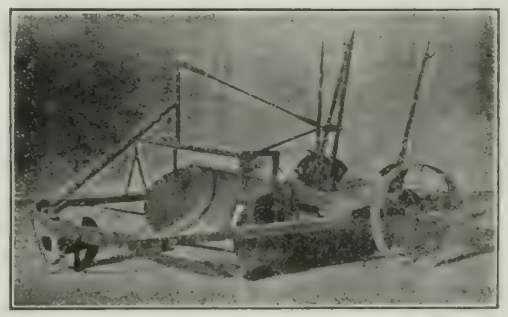


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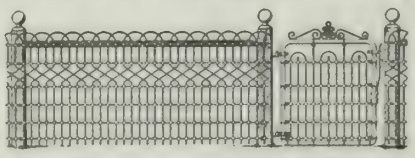
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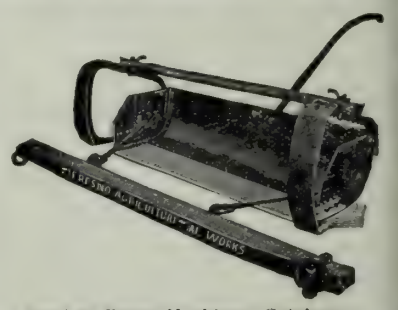
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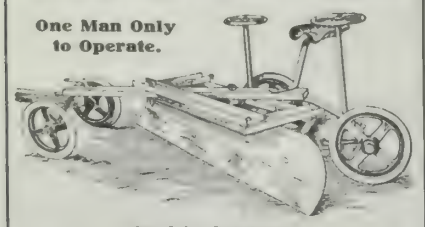
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

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ROMANCE OF THE ORANGE.

Written for the PACIFIC RURAL PRESS
By Mr. W. M. BRISTOL of East Highlands.

As a lad on the Western prairie, where the daily routine of pork and cornbread was broken only by wild plums and sorghum molasses, I read, many years ago, that figs grew profusely in California and were fed to hogs. Like the prodigal son, I envied the hogs. That I should one day be the owner of an orchard of a more beautiful and profitable fruit in the Golden State, I did not even dream—and yet, for a dozen years, I have been plucking apples of gold from a grove of my own growing. I have been in California 25 years, yet I have not ceased to marvel at the fruits which the industry of man is producing in a region so arid that Nature attempted practically nothing save the spiny pear of the desert cacti.

Paradoxical as it may sound, the labor of transforming a sage-mantled foothill into a bearing orange orchard is an interesting pastime. The impression has gone abroad that all is beautiful in California. As a matter of fact the most beautiful natural thing in the region is the climate. Extravagant stories—California yarns—may be told of everything else, but stories of the climate are not exaggerated, because they cannot be. After a months' residence it dawns upon the newcomer that a delightful climate is necessarily more or less arid. Aridity of climate signifies not merely scant rainfall, but scant moisture in the atmosphere throughout most of the year. It follows then, that however beautiful the mountains, where rains occur in summer, the primeval foothills, where the orange thrives best, are brown and sear and devoid of beauty except for a few brief weeks in spring. Strange as it may seem, it is this characteristic and persistent dryness of climate that gives the California orange its color, its flavor and its carrying and keeping qualities. True the orchardist must have an unfailing water supply and must see that little life-giving streams flow through his grove every few weeks. The tenderfoot says: "What a magnificent country this would be if it only rained every month!" Nay, nay, my friend; it would then be like all the other humid tropical regions and the oranges would be pale, insipid and mushy.

I have written at the top of my page "The Romance of the Orange." I might have said "A Fairy Tale Come True." I preferred the former because, to the best of my knowledge, the literature of Fairyland contains no story of a desert region being transformed into a vast orange grove. The views on this page tell a part of that story.

During the era of dry years which closed about 1905 it became apparent that the water supply, which, up to that time, had been obtained almost wholly from the mountain streams, was scarcely sufficient for the orchards already planted and that other sources of supply must be found. It was then that the orange growers, in common with the agricultural fraternity in general, began to draw from their vast underground reservoirs. The development of the gas engine and the discovery of petroleum in California made pumping for irrigation possible and profitable wherever water was to be found in sufficient volume and proximity to the surface. The harnessing of the mountain streams and the distribution of their power by electricity still further simplified the pumping problem. The needs of California agriculture have developed a new type of machinery in many lines and the irrigating department is no exception; for most of the water which is lifted to the surface and perhaps



The Beginning of an Orange Grove at East Highlands.



What a Pump did to the Place in Ten Years.

sent on up the foothill slopes is being pulled and pushed by pumps of local invention and manufacture. The grove in the accompanying views is dependent wholly upon water drawn from a hundred feet below the surface and pushed to a maximum elevation of 200 ft. above it by a pump lifting 25 miner's inches—over 300,000 gallons per day. The pump, the delivery pipe, the cement for the distributing flumes and the necessary electric power are all manufactured or developed within a hundred miles of the grove. It is plain, therefore, that the transformation of the citrus regions of California has not been effected by any magic wand; but the romance of it all is not a whit lessened by the optimism and the genius, the perseverance and the toil of the men who have accomplished it.

Twenty-five years ago the foothills pictured herein were a stock range—and also the hunting-ground of the bear and the mountain lion. Today the 1,200 acres comprised in the district—East Highlands, San Bernardino county—are a solid orange grove and they bring a gross yearly income to the growers and the railroads of half a million dollars. Perhaps no other like area of farming land on earth can tell such a glittering tale. The delights of country life are greatly enhanced by success and profit in one's venture; and the orange growers are enjoying their inning. Perhaps some unexpected catastrophe may overtake the industry -who knows? In that case the current price of orchards—$1000 to $2000 per acre—would come tumbling down and the present owners would figure how much they lost by not selling when they had the opportunity. It must be admitted, however, that the growers are fairly well equipped to combat any visible dangers. The accumulated fund of knowledge and experience in fighting insect pests leaves little to fear in that direction. The actual and possible water supply is such that nothing short of a seven-year drouth could bring disaster from that quarter. Transportation and marketing facilities have reached such a stage that all corners of the globe may get the fruit. Overproduction and frost seem the only possible things to be feared. Because of the limited area adapted to orange culture the form-

(Continued on Page 131.)

Pacific Rural Press

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The Week.

We have been passing the time in our sister States of the upper coast to become better acquainted with the wonderful development of the northern region by actual sight and by personal contact with the wide awake people who are making it famous. We have also been participating in a number of conventions and congresses of an educational and conservational motive which were being held. These were the National Farmers' Institute conference, the society for the Advancement of Agricultural Science, and the association of American Agricultural Colleges and Experiment Stations in Portland and the National Conservation Congress at the Alaska-Yukon Exposition, at Seattle. Closely connected with the foregoing in point of time, but beyond our personal reach, were the Irrigation Congress, at Spokane, and the Trans-Mississippi Congress, at Denver. The deepest impression produced upon us by this chain of events which has taken a fast hold upon public attention, is the nationalization of the West. For all these assemblies were truly national in character. All of them attained a delegated membership of nearly 200 each, with nearly as many more in the outer circle of interested but unaccredited participants. All parts of the country were duly represented in both circles; in fact there was hardly a State of the Union which did not respond to the call of its name. This assembling is in the extreme northwest at an average distance of, perhaps, 3,500 miles from the opposite compass point and still within the national limits. It is impressive also when one remembers that our strongest moving force, national politics, was not involved and that no national political organization would think for a moment of departing far from the center of population. It is at least one striking phase of the demonstration that national industry is a stronger impelling force than national politics in the mind and heart of the American people.

It is another impressive fact that all the assemblies to which we refer were avowedly educational in spirit, motive and method. They all planned to carry measures for national advancement by the improvement and extension of educational effort, both by research to demonstrate what is best for the upbuilding of the country on the basis of sound industrial facts and by the best forms of impressing these facts upon the people for their own increased enlightenment and prosperity. What is the actual truth in all the measures brought up for consideration? What is best for the country because it is really best for all the people? We never attended meetings of such wide constituency in which sincerity of purpose was so apparent or contention on the ground of temporary or local policy so small and ineffective. This might, perhaps, be anticipated from the general character of the people participating. Presidents of our higher institutions of learning, directors of research establishments in applied science, and experts working therein, also men holding positions of trust and honor in our great commercial organizations must be credited with the possession of scientific and industrial conscience and of disinterested motive for the public good if such things are strong in our national character at all, and we believe they are not only strong with such people who are, in this respect, truly representative of the judgment and conscience of the whole people. This being the case, it is important to try to catch forms of significence in their assemblies and their transactions.

We do not attempt to specify items of proceedings but rather to note the general spirit and purposes manifested by them. We have already used a phrase, the Nationalization of the West. We do not mean so much the local advantage in the farther development of our distant parts of the country or the advancement thereof from excessive local self-consciousness or provincialism—though that is a clear and important matter. Nor do we refer particularly to the rapidly advancing recognition of the West as a field for free investment and surprising industrial effort—though that, too, is a great and happy fact also. We have in mind rather, the appreciation of the development of the West as a phase of American progress which embodies a spirit, a breadth of view, a method of seizing opportunities, a glow of humanitarianism, an outlook in the world and a grasp of heaven which should be everywhere marks of greatness in a man. Manifestly the suggestiveness of this theme cannot be pursued in these comments; a few of the most obvious effects may be noted. It is clear to us that the whole country in its methods of thought, in its attitude toward industry and its success therein and in its recognition of the greatness which may be in almost everything which is well done to the extent of its capacity, is being influenced by the courage of mind, fertility of recourse and abandonment of tradition and faith in the project which are Western attributes. It is a common opinion that never in a single year have there been so many people from remote parts of the country traversing the Pacific States as there are this summer. We have had ample observation of this fact and we have taken deep interest in the impressions which local observation seems to make upon our visitors. We pass over the local effects of such observation which will be great in the line of inducing settlement and investment, it is the national effect which we try to descry. It is manifested in such exclamations which we have overheard in visitors' conversations among themselves: "Why cannot our people feel this way about what they are trying to do," "that, surely, can be done as well in our State as here," "why cannot our college graduates get together to move things as they do here: there is a club of over a hundred of them in this single district," "our people do not judge their own products and market only the best, as these growers do," "what confidence these people have in their ability and what delight in their surroundings," "they think they have the best place in the world but their spirit and energy would succeed anywhere."

These are but surface ripples of conversation, but they indicate deep and rapid flow of thought about the industrial freedom, the confident initiative, the buoyancy and breadth of the Western assumption of a problem. Naturally they impress themselves with particular force upon educators because they imply thirst for new facts, teachability and respect for local research as well as light from distant sources. They are, however, recognized by those who are not teachers, as a new attitude which is, of course, prevalent now as never before in all parts of the country and yet more striking in its manifestations in a new country than elsewhere, because it here constitutes a prevailing mode. All this is involved in what appears to us to be a contribution which the West is making toward the strengthening of progress in the older parts of the country. It may be more noticeable in agricultural lines, but we believe it will in some way affect all industries, particularly all which are tributary to agriculture in the supply and in trade lines. What we mean then by the Nationalization of the West is not that the West will be the nation or the center of the nation or the center of the commercial world which will environ the Pacific ocean—although all these are, of course, possible in the centuries to come—but that the West will become nationalized, first and soon, not more by what it receives from the East than by that which it gives to the East as suggestive forces for its own development. It is the Western way which will win, not only in the West, but everywhere. It will loosen the tightly drawn purse-strings of parsimony, it is true, but it will put more money in the purse by broader industrial policy; it will cut the bands of narrowness of thought and will enclose all Americans in a bond of broader humanity; it will have to overcome prejudice by the dissemination of a spirit of greater courage and enlightenment.

We acknowledge that though these views have impressed us for years and have occasionally found utterance in these columns in some form, we are strengthened in them by current experience in the effect which contact with Western affairs produces upon those who are trained to receive correct impressions. We have seen it in California before, and we now see it in Oregon and Washington. It is quite clear that the spirit, the energy and the ability which have developed the higher arts of agriculture in California are now most actively at work in the northern States of the Coast and in adjacent inland regions of the slope, also, we doubt not. We see the men who have come from California to lead in more northerly development; we hear them speak of their patriotic regard for California; we also hear others who reached the northwest along other lines speak also of the influence which they recognize as coming from our direction. It is, of course, natural that this should be the case, for California with her third of a century of large export production of fruit must influence new enterprise everywhere, but we do not contend for a distinctively California spirit at all; it is the spirit of the West—bright, buoyant, masterful. We delight to find it on the north the same in warmth, strength and winsomeness but varying somewhat in manifestation as conditions require. In fact, the very adaptability of the Western spirit is an important element of its real force. It is now working toward a group of States on the immediate Coast which shall constitute a compact combination of complementary parts in which each part shall do its best work for the whole, and the whole working for such advancement as will entitle them to hold such an important position as belongs of right to the Pacific waterfront of the United States.

After a week's close attendance upon the sessions of the four associations meeting last week in Portland we clearly see that the topic which commanded most attention at all of them was

how to intend agricultural education downward into the lower schools and outward to our adult farming population, from the agricultural colleges which are now custodians of the educational effort for agriculture. It was the manifest desire and purpose of those representing such institutions in all States and Territories, to meet the clear demand of those best fitted to judge, that these forms of agricultural extension must be realized as rapidly as possible. It was decided that everything possible shall be done to encourage secondary agricultural education to the end that those who can not attend higher institutions be given as complete instruction as possible in the high schools—both in agricultural high schools and in agricultural departments of high schools organized on the older plan. Nor was it less clear that the extension work in all its phases be entered upon with greater vigor and with superior equipment so that demonstrations which will be helpful to all who have passed beyond school age shall come to know the latest and best which research and experiment have shown to be for the improvement of farm life and the greater returns from farm investment and labor. Days of time were consumed in patient discussion of ways and means to attain such results, the details being, of course, chiefly of interest to those who actually have the work to do.

One thing, however, was very strongly emphasized and that is the necessity of developing sounder knowledge on the subject of farm economics. It was strongly held that at present farmers have a greater ability to produce successfully than they have to sell profitably. That while research into farming methods, protecting crops, etc., ought to continue and take higher lines as they appear, there should also be scientific research into trade, transportation, etc., of farm products from an agricultural point of view. These things are little understood and cannot be forcibly presented except by those who do not seem to require much accurate knowledge in prescribing remedies. Of course, there is a broad basis of preparation involving education, co-operation, etc., but just what shall be taught and for exactly what shall co-operation be undertaken, and how can it be made to co-operate effectively. Therefore, it seems clear that the science of economics must be invoked and it must be pursued with due regard to agricultural needs and point of view, just as the physical sciences have been so successfully invoked from the point of view of production. Something along this path seems likely to be the next great step in agricultural advancement.

Queries and Replies.

Were We Too Discouraging?

To the Editor: I am thankful for your recently published answer to my question about the chances of a man nearly 60 years of age (who had been engaged all his life in clerical pursuits), getting a position to manage agricultural property for another if he should take a short course at the agricultural college. You were very discouraging. I did not write without somewhat more knowledge of agricultural conditions than you seem to feel, however. I myself, am a city-bred woman, who, when I started in on somewhat less than a year's work at an agricultural college course, did not know a Jersey from a Sporthorn. Yet before I left I had been offered an $800 salary to take charge of a large herd of cattle. This fact, coupled with the conviction that has been growing upon me since managing my own farm, namely, that the chief trouble with farming is the ottal lack on the part of farmers, here in the East at any rate, of precisely that training in method and system that is absolutely necessary in business, induced me to write as I did. However, I judge you have a different class of men on the Pacific Coast. The way they market their walnuts and handle their apple crops, beating us here in New England despite their handicap of the continental freightage and high wages, certainly seems to indicate as much.—Reader, New England.

We are glad you were not angry at the discouraging tone of our previous answer to your question. We know that there are many instances in California of such gratifying success as you yourself have experienced, but that does not, for us, have much application to the case of an average man, especially when nearly all the active part of his lifetime has been given to other pursuits. Still, even this is often satisfactorily accomplished in California, but we must hold that such a person has little liklihood of being selected to take charge of another's property with such lack of preparation—though even that has been done. We have all kinds of people in California, but probably we share in the general western view that youth, or not too great departure from it, is essential to success in a new line of which one has neither practical nor theoretical knowledge and expects to find another who will pay for the mistakes which he will make. What you say of your experience can, however, find its match in California. We know a city bred woman who mastered California agriculture even without the advantage of a year at an agricultural college ,though she is now one of the most helpful friends our agricultural college has. But she began young and turned the full force of a resourceful feminine mind upon her problem. We appreciate your compliment to California achievements. Why not come over yourself and take part in them. You are just the right kind for success.

What is a Prune?

To the Editor: What is a prune? We have been having some discussion on this subject and some think a prune is a plum and some think a prune is a prune. Our dictionary informs us that a prune is a plum. Can you help us any farther?—W. R., San Jose.

We think we have the honor of formulting the definition of a prune which is now currently accepted, and it was first published, so far as we know, in the first edition of "California Fruits and How to Grow Them," in 1889, viz: "The prune is only a plum having the property of drying and curing without the seed being removed, and making a superior dried fruit." Subsequently we modified this statement somewhat, and in the fourth edition of "California Fruits and How to Grow Them," 1908, it appears as follows: "All prunes are plums, but all plums are not prunes. A prune is a plum which can be dried without the removal of the pit without fermenting: the result being a fleshy pulp with a high degree of sweetness. All plums which will not do this are not prunes, even though the word may appear in their California common names."

We cannot cite other authorities, either for or against this definition, but may say that, so far as we know, its correctness has never been disputed.

Almonds and Walnuts.

To the Editor: Can you give me any data on the success of the English walnut in Tehama county? If you have any publication on culture of this nut, and also the almond, I would like to know about it.—Enquirer, St. Paul.

There is land in Tehama county which is admirably adapted to the growth of English walnuts; there is other land which is conspicuously unfit. These things do not go by counties, or even by townships, but by local soils, moisture supply, temperature, etc., and have to be looked up on the ground. There are probably situations also well suited to the almond, but they might be quite different from those which would befit the walnut, and in general would be lands which are higher, drier, less subject to spring frosts, etc. Many elementary considerations involved in choice of land for California fruits are described in our book on California Fruits, though we do not undertake county descriptions, but rather the soil characteristics which they prefer in all counties where it is practicable to grow them.

Oranges and Walnuts.

To the Editor: Can a comfortable living be made by an orange or walnut grove? Is it possible to rent such a grove for a time? What part of California, not a new colony, is most advisable?—Enquirer, England.

We can only say in a general way that the orange and walnuts are now considered among our most profitable fruits, providing the trees are on proper soil, in suitable locations and well cared for. There are always properties of this kind to rent, although it must be admitted that property offered for rent is often defective in some way, or has been neglected. You could have the best opportunity of choosing between bearing orchards of walnuts or oranges, or both combined, in the regions of Los Angeles and Orange counties, about 20 miles southeast of Los Angeles city, although if you should come to the State for this purpose (and one should not lease or buy property without seeing it), you might find other parts of southern California even better suited to your desires and you might be suited also in other parts of the State where both these fruits are successfully grown. We ought to disregard such inquiries but are too good natured to do it. Property transactions ought not to be closed on the basis of correspondence. Too much disappointment results from disregarding the old maxim about not buying a pig in a poke.

Remove Sprouts to Kill Stump.

To the Editor: We cut out our apricot orchard last winter, but not having time to finish the work, left a number of the stumps standing. By this summer a great many sprouts had grown from the tops. (The trees were about 16 years old, and were cut off at the first branches). All these sprouts were torn off, the reason being that the growth of these sprouts would cause further growth of the roots and thus make the stumps harder to pull out. Could you kindly inform me if this is true, or if just the opposite,—that the tearing off of the sprouts forces the growth into the roots?—A Subscriber, San Jose.

Removing the sprouts as soon as they are seen will soon kill the stump. Allowing them to grow during the summer, even if they are torn off in the winter, will continue the growth of the roots and stump indefinitely.

A Fresno Nectarine.

To the Editor: I express to you today three nectarines. Please inform me through your paper as to variety.—C. W. C., Selma.

It looks to us like the Hardwicke, but there are several good seedling nectarines at large in the Selma district which we have not seen for many years and do not retain each impression of. If the nectarine had proved more generally profitable we would have paid more attention to varities.

ROMANCE OF THE ORANGE.

(*Continued From Page 129.*)

er is not probable; and the balmy breezes from the wide Pacific ocean have, so far, prevented serious damage from the latter.

The California orange grower has found a gold mine more lasting than that of the '49er and one which is more conducive to the permanent upbuilding of the region.

Horticulture.

A PACKING AND STORAGE HOUSE.

Some time ago we gave some hints about fruit storage house arrangements for ranch use in answer to a correspondent. Additional suggestions and details of construction of a house which seems to have very good points are given by Mr. C. M. Albee in the Denver Field and Farm, and we present them for the consideration of California growers:

The site chosen for my building adjoins the railroad right of way affording facilities for loading with hand trucks, which saves the expense of rehauling by team, for inasmuch as the fruit must be conveyed from the orchard to the car, it is cheaper and better to do so at once than to select a location where the fruit must be conveyed to the building by teaming, and after packing to be hauled to the car by wagon again.

My warehouse is two stories in height, the lower or first story being the warehouse proper, where the fruit can be kept through the winter, while the second story is used for making and storing boxes, for packing and for handling fruit that is not to be carried through the winter. The height of each story is ten feet in the clear and the dimensions 30x75 feet inside measurement. The foundation is concrete, the building is constructed of rough lumber, the studding are 2x6, covered outside with double boards and building paper between them. The second story is lined and ceiled in the same way, while the first story has a concrete wall 12 inches thick and placed 4 inches in from the studding, which leaves a 10-inch space between the wall and the siding, or a thickness of 2 feet in the first story wall and 10 inches for the second story.

The floor of the second story is placed on a level with the floor of a refrigerator car when standing on the adjoining siding. This room is well lighted by eight double windows, that is, the regular sash inside and a storm window outside, leaving a dead air space of 6 inches between them. The ceiling above the first story is made of double boards with building paper between them, on top of the 2x14 floor joists another layer of double boards and paper is placed, then strips two inches thick on top of which another layer of double boards and paper is placed, this last layer forming the floor for the second story, and altogether making a covering over the main storage 22 inches thick containing two dead air spaces.

All door frames have an inner and outer door. The fruit is handled from the first to the second story by means of a hand-power elevator situated on the side of the building adjoining the railroad. There are no windows in the first story, the only openings being a door at each end through which the fruit can be received and a door leading to the elevator, through which it can be conveyed to the packing room and thence to the car. The elevator shaft also serves as a ventilator and is connected to the comb of the roof, producing a pull equal to a stack 30 feet in height. The apples are stored in boxes made like the regulation shipping box, with this difference; they are 5½ inches longer, so they will hold a full box after packing and allowing for culls, and they have cleats one inch square nailed on each end for convenience in handling and to form a space between each row of boxes for ventilation; these storage boxes are taken into the orchard and filled at the trees, so the fruit will not need to be handled again until brought to the packing table.

The floor space—30x75 feet—will hold 650 boxes of this kind and allow a passageway for a truck along the middle of the room from end to end and to the elevator, thus enabling one to get at any variety without re-handling. It will be noted that by stacking the boxes ten high, that ten carloads may be stored on each floor. In the lower story 2-inch auger holes have been bored in the floor at proper distances so that the air which is not allowed to enter the room direct when ventilating is conducted beneath the floor and ascends between each row of boxes and is discharged through the elevator shaft at the top of the roof.

This produces what I believe to be the most important item in the plan—the securing and maintenance of a very uniform and sufficiently low temperature by simply closing the doors air tight during the warm fall days and ventilating at night when the air is cool, reversing the operation in winter and ventilating during the day when the temperature will permit and closing them tight at night when it is too cold, leaving closed when the extremes of temperature are too great. Another feature that should be noted at this point is that I have arranged to turn water from my irrigating ditch under the floor and thoroughly moisten the gravel so the evaporation passing up through th eholes in the floor will prevent the shrinkage so common in this dry climate when apples are kept in dry places until spring.

A FRENCH FRIEND ASKS ABOUT CALIFORNIA.

To the Editor: I am informed that you are kind in giving full information about California-grown fruits and I am made bold to ask these questions:

1. What are the varieties of plums grown in California for the manufacture of prunes?
2. Which are those which are chiefly used in the exportation of prunes to Europe?
3. How many trees do you plant to the acre and what is an average production per tree?
4. Have you endeavored to get better varieties either by selection, hybridization grafting or mutation?
5. Is the Wickson Sans Noyau grown largely, and is it made into prunes and shipped to Europe?
6. Do you resort to grafting to secure different types of prunes, and, if so, on what stocks?

I would be deeply thankful for such comments as you find it convenient to make on these questions.—L. F., Paris, France.

Answer by the Editor.

We cheerfully undertake brief answers to the questions which you submit:

1. The prune variety which predominates in the California prune production, almost to the exclusion of others, is a variety which we secured from France and which we call Prune d'Agen. The almost frantic efforts which we have made to secure a better variety are described with a somewhat free hand in an article which we prepared for the Pacific Rural Press in August, 1908, and of which we take pleasure in sending a copy.
2. The Prune d'Agen comprises nearly all of our exports to Europe.
3. Prune trees are planted in squares, 20 feet distance between the trees, and an everage production would be 150 pounds of prunes per ton. with great variations from season to season.
4. We have endeavored to get better prunes by selection of seedlings and by crossing, as the article we send you indicates, without satisfactory results. Although there may be some influence of the stock upon the graft, it is so rarely manifested that no expectation is based upon it. The stock is chosen according to the soil; the almond root for very dry, deep soils; the peach for medium loams; the Myrobolan for soils which are apt to be either too wet or too dry. Changes in variety, however, are looked for by selection or crossing and not by grafting or mutation.
5. The plum which Mr. Burbank named Wickson is a cross-bred Japanese, not suited at all for drying, but valuable for shipment as fresh fruit, and it is the leading shipping plum of the State at present. It has a pit, and such a thing as the "Wickson Sans Noyau" does not exist.

Le Prunier Sans Noyau obtained by Mr. Burbank was never called Wickson. Mr. Burbank has a number of varieties of pitless character, but he has, as yet, not introduced them to the public nor given them any specific name. As he still controls the stock, working for improvement of the fruit, it is not possible to get even a bud of it, as any release of it would interfere with the plans which he has for its future introduction.

6. We have answered this question under No. 2. We repeat, we count upon nothing from grafting, except thrifty growth of the tree, but we choose the stock most likely to produce that thrifty growth under different local soil and moisture conditions existing.

In Oregon the chief commercial product is not made from Prune d'Agen, as in California, but from another European variety, which we call Italian, but of which the proper name is probably Fellenberg, the exact source of which we cannot at this moment indicate. It is a little larger on the average than the Prune d'Agen, a little less sweet, and in California has been rejected both for lack of sweetness and because it is a somewhat shy bearer under our conditions.

TWO YEARS SHAPE IN ONE SEASON.

Securing shorter branching and forming the framework of the tree in one season instead of cutting back in the winter and getting the secondary branching in the second summer has always been theoretically approved and practically avoided in California, except to a certain extent in parts where the growing season is longest. Our general practice is to let the young tree make all the growth it will the first season upon its first break of branches. Still the other method is always considered interesting. We therefore give an account of summer pruning for shape as advocated by J. M. Brown, former fruit inspector of Yakima county, Wash., and employed by him on 57,000 trees. This is possible, because under the old method, a great part of the first year's growth was pruned off and lost to the tree.

According to the old method, after the young tree was headed, three or four branches were allowed to grow for the rest of the season and become very long, in order that their growth might produce a stocky trunk. Then they were cut back to 12 inches the following spring, so that a great part of the season's growth was thrown away.

By the new method, the three or four branches that spring up after heading are nipped the same season as soon as they have grown long enough and commence to spread immediately. The growth that would under the old method be cut off and thrown away, is now directed into spreading branches that are to become a permanent part of the tree. The result is that the tree is just one season ahead of where it would have been under the old system.

Its trunk is just as stocky as it would have been otherwise, and it is not bent over so much by the wind. This idea is chiefly applicable to apple trees, as pear trees and certain other varieties of trees can best be allowed to grow wild.

Summer Pruning for Fruit.—A. I. Mason of Hood River, Ore., says: "I am a firm believer in summer pruning and have followed it for many years. Instead of any injurious effects I get better results both before and after bearing age. On young trees I get a stronger and better balanced top by keeping undesired inside growth cut out during the summer months, and about the middle of July, if limbs become too long and limber, I have always topped young growth back to 10 or 12 inches.

"On my old trees I take out inside growth about the middle of July, and on some varieties, such as the Esopus Spitzenberg, never top them only during this July pruning. But on old Spitzenberg trees I find that topping once every two years is all that is necessary. I believe that summer pruning, when done too early, has a tendency to strengthen fruit spurs for the next season's crop. I have done some experimenting in summer pruning. I tried it on the same aged trees (four years) on the following dates: June 15, July 15 and August 15.

"The first date was too early. The sap was too strong and water sprouts were exceedingly numerous. The last date was too late. But little growth after that date, and wood of young growth did not mature enough to stand a cold winter. The second date, July 15, suited me fine. But little inside new growth was made and wood matured fine. The young shoots on ends of those limbs that were topped were not near so numerous as those which were topped June 15. I don't believe in topping all varieties of apples after they are three or four years old, but the Spitzenberg requires it at least once every two years, and I always do it in July."

DRY SKIES AND CHERRIES.

One can get indirect testimony of the advantages of a dry climate in growing cherries by a recent occurrence in Oregon. At a meeting during the cherry fair at Salem in July, Mr. L. M. Gilbert was to read a paper on cherry growing and had the manuscript all finished in his pocket, but, says the Oregon Agriculturist, it was written before the rain. It was full of enthusiasm about the profits, desirability, statistics, etc., but—it rained. This turned the tide of his thoughts and, instead of reading his paper he gave an interesting and profitable talk along the lines of "Things to Be Learned By the Recent Weather Conditions." Among other things he insisted that cherries should be picked as soon as they begin to ripen on the trees and not wait until the entire

crop was ripe, some of them dead ripe, which he aptly demonstrated by this year's conditions. He said he knew of men, among them himself, who could have been picking cherries 10 days before the rain, but waited until the entire crop was ripe, with the result of a loss of many thousands of pounds of cherries that might have been saved.

PIGS IN ORCHARD CLOVER.

To the Editor: Allow me to thank you for your very interesting and instructive information which I obtain from you through your books and the PACIFIC RURAL PRESS.

Fruit is going rapidly forward, the railroad keeping us supplied with cars and prices in the East are all that one could desire.

I have been experimenting with my orchard this year and apart from the young trees I have given the orchard absolutely no cultivation. I have been, however, careful to soak up the ground thoroughly every two weeks, and the result is a fine lot of fruit.

The success of this venture has decided me to thoroughly cultivate everything this year and sow alfalfa between the trees keeping a space of two feet clear around each tree for hand hoeing in the spring.

My experience in the fruit business has taught me not to place too much dependence upon it as a never-ending source of profit, so I have gone into the raising of good hogs, which industry fits very nicely into the other, for when prices are low in Newcastle it becomes merely a question as to which branch of hogs secure the crop, and I prefer to patronize home industry.

Of course while the trees are in bearing I have other pasture for my stock, viz.: alfalfa on a flat of seven acres, and some hill land. I have my orchard of some thirty odd acres fenced off into four and five acre tracts, so that while I am irrigating one field the hogs can have another and not be able to tear up my ditches. The water necessary to irrigate the alfalfa cares for the trees, and with the hogs it makes three sources of profit, i. e., fruit, alfalfa and hogs.

I have some fifty-four head of hogs to turn off between the months of October and December which means some three or four hundred dollars clear profit. I will sell down to original stock of six brood sows and a boar and start all over again.

I have arranged a pen or yard with comfortable shed attached for each sow with her pigs and a gate opens into an alfalfa field where they feed during the day. This keeps the pigs under one's eye, makes them gentle and avoids all loss from storms. What do you think of the plan?

Placer County. FRUIT GROWER.

[This is interesting and we shall watch with interest for the results. Certain advantages are obvious. Disadvantages may appear later. How the hogs treat the trees; how their tramping will influence air and water movement in the soil, and how roots may be affected thereby are all matters to be ascertained. We never liked the looks of pigs in orchards. We shall await and see if it is a prejudice.—EDITOR.]

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

Viewing the matter wholly from a selfish standpoint, was the California Fruit Exchange wise in helping the Florida growers to combine and in giving them all the information regarding picking, packing and marketing their product, that the members had gathered only by long years of experimenting? No doubt the directors of the Exchange considered the matter from all sides before deciding to aid the Florida growers, and it would be nothing to their discredit if they only decided to do so after arriving at the conclusion that the California business would be helped instead of injured by so doing.

It was probably reasoned that intelligent distribution of the Florida oranges would be better for all concerned rather than the hap-hazard method of the past, when one market would be congested and another wholly bare. In this conclusion they are no doubt correct; and exchange of information would certainly tend to regulate conditions, but there are some fruit men in California who think that a sleeping giant has been awakened and that California fruit will be likely to suffer for it.

These men say that the only reason Florida fruit has been bringing the comparatively low prices in the past is because of the lack of intelligent distribution for one thing, but mainly because of the poor keeping qualities of the product. I myself have received letters from Eastern fruit buyers to the effect that they were always ready to drop Florida oranges just as soon as good colored navels appeared in the market, and stated as a reason that the Florida stock was so weak it was only carried at a great risk.

The main contention of doubtful ones is that if the Florida growers and packers learn to pick and pack their fruit with greater care, using up-to-date machinery and handling fruit right through as it should be handled that they will largely eliminate the weakness of the Florida orange, and if they do keep as well as the navel they will greatly interfere with the navels' season and the navel prices, regardless of the question of the eating qualities of the two varieties of oranges.

The carrying and keeping qualities of the Florida orange can be improved if they are handled more carefully, and there is no question but that on many groves they will be. The question of intelligent help comes in here and the laborer of the South, the illiterate negro, does not come under that head. Can they teach the negro to handle the fruit properly instead of throwing it around as they have been accustomed to? They can make progress along these lines, and will. The orange orchards of Florida are not like in California, where they stretch continuously mile after mile, but are isolated, a grove here and another there, planted right in the swamps on the hummock lands that rise irregularly like islands in a sea. I have Mr. R. P. Burton's statement for this, and it coincides with other accounts from Florida. I do not mean to say that these hummocks actually are islands, for the plantations are connected by roads, but that much of the lower lands are wet and otherwise unfit for orange culture. I also understand that at present the packing facilities are very poor and that much of it is done by hand in the orchards. Now hand picking ought to be the very best for results, if the fruit was handled intelligently, but when packed, comes the long hauls over rough roads in rough carts to steamboat landing or railroad station. A shipper who has been in Florida tells me that when he was there much of the fruit was hauled to central points like Jacksonville and Tampa in local trains and then transhipped either to through trains or to steamers; that boxes were thrown around and abused much as the baggage smasher formerly handled trunks on any of our railroads, the fellow who could smash the most in a year was the champion. He says that in loading onto steamers, 20 to 30 boxes were chained together and hoisted aboard by steam, being bumped up the side of the vessel and then bumped down onto the deck and then as likely as not they would be piled around the smokestack of the steamer to be cooked on the voyage. Nice treatment that for oranges. All these conditions will no doubt be remedied in time, but it will take time, and trouble.

Another shipper here, while he admits the carrying and keeping qualities of the Florida orange may be improved, says that the oranges now grown in the southern part of the State will never hold up like our navels on account of the excessive moisture prevailing there. He says that when the oranges were mostly raised farther north in the vicinity of Jacksonville and along the Indian river they never were troubled so much with decay, but that the frost had driven them into country where they never would do as well. He says that the quality is not up to the old Indian river orange and never will be and that oranges cannot be successfully raised in a hot and muggy climate. They are the prey of all the ills, bugs and parasites that nature produces, but the greatest drawback, so far as keeping quality is concerned, is the large amount of rain that falls there and the great humidity of the atmosphere at all times.

I remember that a number of years ago when I was with the Pacific Fruit World, Mr. Horace Day of the New York firm of Scobel & Day, brought a Porto Rico orange into the office and predicted that the day of the navel was over as far as the east coast of the United States was concerned. He admitted that it would not keep as well as the navel and that its appearance was not as good, but claimed it was a far better eating orange, much sweeter and jucier. He stated that the freight rate from Porto Rico was so much cheaper to New York than from California, and with no duty to pay they could undersell navels on the same market and still show a handsome profit to the owner. He knew that they had not cut much figure in the past, but that Americans with experience in orange culture had gone to the island and it was only a question of a short time when the production would have increased so that navels in New York City would only be bought as curios. That was at least five years ago and many thousands of cars of navels have been marketed in New York since that time, and that Porto Rico oranges ever were regarded as a serious rival I do not believe. The great trouble has been that they would not keep. To be sure, one might say that they were not grown to keep but to eat, but it is absolutely necessary for the handler to have a reasonable time in which to dispose of his product before rotting, and if it will not allow him that time he is not disposed to handle very largely or pay very big prices.

To say that no tropical orange will keep is making a pretty broad statement, but I have heard the statement made, and there is nothing in the experiences of the past to contradict it. The best colored and best keeping orange is grown in a semi-tropical country, and in production of such oranges California, and possibly Arizona, will have things all their own way so far as supplying the markets of this country is concerned. No other section of the country can raise a good navel or Valencia and no other part of the country is free from the liability of killing frosts or sweeping northers. Just now Texas is being boomed as a citrus raising section, and promoters are invading California for would-be orange growers on cheap Texas lands. I have seen it claimed in Texas papers that California would soon have to take a back seat in orange production. In a recent issue of a Los Angeles paper a Floridan is made to say that he believes Texas a better country for orange production than Florida, and Mr. George Tabor, "recognized in California and Florida as an expert," as the paper claims, says that Texas has a bright future in the orange industry and that other oranges besides the Satsuma variety can be grown there without danger of freezing, provided they are all budded or grafted on trifoliata root. Another plan, and this is my own, would be to capture one of those Texas blizzards and tame it so it would eat out of the hand and keep it in captivity long enough for the trees to get acclimated.

Answering my own question which opened this article, I will say that I believe the Exchange did a wise thing in helping the Florida growers to organize, and that everything they can do to help them to pick, pack and deliver their product in better condition will reflect to the advantage of California grown oranges. There never was a time when an excess of poor, weak fruit of any kind in the market did not bring down the price on the better class of goods. The peddler with his hand cart is one of the greatest factors today in this distribution of fruit of all kinds, and it only needs a few days of inclement weather in the winter time to fully demonstrate the fact; if the push cart man cannot get out the demand decreases and prices go down.

Now the peddler is what might be called a "hand to mouth" fruit buyer. He buys in the morning what he can sell through the day, and the general weakness of the fruit has no further interest to him beyond the condition of the few boxes he buys. If he can buy Florida or any other variety much cheaper than he can the navel he is going to do so, and he will push that variety. In this manner a cheap Florida orange tends to make a cheaper navel, and anything that can be done to bring up the general standard of any or all fruit is of benefit to all the fruit being offered at that time. The higher the Florida fruit sells for, the higher price we will receive for our own output, and I believe that it was a wise stroke of policy on the part of the Exchange managers when they decided to line up the Florida growers for a preconcerted movement toward better ideals and improved methods of handling and selling.

AGRICULTURAL REVIEW.

Celery, Cauliflower and Tomato Crop.

The California Vegetable Union has recently issued a circular telling of the condition of the celery crop in Orange county. In substance, the report says that 75 per cent of the crop is already transplanted, with a good stand. The crop is earlier than usual and is free from blight. A crop about equal to that of last season is expected, with early shipments ready about the middle of October.

The celery crop in northern California is about all transplanted and is starting under favorable conditions. It will also be earlier than usual, with the first shipments the latter part of October and a liberal supply for November and early December.

The Orange county cauliflower crop is about transplanted and is doing well. Normal shipments are expected this season, beginning about November 1.

Tomato transplanting was about a week earlier than usual this year and shipments will be ready about the middle of September. A smaller acreage than last year is reported, but it is too early to estimate the total yield.

Crop Conditions.

According to estimates made by the Bureau of Statistics, Department of Agriculture, crop conditions in the United States on August 1, 1909, were, in the aggregate, slightly higher than on August 1, 1908, and moderately higher than a ten-year average condition of all crops on August 1. In addition to the higher condition, the acreage of cultivated crops is about 1.6 per cent greater than last year. Of the important crops, winter wheat, spring wheat, corn, oats, rye, flax, and grapes were better than last year and the ten-year average; barley and potatoes were better than the condition on August 1 last year but slightly below the average condition. Tobacco and sweet potatoes were better than the average and lower than last year. Important crops which were below both last year and an average condition are cotton, rice, hay, buckwheat, and apples. Conditions vary, however, in different sections of the United States.

In the far western States crop conditions are materially (about 8 per cent), above a year ago, and moderately (4.8 per cent) above the ten-year average on August. Most important crops are better than a year ago; barley and hay are slightly below the average, but better than last year; peaches, below last year but above the average; apples, below last year and the average.

Horticultural Notes.

The peach and prune crops in the Biggs district will be heavy this year and much of it will be dried.

Very heavy shipments of green fruit are reported from Fresno last week. Prices East are holding up well.

There was raised on W. A. Gibson's farm near Napa this season some Chinese beans, the pods of which were over 27 inches long.

The first car loads of Tokay grapes for the season were shipped from Florin on the 18th inst., through the California Fruit Exchange.

The prune crop around Calistoga, Napa county, will be an average one this season. Growers are receiving from $6 to $17 per ton for the fresh fruit.

Prune growers around Yuba City are now harvesting and curing a fine crop of fruit. Prices are very low, being reported to be on a 1½ cent basis.

The Farmers' Union having headquarters at Fresno, report shipments of watermelons this season from California, to have been double the amount more than usual.

A Satsop, Wash., grower reports raising 600 crates of strawberries on two acres this season. He received $2 per crate for the berries, which made a good income from the two acres.

Pear growers of Anderson, Shasta county, report a profitable season, as the crop was heavy and the prices good. The shipping season practically closed last week and orchardists report receipts to run from $300 to $514 per acre.

Tokay shipments from the Lodi district commenced this week. This is a little later than usual, but the growers claim they will make as much money by getting their fruit to market in good condition and not sending it green.

The almond harvest in the vicinity of Chico is now in progress, and the returns show a very heavy yield. Many orchards producing a ton per acre. The entire crop, amounting to about 120 tons, was sold last Saturday to E. T. Reynolds & Son for 12 cents per pound.

For the first time in the history of the Yakima valley, Washington, will have a short apple crop. Last year the shipments from there were 996 cars, while this season the crop is estimated at 400 cars. The extreme cold weather last winter is given as the cause of the short crop.

The wheat crop now being harvested in Canada promises to be much larger than last year. For the provinces of Manitoba, Saskatchewan and Alberta the estimate is 157,464,000 bushels of wheat; and throughout the whole dominion the general crops and live stock are reported to be in a very satisfactory condition. In the three western provinces the wheat acreage this year has been increased by 411,900 acres.

General Agriculture.

A farmers institute is to be held at Capitola, Santa Cruz county, two days—September 10th and 11th.

It is stated that a hybridization department is to be added to the National Plant Introduction garden at Chico.

The hay and grain crops in Scott valley and Little Shasta valley, Siskiyou county, are reported to be very heavy this season, being double what they were last year.

Coachella valley vegetable growers have already planted their cabbage seed beds, which is much earlier than last year. Imperial valley gets many of its cabbage plants from Coachella.

The Reed ranch near El Centro, Imperial valley, is now preparing 50 acres to be put into seed beds of egg plant and bell peppers; 80 pounds of onion seeds will also be planted.

The Lima bean crop in Ventura county promises very good. The vast fields are now a sea of green, which will turn golden brown shortly. The small white bean crop is ready for harvest.

The hop crop of California, now being picked, is estimated at from 66,000 to 70,000 bales. The new price of 21 cents means that growers who had not contracted early will make good money this season.

Passing through the Salinas valley on the train, especially that part south of Salinas, the immense crop of grain hay that was raised this season is very apparent. In places the ground seems to be practically blanketed with sheaves which have not yet been stacked or baled.

A plague of grasshoppers has caused thousands of dollars damage in the neighborhood of Cowley, Wyoming. Farmers have been compelled to cut their

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alfalfa before it had matured in order to save it from destruction. All green stuff has been eaten. Around Cheyenne practically all vegetation has been destroyed also.

A great amount of alfalfa seed is being raised in Lassen county this year. From Long valley in the south to Big Valley in the north nearly every alfalfa raiser has saved from his second crop from 40 to 60 acres for seed. At this writing the pods are well formed and all reports are favorable for an excellent crop. Honey Lake seed brings top notch prices, and if the price remains where it now stands, the seed crop will prove very profitable indeed.

Stock and Dairy Notes.

A creamery under the name of Gold Nugget Butter Company has been incorporated, with headquarters at San Jose.

Victor Johansen, the seed grower of Arroya Grande, San Luis Obispo county, is enlarging his operations and will next season plant 40 acres more the past year.

The creamery company at Meridan, Sutter county, is now receiving 1,000 pounds of butter fat daily, which is shipped to Colusa and made into butter.

The Dairymen's Union held a meeting last week at Imperial to complete their organization. The dairy interests have gained fully 50 per cent over a year ago, there having been 1,000 head of milk cows brought into that valley during that time.

W. E. Swain, who has a flock of 600 turkeys near Red Bluff, has driven them to the foothills to feed on grasshoppers till fall. Sheep are usually driven to the mountains for summer pasture, but driving turkeys in droves to grasshopper pastures is a new industry.

The Petaluma, Cal., Poultry and Produce Co., this week, made an extensive exportation of 1,000 cases of eggs to Fairbanks, Alaska. The demand for California eggs, particularly the Petaluma product, throughout Alaska is strong, this being the third shipment from Petaluma to that port this season.

The bee men of the State will be interested in the proposition of Joseph Moffatt, of San Fernando, who proposes to put the bee business on a business basis by forming a corporation to take over the larger apairies of the State. One of the points made by Mr. Moffatt in favor of his scheme is that the bees could be moved from one point to another if necessary to get feed in off years.

Stockbuyers are in the field around Klamath Falls, Oregon, and are picking up considerable of the choice stuff. The price is such that stockmen feel that the year will be a profitable one for them. Buyers are there from the north as well as from Sacramento and Oakland. Just what prices are being paid cannot be stated, but it is known that prime beef is selling at and around 8 cents. Fat cows have been sold for 6 cents.

A letter received from G. A. Murphy, of Perkins, Cal., states that he has decided to show his Berkshire swine at Sacramento, Seattle, Portland and Salem. He has a large shipment of choice Berkshires on the way from Indiana, one of these being a gilt, sired by the great show and breeding boar, Masterpiece, probably one of the best boars living. Mr. Murphy reports sales being good, the last shipment being five head to Honolulu.

Miscellaneous.

Arkelian Brothers have purchased the Jefferies packing house at Fresno and will add a new seeder in time to handle the coming raisin crop.

The Vina ranch, belonging to the Stanford Estate, will this year produce 100,000 gallons of wine from grapes grown on that place this season.

The Hogue-Kellogg Company are building a big warehouse at Ventura, which will hold 400 tons of fruit and beans. Mr. Kellogg states that the bean crop will probably be the banner one this year of any raised in Ventura county.

The sugar making campaign at the Spreckles factory near Salinas will commence early in September. As a much larger acreage has been planted this year, the factory will probably operate from six weeks to three months longer than usual.

The first cotton gin and compress has been ordered for El Centro, Imperial valley, and is to be in readiness for work by September 25th. It is reported that the California Cotton Mills Co., of Oakland, wants all the cotton that can be raised in the valley up to 10,000 acres.

HORSE MANURE FOR GRASSHOPPER POISONING.

The Griddle mixture for the destruction of grasshoppers has been tested at and near the Upper Peninsula Experiment Station, at Chatham, Mich., and the results are gratifying. The mixture was first tried on a 40 acre farm with sandy soil where grasshoppers had already destroyed nearly half of a 20 acre hay field. The mixture consists of one pound of Paris green and two pounds of salt which are mixed with 50 pounds of horse manure, one or two pailfuls of water being added to facilitate the mixing. A shovelful for every four to six rods square was found to be sufficient, and is most effective when deposited upon dry, sandy knolls. Grasshoppers feed on the mixture more freely while it is moist, hence clear horse manure, free from straw or other litter, is preferable on account of being more compact and for this reason better able to retain moisture. Since the mixture has been applied, there have been several heavy rains, but careful observations have shown that the effectiveness of the mixture has been reduced but very little. As one application seems to be sufficient, there is thus afforded a very effective and inexpensive remedy against an insect which is highly injurious to grazing lands.

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AS TO THE JAPANESE LAND HOLDERS.

An Exposition by Assemblyman A. M. Drew.

To the Editor: Replying to the query by "American," "Can Japanese Lease or Buy Land?" and your request thereunder in your issue of July 31st, 1909, I will say that the question opens up a subject wherein there has arisen a conflict between the voice of the people of this State expressed by our supreme law, viz: our State Constitution, and that of our Federal Government as promulgated through the office of the Secretary of State. The provisions of our State Constitution are as follows :

Article I, Section 17. "Foreigners of the white race or of African descent eligible to become citizens of the United States under the naturalization laws thereof, while bona fide residents of this State shall have the same rights in respect to the acquisition, possession, enjoyment, transmission and inheritance of all property *other than real estate* as native born citizens; provided that such aliens owning real estate at the time of the adoption of this amendment may remain such owners; and provided further that the legislature may by statute provide for the disposition of real estate which shall hereafter be acquired by such aliens by descent or devise." (Adopted November 6, 1894).

Under the common law, which prevails in this State where no statutory law is enacted, aliens could not acquire property by descent or other operation of law, and this section of the Constitution, prior to amendment, simply removed this disability from those who are bona fide residents within the State. (See Norris vs. Hoyt, 18 Cal. 217).

The courts have never passed on the question directly, but in Siemssem vs. Bofer, 6 Cal., 250, it was considering the section prior to the amendment of 1894, and therein the court said:

"This provision by implication excludes non-resident aliens from the rights mentioned in this section."

In State vs. Smith, 70 Cal., 153, McKinstry, Justice, (rendered prior to 1904), says:

"The Constitution prohibits the legislature from depriving resident foreigners of any of the rights enjoyed by native born transmissi n or inheritance of property."

"There is no provision of the Constitution which prohibits the legislature from conferring the same rights upon those born in foreign countries who have been residents of this State."

The first paragraph of this decision is dictum merely as that question was not under consideration in the case at bar, yet it has stood for a number of years as the law of this State, and in fact is now the law unless it was overturned by the express provision of the amendment to the Constitution of 1894, above set forth.

There never has been a decision of the court construing the provisions of the section as it now stands, but from the reading of the latter part of it, to wit, "That the legislature may by statute provide for the disposition of real estate which shall hereafter be acquired by such aliens by descent or devise," it would appear that the people had expressly intended that resident aliens may acquire real property under the law of this State and may hold the same until the legislature shall provide some method of divesting them of the title.

As I have before stated, under the common law they could not acquire, either by purchase or devise, and that being the law of the State where the people had not spoken, any property that they acquired would have escheated to the State of California, but as it is now it is plainly evident that aliens have the right to acquire our real property.

The conflict between the State and the State legislature which occurred last winter, arose over the construction, or the application at least, of the provisions of the treaty between Japan and America, to our law. That treaty contains the provision that a subject of Japan while in the United States shall have and enjoy the same rights as the citizens of the most favored nation, and Mr. Root claimed that thereunder California had no right to escheat the real property held by Japanese unless the law was made applicable to all foreigners.

The bill as introduced by myself at the last session of the legislature was amended to meet Mr. Root's views, and yet the opposition of the President and our Governor prevented the enactment of the bill as amended.

The Japanese have acquired and are acquiring a large acreage of our best agricultural lands much to the detriment and in fact to the destruction of our best rural communities. At the last session of the legislature it was provided that the Bureau of Labor Statistics of the State should gather information with reference to the amount of land acquired by the Japanese, but so far we have not had a report from that body. I presume it will be forthcoming soon. However, we have the testimony of Mr. Wayakami, a graduate of Tokio College of Law, speaking of the wonderful progress made by his countrymen in California, (written some years ago), says:

"A considerable number of the Japanese farming population in California exceeds the mark of ten thousand by many hundreds. Classifying the farms cultivated by Japanese according to their size we find 8 farms of over 400 acres each; 14 of over 300 acres; 75 of over 200 acres; 204 of over 100 acres; 123 of over 50 acres; 235 of over 20 acres, and 341 under 20 acres each, a total of 989 farms aggregating 61,859 acres."

The correctness of this statement is authenticated by the Twelfth Biennial Report of the Labor Bureau, 1906, and also by a pamphlet published in the early part of 1905.

In the Vaca Valley they literally own or control the majority of the land acreage, and in Fresno county they have an absolute monopoly on the vineyards by reason of the labor market and the number of vineyards that they own or lease. In Los Angeles county they have literally driven the white man out of the berry industry in the San Gabriel Valley, and it would certainly appear to the thoughtful man that if we would protect our heritage to posterity that we must do something to prevent the acquisition of our best lands by these people.

I trust you will pardon me for expressing an opinion in addition to citing the law governing the control or acquisition of real property by aliens in this State. I enclose herewith a copy of the bill as introduced at the last session of the legislature and would ask that you publish it in connection herewith, that the farmers may have an opportunity to see and study it for themselves, that they may decide the matter intelligently at the proper time.

A. M. Drew.

Fresno, Cal.

The following is a copy of the proposed law cited by Mr. Drew:

Section 1. No alien shall acquire title to or own land in the State of California except as hereinafter provided, but he shall have and enjoy in the State of California such rights as to personal property as are or shall be accorded a citizen of the United States under the laws of the nation to which such alien belongs or by the treaties of such nation with the United States (except as may be affected by the provisions of this act). The author offered to amend the bill by striking out that portion in parentheses.

Sec. 2. This act shall not apply to lands now owned in this State by aliens so long as they are held by the present owners.

Sec. 3. All aliens who may hereafter acquire real property in California by devise, descent or purchase may hold the same for five years from the date of so acquiring such title. If any alien at the time of acquiring title to lands situate in this State be under the age of twenty one years he may hold title to the same for five years after the time he becomes twenty-one years of age.

Sec. 4. Any alien who shall hereafter hold lands in the State of California in contravention of the provisions of this act may nevertheless convey the fee simple title thereof at any time before the institution of escheat proceeding as hereinafter provided; provided, however, that if any such conveyance shall be made by such alien either to an alien or to a citizen of the United States in trust and for the purpose and with the intention of evading the provisions of this act such conveyance shall be null and void, and any such lands so conveyed shall be forfeited and escheated to the State of California absolutely for the benefit and use of the public school funds.

Sec. 5. It shall be the duty of the district attorney of the county wherein the land is situate or the attorney general of the State should the district attorney fail or neglect to act, when he shall be informed or have reason to believe that any lands in the State are being held contrary to the provisions of this act, to institute suit in behalf of the State of California in the superior court of the county in which said lands are situate praying for the escheat of the same in behalf of the State, and he shall proceed therein as in cases provided by law for escheats of lands or property where such property has no known owner, provided that due service of process shall be made and service upon the holder of title be had as provided by law, and the court having jurisdiction shall then proceed to final judgment and the sale of the property as sales are conducted under foreclosure. It shall be a good defense to any such proceeding that such alien had become a citizen of the United States or that the title to such lands had been conveyed in good faith by such alien immediately prior to the time of the commencement of such proceedings that his heirs or devisees or any person claiming by, through or under him or them are or had become citizens of the United States. Said court shall tax as costs such fees as shall be reasonable, not exceeding twenty per centum of the amount, which shall be bid for such lands at any such sale thereof, and shall allow to the officer making such sale the same fees as are allowed for the sale of lands under decree of foreclosure of mortgages, and all fees and costs shall be paid out of the proceeds by sale of such real estate. If any district attorney shall neglect or refuse to proceed by information as herein provided within thirty days after it shall be brought to his notice that an alien is holding title to lands in this State contrary to the provisions of this act, then any citizen may proceed by information in the name of the people of the State in the same manner as such district attorney might have proceeded under the provisions of this section, and he and his attorney may be allowed such reasonable fees for their services, to be taxed as costs, as the court may direct, not exceeding in the aggregate twenty per centum of the amount which shall be paid for such lands at the sale thereof.

Sec. 6. In case the lands at the time escheat proceedings are about to be commenced are owned by a minor or minors or by a person or persons of unsound mind the process herein provided shall be served as provided by law upon the guardian of the minor or minors or person or persons of unsound mind, and if there is no such guardian the district attorney or the attorney general of the State shall make application in the name of the people of the State to the court having jurisdiction and procure the appointment of a guardian ad litem, to represent such minor or minors or person or persons of unsound mind in such proceedings, and such guardian or guardians ad litem shall appear and defend the action.

Sec. 7. If it shall be determined upon the trial of any such proceedings that lands are held contrary to the provisions of this act, the court trying such cause shall render judgment condemning such lands and ordering the same to be sold under an order of court as in cases of sale under foreclosure proceedings; the proceeds of such sale after deducting the costs of the proceeding shall be paid to the clerk of the court rendering the judgment, where the same shall remain for one year from the date of such payment, subject to the order of the alien owner of such lands, his heirs and legal representatives, and if not claimed within the period of one year such clerk shall pay the same into the treasury of the State for the benefit of the available school funds of the State; provided that when any money shall have peen paid to the State treasury as herein provided the alien or his heirs may procure the same to be returned by applying for and procuring an order from the court condemning the property showing that such judgment escheating such property was procured by fraud or mistake, or that there was material irregularity in the proceedings; this application, however, must be made within two years from the date such moneys were turned over to the State treasury; provided, further, that in no event shall the State be liable or called upon to refund any further sum than the actual cash transmitted and delivered to such treasury.

Sec. 8. No contract, agreement or lease of any town or city lot for a longer period than two years, nor of any other land for a longer period than one year shall be made to any alien, and any lease, agreement or devise of real estate made to any alien contrary to the provisions of this section shall be null and void.

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WHAT MR. STEVENS WILL DO WITH A SILO IN SONOMA COUNTY.

Mr. M. B. Stevens, who came to San Mateo county some years ago after graduation at an Eastern dairy school, is now in Sonoma county, and is planning progressive things. He gives the public, through the Dairy Review, these items: We, like many others, I presume, are badly in need of some succulent feed to keep up the milk flow. In this section pastures are getting very low and dry and rather earlier than usual. Last spring I put in thirty acres of corn and am going to have a big crop. I could cut this now and feed it but am putting up a 120-ton stave silo and will be ready to fill it during the latter part of August. My plan is to fill the silo with alfalfa about May 1st and feed during July, August and September and then later with corn, and feed during the winter.

This district is not strictly a dairy section, but the continual growing of oat hay and grain has forced the land so badly that the ranchers are beginning to realize that some other system must be practiced. It was thought that corn would not grow here well, but we have found that by plowing in fall and again in the spring thoroughly fitting the ground and then planting the corn deep that we can get a fine stand. Then by continued shallow cultivation to conserve moisture we can get a good crop.

Our alfalfa comes pretty handy for cow feed also. It is rather difficult to get a good stand here, as we cannot irrigate, but once established we cut three good crops a season and get some pasturage. We have had no experience putting it in a silo but will try it next year.

Dairying is not our only line of farming, but for its many benefits it is very important. Take the manure that the cows furnish; it helps to build up the soil wonderfully and with us it is very valuable. A rotation of crops helps any soil and the growing of corn for the cows helps in this respect. After a corn crop, this year we grew fifteen sacks of wheat per acre, where before eight or ten would have been a good yield.

I like to boost the dairy industry along somewhat because I like the business, but mainly because it builds up the soil and makes a more prosperous, better looking country.

HOPES TO HAVE 10,000 POUNDS OF MILK PER COW.

Mr. H. V. Needham, at the Farmers' Institute, in Tonganoxie, Kansas, read a very thoughtful paper on "Building Up a Herd."

He commenced to educate his own judgment. He saw that he was deficient in real dairy ideas, so bought a set of scales and a Babcock tester. In testing his cows he educated himself to a clearer understanding of the relation of form to performance. The knowledge lay there if he would only dig for it. He established the idea in his mind that if a cow would not give four gallons a day (about 4 pounds), with a fair test of butterfat, she would have to go. Now, under the operation of this idea his cows commenced to walk up in earning power from $50 to $60, $72, $83 and $89 per cow per annum. But it grew more and more difficult to buy such cows.

Then he started to breed his cows. He selected the Holstein, though the process of thought and action as regards principles would have been the same with any breed. He took good native cows and placed a well bred Holstein sire at the head and sat down like an intelligent man to work out the problem. He is now milking fourteen of those grades. The average yield of these cows is close to 7,000 pounds of milk. Mr. Needham has set his mark to have a herd that will average 10,000 pounds of milk per cow.

Speaking of the question of type, he further says:

"Now, a few words as to why I hope to have a herd averaging 10,000 pounds per annum. Let me refer to Prof. Gilman's corn talk last spring. You will remember that he showed us ears of corn that looked equally good, and yet seed from one ear yielded over 160 bushels per acre, while seed from the other ear yielded less than 40 bushels per acre. This same remarkable variation is found in the animal kingdom, and the skillful breeder uses these remarkable animals of both sexes to breed better cows, and to fix these fine characteristics in the progeny. The most remarkable and recent illustration of this is found in Colantha 4th's Johanna with her phenomenal yield of nearly 30,000 pounds of milk and almost 1,000 pounds of butterfat.

"Not every one of these heifers we raise will prove extra. Some may not be profitable. Some of the ancestors of the bulls I have owned may have been medium or even inferior animals, and the inferiority may crop out somewhere, but I shall work on this line getting the best bull I can afford.

"It takes time, you may say. Yes, of course, it does, but I had rather die while striving for the best things, than to just plug along in the same old round and rut until withered up into nothingness. Every step the farmer takes in bettering his condition, in improving his mental faculties and executive ability, brings him that much nearer the day of his independence when he can compel the recognition of his just claim from every man or class of men.

"To still further improve the dairy herd, I will say that the dairyman ought to be improved. His thinker needs improving. He needs to study not only cows, but feeds and how to grow and cure them. He needs to learn how to make four blades of grass grow where one grew before, for it can be done."

THE GRASS BEEF INDUSTRY.

Now that range industries are changing so rapidly under changed conditions, a review of the subject by the Breeder's Gazette, including incidental reference to our Pacific Coast situation, is interesting.

Grass is still an influential factor in supply and for several months of the year is responsible for the bulk of the beef and mutton reaching the great markets of the United States. The grass season is the period of excessive supply of beef, emanating largely from the pas-

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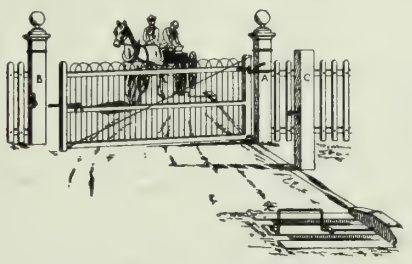
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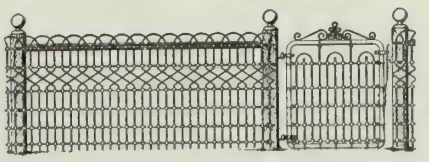
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tures of Oklahoma, Kansas, Colorado, Nebraska, Montana, Wyoming and the Dakotas, finding a convenient place in the cavernous depths of packers' chill-rooms to await a period of less bountiful and more costly supply, when it can be marketed to advantage and with a profit. Without the cannery and the freezer grass beef would glut markets and be a valueless product during the season of its harvest movement from pasture to stockyards.

Grass beef is of various kinds and from innumerable sources of supply. Its season lasts from early spring when the South Texas contribution appears at Fort Worth, Kansas City and St. Louis, until late in the fall when Montana's belated beef round-up is discontinued owing to stress of weather. Probably the best grass beef comes from what is known as the Northwestern range, although the Kansas product is not to be despised. Missouri, Iowa, Illinois, Indiana and even Wisconsin contribute heavily to the summer supply, but this is not a strictly grass article, the practice being to feed grass or corn. Pittsburg is an important grasser market during August and September, the mountain regions of the Virginias sending thousands of grass-fat steers to the butcher during that period. West of the continental divide considerable grass beef is still made but it is either consumed locally or finds its way to Pacific Coast points.

This year, owing to drouth, the South Texas grass delegation did not cut a wide swath at the market, but the deficiency is being made good by Texas cattle finished in the Osage and other pastures in Oklahoma. This is a finishing ground for ticky cattle bred below the quarantine line and is a one-season proposition, the cattle being already aged when moved from their breeding ground. They are moved as early as possible and the beef run usually commences in July. By early winter Oklahoma pastures have been practically cleared of Texas-bred cattle although the practice of winter feeding is becoming common. Texas grassers, matured in the Northwest are handled in an entirely different manner. They are taken from the tick-free area of Texas as two-year-olds and double wintered. When grass cures on the Northwestern range in August, or earlier, and the cattle harden the beef run begins, ceasing only when snow flies. The Kansas movement comprises tick-free cattle bred in Texas, New Mexico, Arizona and Colorado. They are aged when moved to the finishing ground and are grazed but one season, the supply carrying a heavy feeder end of excellent quality that finds its way into cornbelt feed lots. In addition to the Texas-bred element a steadily increasing proportion of locally-bred cattle is appearing annually at the stockyards, Colorado and Nebraska being noted in this respect, while Wyoming and Montana are acquiring a reputation for native cattle.

In recent years the practice of moving Texas stockers to the Northwest has waned but Oklahoma and Kansas pastures absorbed more than ever this season. The bulk of the stockers that went to the Northwest this year were destined for fenced pastures or Indian reservations, beef making on the open range being impossible in most sections since the present influx of settlers began. This means a short crop of grass beef from the Northwest temporarily, but the new element will speedily remedy the deficiency.

Grass mutton supply appears almost before Colorado feedlots have been emptied. Texas is the earliest contributor, Arizona following. Early arrivals of grass-fat wethers and yearlings from the Northwest are contributed at Washington and Oregon, Idaho following. In June Kentucky and Tennessee begins filling Ohio River markets with grass lambs and early arrivals from Idaho and Washington appear simultaneously. This year the July run of lambs from the Northwest was the heaviest on record, owing to the growing practice of early lambing under canvas.

Grass beef and mutton making is in the evolution stage. Mutations are in the direction of an all the-year-around supply which will be better for the grower and the producer if not for the packer who has accumulated much of his wealth by storing the excess of the season of plenty for distribution during the succeeding season of comparative scarcity.

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EXHIBITOR'S POINT OF VIEW IN STOCK JUDGING.

In answer to correspondents who charge exhibitors with a desire to get judges appointed at the fairs whose judgment they can influence, the Breeder's Gazette sets up an exhibitor's point of view which is worth consideration.

Everyone—except the guilty men—agrees that it is a scandal for exhibitors to attempt to influence judges before or during the showing. And it is a scandal which fair managers are certain to clean up.

But independent of sweeping accusations against exhibitors, the one "inalienable right" of the exhibitor is to know the judge before whom he submits his animals. The judging of live stock is not an exact art. We weigh coal and measure lumber and payment passes on the exact returns of the scale beam and yard stick. On the race track the stop watch records unimpeachably the victor. But it is mere opinion in awarding prizes to stock at halter. Type and condition vary and breeders' ideals vary with them. The ideals of some judges are definitely known; in some cases their eccentricities are also known. And to deny the right of exhibitors to protect themselves from falling into the hands of judges known to be unfriendly toward them or their type is to deny the right of a man to protect himself in a game where the cards are stacked against him.

Many fair managers utterly fail to appreciate the rights of the exhibitor. They assume that they are according great privileges to exhibitors in offering them prize money in limited amount, and that the breeder has few rights which the fair manager is bound to respect. If exhibitors would remain at home a single season, fair managers would see a great light. Barns and coliseums are useless unless filled with animals. It is doubtful if many fair managers comprehend what it costs in money to stall a show herd on a fair ground, or what it costs in money and reputation for a breeder to lose a ribbon. An exhibitor runs the gauntlet, especially at our State fairs, of the selection of incompetent and inexperienced judges, and his only protection lies in a knowledge of the men before whom he must show. If he knows the judge is unfavorable to his type, or if he believes him incompetent or biased, he can protect himself by remaining away. It is the only protection available. He can not protest when the judge enters the ring. It is not enough that the judge be honest; he must be experienced and discriminating and sure of his ground. It is needless to say that not all judges at out big shows the past decade have measured up to this standard.

The position of some fair managers on this subject is so short-sighted that its consideration taxes patience. Their sole ambition is to fill up the stables and they fear an absentee list if the judges are named prior to the show. They assume—and in some instances the assumption is grotesque—that their knowledge is sufficient in the selection of live stock judges. And they fatuously imagine that an exhibitor who believes he has been "buncoed" in the judge, will cheerfully return the next year. A satisfied exhibitor is the best advertisement for a fair. When the exhibitor elects to show under a judge he knows in advance, he is satisfied with the management if not with the decisions. He took his leap with his eyes open. Those who advocate suppression of the judges' names want exhibitors to take the leap in the dark. They little know human nature.

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The farm or dairy sizes of the **United States Cream Separators** made such headway that the proprietors of milk factories, against their will, had to change. **The farmers demanded it.**

Not **10 per cent** of the whole milk factories of nine years ago are running today, as such. They have either closed up or changed to cream gathering, the more economical plan. Our "would-be-competitors", who are always "claiming the earth", cannot deny this fact.

These "would-be-competitors", had been supporting the whole milk scheme and fighting the progressive cream gathering system. When they saw that their efforts were futile—that the change was bound to come—they tried to save what they could out of the wreck.

If you have read their big blustering advertisements containing testimonials from creamerymen, you have noticed that nearly all admit they changed from whole milk and took agency for farm separators of this particular "would-be-competitor", because of the **large commission allowed to the creamery on the sale of their Separators.** The creamerymen made more money out of them than they did on the cream. Some went so far as to refuse to take cream from any separator which they do not sell and get the commission on.

This worked for a time, but the farmers were **too intelligent to be bulldozed** in this way. They insisted on having the BEST separator. All these creameries tacitly admit that they had to give up their exclusive agencies and take cream from the United States Separators.

Several events forced them to it. Their pet separator was beaten in the greatest International skimming test ever held, in endurance tests running over thirty days.

The **United States Separator** also **beat this pet separator** in the county where its factory is located; and in that county, for ten years the United States has averaged more than **three separators** to every one of this "would-be-competitor's".

Figuring on the same basis as our "would-be-competitors" figure their profits, it puts **seventy-five dollars a year into the farmers pocket** if he uses a United States Separator instead of this "would-be-competitor's" separator.

A United States Separator catalogue, which can be had for the asking, explains all these things fully.

VERMONT FARM MACHINE COMPANY

Bellows Falls, Vermont.

ANGORA GOATS

FOR SALE

Flock of about 120 fine goats—mainly does, with some wethers and a few bucks—all 15/16 and over, ages from 3 months to 6 years.

Also one pedigreed registered buck, South African stock, from Bailey.

Price for all, $630.00, delivered at Sherwood, Mendocino County. Address

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27 Horses die from Colic where one dies from Fire.

Why not insure against Colic?

Daniels' colic cure is SURE, SAFE and QUICK!

$1.00 per Package—20 cents cures a horse. At Dealers, etc.

Agents wanted in each town west of the Rocky Mountains.

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Made in California, guaranteed oak tanned, and cost no more than the nonguaranteed makes. If your dealer cannot supply you, write us direct for a price list. Manufactured solely by W. DAVIS & SONS, Wholesale Saddlery, 2040 to 2042 Howard st., San Francisco, Cal.

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are given the preference by 80 per cent of California stockmen because they give better results than others do.

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THE CUTTER LABORATORY

P. O. Box 257, BERKELEY, CAL.

Fruit Marketing.

A MERITED TRIBUTE TO A CALIFORNIA FRUIT FARM.

Professor L. A. Merrill, of the Utah Agricultural College, has been abroad in California with both eyes open and what he saw in Tehama county, as described in his journal, the Deseret Farmer, should be widely read in this State.

To the Utahan a 100-acre pear orchard seems a little out of the ordinary. I had the pleasure of going through an orchard of this kind at Red Bluff, Tehama county, California. A solid 100-acre field of Bartlett pears! It was a delight to find, too, that here was one man who knows how to make a good soil mulch. We were informed that the rainfall here was about 25 inches annually. He has not used any irrigation water this season at all, and the trees certainly looked vigorous and healthy and have borne a splendid crop of pears. He plows the orchards, discs and harrows, and harrows again to break down the clods until he establishes as good and fine a mulch as it is possible to get. Weeds, I should say not. Not a single thing could be found growing in this orchard, but the trees themselves. The manager informed me that he has an abundance of irrigation water, but that he has not used it to date. As soon as the crop is entirely harvested he proposes running furrows through the orchard and fill the soil chuck full of water, re-establish his mulch and not irrigate again until the crop is removed next year.

What would you think of an orchard shipping 1,300 tons of pears? This means 2,600,000 pounds that at 3 cents per pound amounts to $78,000, or at 1½ cents per pound $39,000, or $390 per acre. Such an orchard was found on the Cone ranch. This ranch consists of some 30,000 acres of land, and aside from the pears, there is an orchard just as large consisting entirely of peaches, oranges, almonds, figs, etc.

On the date the writer visited the farm, the harvesting of the pears was in progress. In a large packing house there were 40 young ladies at work, sorting and wrapping each pear, throwing out all culls, and making a nice uniform pack. The girls are paid 4½ cents per box for packing, and one young lady, who seemed to be more expert than the rest, packed 70 boxes during the day, bringing her for her day's work $3.15. Out in the orchard the Japs were picking the pears. They were paid by the box, so the owner had no concern as to whether they put in a good day's work or not. The Japs were, however, followed by the Chinese, who were doing the gleaning, and these were also worked by contract.

On this ranch there are thousands of acres of alfalfa. The alfalfa is irrigated and five or six crops produced every season. There are thousands of acres of wheat land. This land is all handled by traction engines and combined harvesters. Thousands of acres are used for ranging cattle and sheep. On the ranch there is a bookkeeper who spends his entire time keeping the accounts for this one farm. There is a stenographer who attends to all correspondence and foremen for each division of the work, and managing it all is a splendid type of a successful business man, Mr. T. H. Ramsey, a college graduate, who has been managing the concern for some seven years. Everything is well organized, and the ranch is made to pay handsome dividends.

One thing of special merit is a field consisting of 50 acres of garden truck, and this is cared for entirely by Chinese labor. On the farm itself there are quarters for the Oriental labor, and also quarters for the white labor. A splendid mansion belonging to Mrs. Cone, the owner of the ranch, surrounded by oaks, eucalyptus, vines and shrubbery, presents a very homelike and attractive appearance. The manager lives in a unique bungalow nearby, one of the most tastily arranged modern homes it has even been our good fortune to see.

THE PRECEDENCE OF THE APPLE BOX.

The export of boxed apples is growing every year. The New York Fruit Trade Journal says that last season the total boxes sent abroad exceeded 500,000, twice as many as went over the year before. The nearest season to the quantity was in 1905-06, when they amounted to 415,740 boxes. It took the foreigners some time to become familiar with boxed apples. Now that excellent fruit is sent during the shipping season, the Europeans are becoming more familiar and more pleased with the boxed fruit. In some instances apple shippers have advocated the exclusive use of boxes, but this probably will not be brought about for many years, if ever.

The season will probably see larger imports than last year, although the western boxed fruit will not be as plentiful as last season. The first boxed apples to attract much attention abroad were the Newtown Pippins sent from Hood River. [We doubt the accuracy of this statement. We believe the California Bellefleurs and Newtowns broke the ice in Convent Garden.—EDITOR.] Since that time the State of Washington has been a prominent shipper of boxed apples, and the trade is destined to grow stronger as the better quality of the boxed fruit is realized by the foreigners. The American trade does not take so kindly to the boxes as they do to the barrels, but it is true that as a rule the fruit is closer graded in boxes than in barrels. Already the principal exporters from this port have been into the northwestern fields contracting for boxed apples for this season's shipments. Colorado has an immense crop of boxed apples, and many of these will be sent abroad.

The Journal believes that if the growers of Albemarle Pippins in Virginia and West Virginia would box their fruit they would get better returns than if shipped abroad in barrels, as is now done.

GET READY FOR HAY BALING

THE demand of the market is for baled hay. There are the best of reasons why you should bale the hay you have to sell.

There's a larger demand for it. It brings a better price. It is easier to handle.

And you should bale it yourself rather than hire it done because the money you would pay the contract baler eats a big hole in your profits.

You have the time to do your own baling. You have idle horses in the fall and early winter to furnish the power. And you have enough help, or nearly enough help, on the farm to operate the press. All you need is a good reliable hay press.

I. H. C. PULL-POWER PRESSES DO GOOD WORK AND FAST WORK

Buy one of the strong steel and iron I. H. C. presses this year, and if you have any considerable amount of hay to bale, it will save you its cost the first season. And you will have a reliable press for many seasons to come.

I. H. C. presses make you independent of the contract baler. They are specially valuable to the average farmer and hay raiser because they are operated with small forces, at no expense for power, and the work can be done at times when there is little else for either man or horses to do. These presses will bale your hay, straw or anything else you have to bale into solid, compact and uniform bales. The one-horse press, an ideal baler for small hay raisers, turns out 14x18-inch bales. Under average conditions, it will bale at the rate of 6 to 8 tons a day. The two-horse press has bale chambers 14 by 18, 16 by 18 and 17 by 22 inches in size, and bales 8 to 15 tons a day—a profitable machine for joint ownership among neighboring farmers or doing contract baling.

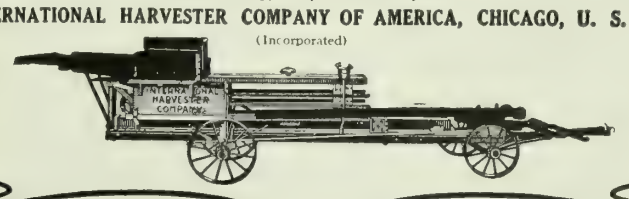
I. H. C. presses are not horse killers, are convenient to operate and there is no pounding or uneven draft. Both are full circle presses, and do not worry the horses with constant stopping, backing and starting.

Call on the International local agent and see the presses, or write to the nearest branch house for catalogue and particulars.

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is a heavy oil, yet a free feeder. There is no acid in it — it won't gum and it won't rust. Winter or Summer, the best oil for heavy or much worn farm machinery is Ruddy Harvester Oil.

Comes in quart, gallon, 5-gallon cans, half barrels and barrels. Ask for it.



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The following list of books are kept in stock and are for sale at the Pacific Rural Press officee:

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Shepherd's Manual, by Stewart	1.00
Clovers, by Shaw	1.00
The Hop, by Myrick	1.50
Farm Grasses of the U. S., by Spillman	1.00
Animal Breeding, by Shaw	1.50
New Rhubarb Culture, by Morse	.50
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Profitable Dairying, by Peck	.75
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Cider Makers' Hand Book, by Trowbridge	.50
Chemistry of the Farm, by Warrington	1.00
Cereals in America, by Hunt	1.75
American Grape Growing and Wine Making, by Hussmann	1.50
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Soiling Crops, by Shaw	1.50
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Mushrooms, by Falconer	1.00
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From San Francisco	$32.50
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Greatly reduced rates from other points in California. Tickets sold daily, May 25 to Sept. 30, and cover two months' trip going and coming via the famous

SHASTA ROUTE

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Stopovers Going and Coming.

Many other routes, at slightly higher rates, for you to select from.

Write or call on our nearest agent for full details of service, etc., or address

FLOOD BLDG., For Information.

The Poultry Yard.

POULTRY NOTES.

Written for the Pacific Rural Press
M. Russell James.

The fall chick should be hatched early in September. Then it has the best chick-growing weather of the year, and is large enough to "come in out of the wet" before the long rains set in. Comparing two hatches, one brought off the first of September and the other the first of October, the writer found the advantage was decidedly with the earlier hatch, and this was more the case when compared with still later hatches.

The dry season is at its driest while the need of fresh green feed for poultry is most insistent. Hens are apt to be a bit off in condition from long egg-production and heavy feeding, and this together with the warm weather, makes fresh greens more especially a necessity at this season. The writer finds that even with an abundance of fresh chard and beet leaves, the fowls enjoy a change of greens. This is the plan that is being followed to furnish an occasional change, and one which may be adopted in all cases where a quick supply of green feed is needed:

There being no running water, a piece of ground as convenient to the pump as may be is prepared by mellowing and mixing with poultry droppings. When this has been well mixed, pulverized and raked smooth, barley which has been soaked and kept in a warm box till the rootlets (not the sprouts) have started, is sprinkled thickly over the prepared ground, then wet down and a covering of dust sifted or scattered over it. In two or three days at this season the fresh green barley blades shoot up and cover the ground as thick as the hair on a dog. When a few inches high it may be clipped, then watered, and in a few days another clipping made, and this continued for several times, furnishing a surprising amount of the most choice green feed. In the meantime another patch may be started, and the supply continued. It is better to plant the barley in strips about four feet wide, so that it may be clipped and watered without tramping on it.

The wholesale price of "extras" is getting close to the 40-cent mark per dozen. Eggs are getting silvery and will soon be golden. The biddy that will wear her old clothes six or eight weeks longer, and devote herself strictly to filling the egg basket is a valuable bird and worth the best of feed and care. In fact, the late molter does her best stroke of business in the fall; so be careful that you do not market her in August. It will be a case of killing the goose that lays the golden egg. Laying breeds of hens when properly cared for, fed a fair amount of meat foods and plenty of green feed and good grains, kept free from vermin and supplied constantly with pure cool water, will average better in egg production at this season than in the late spring. This is being tested and proved in the writer's yards. At the end of the year, which will be the last of September, the carefully kept record of the flock of hens will be given in the Rural Press with the monthly average for the twelve months. Such records are useful in showing what may be expected from hens.

In an Eastern poultry publication a writer advocates—in all seriousness—furnishing laying fowls a midnight lunch during the winter months. Not even the man who has to foot the feed bills would protest more loudly than biddy herself against such freaks. Poultry is accused of producing the biggest liars and cranks going, and one runs across much in poultry publications which gives color to the assertion; but there are other things which tend to exaggeration—science, for instance. That the humble and useful angleworm is the cause of cancer is the latest from the latter source.

Reading Course in Poultry Husbandry.—We have received the first two numbers of the extension course complete in five numbers, from the Oregon Agricultural College. Prof. James Dryden, whose poultry experiments along practical lines have been very serviceable to Western poultry raisers, is the author of the bulletins. They are written in a simple and interesting manner and finely illustrated. Though intended primarily for the Junior Poultry Club of the State, they will prove even more valuable to the senior beginner in poultry raising.

Experiments in Forced Molting.—The results have just been given out in a bulletin from the Cornell Experiment Station. The experiment began in the month of August and continued 455 days, long enough to arrive at conclusions which may be classed as definite.

There were 232 White Leghorn hens in the pens at the beginning of this experiment. They were divided into flocks as nearly alike as possible, and birds one, two and three years old were used, each age being kept in separate pens. Birds of each age were fed both for forced molt and in the natural way. The pens which were to be forced to molt were known as the "starved" flocks, and those which were on full feed all the time were known as the "fed" flocks. The starvation period for the former lasted four weeks. The first week the regular rations were gradu ally reduced one-half, and the following week about one-third the regular ration was fed. The fourth week the ration was gradually increased until the full ration was being fed at the end of that week.

Some of the hens were molting when the experiment began. By September 29 about 90 per cent of the starved hens and 78 per cent of the fed hens were molting By October 27 the percentage of molting fowls was about equal on both sides of the experiment. Botn flocks completed molt ing about the same time, although more of the starved hens were in full molt by October 27. The starved hens molted more uniformly than the others. The average time for completing the molt was 95 days. The average time for the three-year-old hens was 104 days, for the two-year-olds 101 days and for yearlings 82 days. The starved yearlings molted more quickly by 33 days than those of the same age full fed With the two-year-olds the differ ence was hardly noticeable, while the starved three-year-olds were an average of 20 days longer molting than the fed pens of the same age. Some important condi tions were observed. For instance, the quantity of feed consumed increases dur ing egg-production, and the period of greater consumption overlaps the period of increased production at both ends of the period; the weight of the hen is great est during the heaviest egg-production; the youngest fowls ate the most feed and produced the most eggs; the percentage of egg-production varies each month ac cording to the season with remarkable regularity.

It is generally believed that hens which molt early produce the most eggs, but these experiments showed the contrary to to be true. The late molters layed three more eggs during the winter than the early molters. Counting these at the average winter price the total production of 100 early molting hens would be worth $47.25 less than from that number of late molters. This indicates that the man who kills his late molting hens may be dispos ing of his best producers. It was found that molting hens require a large amount of nitrogenous feed, such as oil meal, meat and other food rich in protein. It was also determined that there are about 13¼ pounds of mineral matter in 100 Leghorn hens, while there are 125 pounds in the eggs which they produce in a year. This indicates the importance of lime for the laying hen.

Estimated on the basis of 100 hens, the fed flock produces eggs to the value of $29.97 more than was produced by the starved flock. The total net income for all the birds in the experiment was $278.01 for the starved half, and $350.94 for the fed half, a difference in favor of natural molting for the year of $95.93.

Questions and Answers.

Trouble With Belgian Hares.—"Amateur" of Los Banos, Cal., writes: "I have been raising Belgian hares for the last two years, and had been very successful up to last year, when some disease developed among them, and I have lost a large number both small and fully grown. It is first noticed in the hare having inflammation of the eyes and nose, breathing short and quick with a rattling sound in the lungs. There seems to be some bowel trouble along with it. And some have had swellings and puss formation about the head and neck. This disease seems to be infectious, and I date my trouble from a recently purchased buck. He was apparently healthy when I bought him, and developed the disease afterward. We have an abundance of alfalfa, both fresh and the hay, to feed them; the pens are kept clean and comfortable; plenty of fresh water. I have found it very pleasant and profitable work caring for them until the advent of this disease. I know nothing about the diseases of the Belgian hare, and write you, trusting that through your valuable paper some one who has had more experience along this line will give me the needed advice."

The symptoms as given above clearly indicate colds as the root of the trouble. These have taken an acute form of contagious catarrh. A cold is often developed in changing such stock from one locality to another, which has probably been the case with the purchased buck; all such, including pigeons and poultry, should be duly quarantined before allowing them to mingle with stock on hand.

That the cold should run into an acute and contagious disease, however, shows something wrong with the housing or handling of your hares. Is there dampness about the hutches? Are they so located as to become overheated during the day? If so the chill of night is sure to cause colds. Perhaps the prolific beasties have overstocked their quarters. The Belgian hare is naturally a hardy animal, and evidently something has gone wrong your way. It is difficult to doctor the creatures, and it would not be advisable to breed from stock that had ever been seriously ill. We would suggest that you put the well hares into fresh hutches on fresh ground, and feed little else than the best alfalfa hay, for awhile. Too much grass and green truck often proves very injurious to them. Have the hutches well protected from the heat of the sun and the chill winds, so that there will be no sharp changes in temperature between the day and night. If your hutches are of little worth, it would be well to destroy them when you have disposed of the sick animals. If too valuable, close tight when empty and fumigate with sulphur, then spray with strong carbolic, afterward whitewash with hot wash. Mix a cup of carbolic with a bucket of lime dust and sprinkle over the ground in their wards, then spade under, rake smooth and put a top dressing of fresh earth. Do not crowd the hares; keep the young of different ages separate; also sexes and breeding doe; never let the hutches become wet or damp; give plenty of clean straw for bedding. Perhaps some one of the readers of the Rural Press who has had the same trouble that besets "Amateur" will kindly give him some points through these columns.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

COTTONWOOD FARM, Pleasant Grove, Cal. Bees, Chickens, Geese, Hares, Pigeons, Turkeys.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley s "Little Red Book No. 51." Free. Send postal GEORGE H. CROLEY, 637 Brannan St., San Francisco. POULTRY SUPPLIES.

FOR EGGS NEXT FALL
FEED NOW
EGG-MORE

Don't make the common mistake of supposing that you can let the fowls get all run down before or during molting and then bring them up by heavy feeding later. They must be kept in good condition and fed feather-producing and egg-making food. You can make your own "Egg Food," as good as anybody can make, by mixing Egg-More with shorts or other good grain products, according to directions. Egg-More is not a strong tonic, but a highly concentrated Poultry Food. Your hens will certainly lay more eggs if you feed it, just a little each day. 25-lb. sack, $1.90; 50 lbs., $3.60; 100 lbs., $7.00. If not kept by your dealer we will prepay freight within 300 miles, if you mention this paper.

West Coast Mill Co.,
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1st Prize Hen, San Jose and Petaluma.

Heaviest layers, greatest payers on Earth. Winnings '08–San Jose 3 firsts best display and 7 other prizes. Petaluma 3 firsts best collection and 6 other prizes. Stock, all ages, for sale. Two year old breeders for sale cheap to make room. Also limited number of pullets, 3 months and up. Send for prices and free booklet.
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The Home Circle.

Home-Keeping Hearts Are Happiest.

Stay, stay at home, my heart and rest;
Home-keeping hearts are happiest,
For those that wander, they know not where,
Are full of trouble and full of care;
To stay at home is best.

Weary and homesick and distressed,
They wander east, they wander west,
And are baffled and beaten and blown about
By the winds of the wilderness of doubt;
To stay at home is best.

Then stay at home, my heart, and rest;
The bird is safest in its nest.
O'er all that flutter their wings and fly
A hawk is hovering in the sky;
To stay at home is best.

—*Longfellow.*

Things You Know Are So.

On things you know and say are *so*,
Hard winds will blow and light will grow
And change them so, you will not know
That they are so;
And then, by Joe, you'll be more slow
To say you know a thing *is* so.

—*Dr. Coffin.*

The Transplanting of the Farmer.

Sometimes the imp of discontent sets the farmer comparing his hard lot with the "dead easy" time of city folk. Sure, he earns his bread in the sweat of his brow, and in rough and uncouth appearance. (Do not his horny hands and the hayseeds in his hair contribute to the gayety of nations?) While the city man may keep cool in an office or behind the counter, in immaculate get-up with pompadour hair and a crease down his pants legs. The farmer's wife, too, must rough it, and his children miss the advantages open to the youth of the city.

Every time the speeding auto—visible and aggressive spirit of the city—throws dust over himself and family as they plod cityward behind the farm team in the old-fashioned express wagon filled with country produce, the bitterness of discontent cuts deeper into his heart. Why should he plough and sow that the commission man may reap the harvest in golden ducats—and ride in automobiles? The dumb beast works in the fields, the man of brains lives in the city and off of the toiler, or turns up a fortune as easily as turning a trump of cards. The lure of the city gets into his eyes. To exchange the little farm for a city flat where the big rents will enable him to live at ease, and "mother" to take a rest and have a bit of style about her, while the kinds polish up and take hold of the golden opportunities, looks easy.

That this lure has been the undoing of many farmers now in the city of Chicago and many other cities, as well, is a sad fact. The Chicago Tribune commenting on tnis says:

While the city worker, the city clerk, bending nine hours a day under a green eyeshade with heavy eyelids, balancing books, O. K.-ing accounts, is dreaming of the "blest retirement" on a farm and longing to end his days in the country, farmers are moving into the city, there to wind up their life under a different atmosphere, among different people and surroundings. The number of such ex-farmers who are now living in Chicago is not easy to ascertain. Real estate men, however, will tell you that there are a good many hundreds of them and that more are coming. Almost every day one finds in the real estate advertising columns half a dozen or more ads of small farms to exchange for city flats. Three or four months after the advertisement, the owner of the farm is installed in Chicago as the owner of a flat building. Instead of living off the soil he is living on his income, the rent which the flat building he traded for his farm, brings him. For the first few months he may be happy. The change from country to city life dazzles not only the young but the aged. After the novelty has worn off, however, this ex-farmer regrets his action and becomes hopelessly disappointed.

"The movement from the farm to the city on the part of men who are about ready to retire from the game is constantly increasing," said a real estate man who is doing a good business supplying apartment and flat houses to country people in exchange for their farms. "The results, however, are disastrous in almost all cases. It is only when a farmer is compelled to move to the city because all his children have found well paying employment here, while his farm is too small to warrant the hiring of farm help, that he makes the best of city life and is more or less contented. Such cases, however, are few and far between. Many of the farmers who exchanged their property for city flats with the intention of living on the income from these, did not have to move to the city. They moved here because they had false notions of city life and city property. They thought that every cent that a flat building brings in in rent is pure profit. But they figured without the host.

"But even when the farmer has an income from his flat building sufficient to keep him comfortably, there are other reasons why he is unhappy. He deteriorates physically and mentally. He misses the work to which he has been accustomed all his life. I have met many of my clients after six months and could hardly recognize them. City life aged them more in that time than the country would have in six years. One of the most pitiable cases is that of an old friend of mine who exchanged a farm near an Indiana town for a Chicago flat building. The man's income is sufficient for him to live in comfort, but he is far from comfortable. When I met him the other day he was a pitiable sight, and for no other reason except that he lacked interest in life. Down in that Indiana town near which he lived, everybody knew him. There he felt at home. In politics he was a figure. His opinion counted. He had a voice in the management of things. When they got a new teacher he had his say how things should be conducted. In Chicago no one knew him. He had no one to talk to, and no one paid any attention if he did talk. He was only one atom, one thread in a great and intricate web."

"Many of the poorer farmers who moved to the city because of their wrong notions about city property and the large profits it nets are frequently compelled to do something to earn their living here, and it is then that the really tragic chapter of their life begins. For a man who has been a farmer and who has not been accustomed to take orders from a foreman, to work with clocklike precision in a factory or almost anywhere where things have to be done on the minute, is an impossibility. One of this class of farmers is now working for $1.25 a day at difficult unskilled labor, the like of which he had never had to do when he lived on his not large but sufficient farm in Michigan. He followed his boys here, but fortunately rented instead of selling the farm. The younger boy is not making the fortune he expected to in Chicago and is merely earning $12 a week for ten hours work. 'I think my boy will soon be ready to go back to the old place,' joyfully exclaimed the father. 'He sees now that the city offers a job and no more. It almost never offers independence the way the farm does. And the job, too, is not steady. One is always in fear of being fired here. I think he sees it already. But if he should not go back'—the man's voice suddenly became desperate with resolution—'his old mother and I will go to the farm without him. Under no circumstances will I remain working for $1.25 a day like a machine, leading the life of a dumb beast of burden, when the old free life is still waiting me.'"

Helps and Hints for the Home.

THE CUP THAT CHEERS.—Lovers of tea will be relieved to learn that a careful test, scientifically conducted, has proved that this social cup, when properly prepared, is as harmless as so much water. The teamaker is the guilty party when harm results from tea-drinking. So passes another bugbear. It really begins to look as though we might enjoy the good things of the earth in peace, some day.

To make tea properly the tea should be placed in a scalded vessel and boiling water poured upon it; then covered close and allowed to stand just *two minutes;* when the infusion must be strained off the tea leaves. The harm comes from allowing the tea to steep a long time, and some cooks are even guilty of that dietetic atrocity, boiling the tea!

Gladstone, the retention of whose vigor of mind and body to such a noble old age, was largely due to his temperate and sensible habits, always took a cup of tea as a "nightcap" just before retiring. Boiling water was poured upon a pinch of tea in a scalded cup and allowed to stand covered two or three minutes; then drained off into another cup containing a slice of lemon and a lump of sugar. This is always found refreshing and conducive to sound sleep.

CANCER IN FISH.—To the pollution of water with sewage and offal is ascribed the cause of this disease in fish. Dr. Bean, who has charge of the fish culture stations of New York, says: "We can argue from analogy that there is something in the water that ought not to be in it. Give us pure water. Don't pollute the streams with sewage, and those terrible diseases, such as spot disease of the brook trout and the ulcer diseases of the brook and brown trout, will not exist. It is not natural to the water, because this disease of cancer was absolutely unknown at any of our stations until recently."

GREEN CORN FRITTERS.—Mix together a teaspoon a baking powder and a tablespoon of flour and work this smooth with a tablespoon of butter, then stir it into a pint of grated sweet corn; add a teaspoon of sugar, a scant teaspoon of salt and one beaten egg. Have drippings very hot in a skillet and drop the corn batter into it with a spoon, making fritters the size cook slowly till thoroughly done and a rich brown on both sides. Serve hot with butter and maple sugar or with butter alone.

Battersby came across this interesting item in the household department: "If men would answer their wives kindly and courteously when asked for money, it is undoubtedly true that the amount requested would not be half as much as it would be if the husband's reply was surly and antagonistic."

Battersby read this item over twice to make sure he grasped its meaning, and just then his wife entered the room.

"George," she said, "I want some money."

Battersby smiled affably.

"Yes, my dear," he pleasantly remarked, "and how much do you want?"

Mrs. Battersby stared at him in amazement.

"I said I wanted some money."

This time she spoke with much distinctness.

"And I asked you how much you wanted," Battersby merrily reminded her.

"Fifty dollars," she snapped.

Battersby almost fainted. He had imagined she was after $5 and that his genial tone would cut the amount to $2.50.

But he handed over the fifty without further ado—and then tore the misleading item into infinitesimal fragments.—Cleveland Plain Dealer.

"I see you are cultivating a garden."

"Yes," answered Mr. Crosslots.

"I suppose you derive both pleasure and profit from it."

"Not exactly. But it leaves me more contented. It makes the cost of vegetables in the market seem small by comparison."—Washington Star.

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THE MARKETS.

San Francisco, August 25, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

With continued weakness and decline in outside markets, local quotations are slightly lower, and northern wheat is also offered at lower prices. The market is still quiet, and while there is a fair inquiry, buyers are generally disposed to hold off in expectation of further reductions. There has been rather more movement in the northern markets, with liberal buying for export, though there is some disposition on the part of growers to hold out for higher prices.

California White Australian	$2.00	@2.10
California Club	1.80	@1.87½
Northern Club		1.67½
Northern Bluestem	1.85	@1.92½
Russian Red		1.67½
Turkey Red	1.80	@1.85

BARLEY.

Shipping grain is again moving, a cargo having just left, and the price is the same as that on brewing barley. The latter is rather quiet. Feed grain is coming in plentifully, and with a moderate demand the quotations are lower.

Brewing	$1.42½	@1.45
Shipping	1.42½	@1.45
Chevalier	1.50	@1.60
Good to Choice Feed, per ctl.	1.37½	@1.40
Common Feed		1.35

OATS.

The market is considerably lower all around, especially on reds, which are still easy. The immediate demand in this market is very small, and few sales are reported of any variety. Black, gray and white oats, in fact, are practically nominal, the quotations being prices asked by holders. Northern white oats for future delivery are offered at $1.57½, and Texas reds for $2.05.

White, per ctl	$1.85	@1.95
New Red, choice	1.75	@1.85
Common	1.65	@1.67½
Red, seed	1.95	@2.10
Black	2.25	@2.60
Gray		1.75

CORN.

The demand in the local market is very small at present, and only occasional lots of Western corn are brought in. Prices on the Western grades have been reduced 5 cents.

California Small Yellow	$1.80	@1.85
California Large Yellow	1.75	@1.85
Western State Yellow, bulk		1.60
Mixed, in bulk		1.58
White, in bulk		1.63
Egyptian	Nominal	

RYE.

There has been no business of any consequence, and under the conditions it is impossible to give any definite quotation. There is very little demand, and holders are asking various prices, which buyers generally are unwilling to pay.

Rye ..... Nominal

BEANS.

Several small lots of new beans have come in during the present week, consisting of garvanzos and Lady Washington, but the amount was not large enough to establish prices. It will probably be nearly a month before the arrivals become of much consequence. With a small acreage of garvanzos, the season's supply is expected to be unusually light. The harvest in the San Joaquin will commence in about a week, and the outlook is for a good yield. Spot prices remain as last quoted, with most varieties quiet, though there is still a fair movement of pinks.

Bayos, per ctl	$5.00	@5.25
Blackeyes	3.25	@3.45
Cranberry Beans	Nominal	
Garvanzos	2.50	@3.00
Horse Beans	1.90	@2.20
Small Whites	7.00	@7.50
Large Whites	4.50	@5.00
Limas	4.20	@4.25
Pea	Nominal	
Pink	3.00	@3.10
Red	Nominal	
Red Kidneys	3.50	@3.60

SEEDS.

There is practically no movement in seeds at present, and nothing new is expected for some time. Local dealers continue to quote the former range of prices, which under the conditions, are little more than nominal.

Alfalfa, per lb.		17½c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.	4	@ 4¼c
Canary		4¼c
Flaxseed		4 c
Hemp		4 c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

A general reduction of 20 cents per barrel has been announced by the millmen, following the lower values for the raw grain, though little of the new crop is available for milling operations. A further reduction is expected within the next few months, though large consumers look for higher values than last fall. Buying is still rather quiet, though some export business is now being done in the nodth.

Cal. Family Extras	$6.40	@6.80
Bakers' Extras	6.10	@6.80
Superfine	5.30	@5.50
Oregon and Washington	5.30	@6.30

HAY.

The arrivals in the local market this week show a marked decrease, being about 1,000 tons less than for the week preceding. The demand is light, with buyers unwilling to lay in large supplies at present prices, and dealers have had difficulty in disposing of the receipts. Considerable pressure to sell is reported in some districts, and a good deal of stock is being handled on consignment, as dealers are not inclined to do any buying in the country. Local prices are very irregular, but the general run of sales are at about the former range. Choice grades remain firm, but large lots of low grade stock are coming forward, and are meeting with very little demand.

Choice Wheat, per ton	$17.00	@19.00
Other Grade Wheat	12.50	@16.50
Wheat and Oats	13.00	@15.00
Tame Oat	13.50	@16.00
Barley	10.00	@12.50
Wild Oat	10.00	@12.50
Alfalfa	10.00	@12.50
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 70c

MILLSTUFFS.

The leading millstuffs remain in the same position as before, with steady prices and ample supplies for the current demand. Oil cake meal is higher and cocoanut meal lower, but otherwise all lines remain as before.

Alfalfa Meal, or mealfalfa, per ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	25.00	@26.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	36.50	@37.50
Mixed Feeds	25.00	@30.00
Oil Cake, per ton	39.50	@41.00
Rolled Barley	31.00	@32.00
Shorts	31.50	@33.00

VEGETABLES.

While many articles are still coming in excessive quantities, the receipts for the last week have been somewhat smaller, resulting in a firmer market. Green peas are becoming rather scarce, showing quite an advance in price, and string beans are also firmer. Green corn is considerably higher, with supplies falling off. Tomatoes are still very plentiful, and it is impossible to realize the top quotation of last week, while okra is also a little lower, but green peppers, cucumbers and summer squash all show a slight advance. Pickle cucumbers and egg plant remain as last quoted.

Onions—New Yellow, per ctl.	65@	75c
Garlic, per lb.	4@	5c
Green Peas, per lb.	2½@	3c
String Beans, per lb.	2@	3c
Lima Beans, per lb.		5
Tomatoes, per box	75c@	1.25
Green Peppers, per box	40@	50c
Green Corn, per sack	75c@	1.25
Summer Squash, large box	35c@	50c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	50@	60c
Pickle Cucumbers, per box	75c@	1.00
Egg Plant, per box	60@	75c
Okra, per box	50@	65c

POULTRY.

While arrivals of local stock are still light, the market is in a rather unsatisfactory condition on account of heavy Eastern shipments, four cars having arrived this week. The market is accordingly oversupplied with some lines, which are lower. Good stock, however, still finds ready sale at fair values. A strong demand is expected during the next few weeks owing to a number of holidays. There is some demand for spring turkeys, with very little stock to offer.

Broilers	$ 3.50@	4.00
Small Broilers	3.00@	3.50
Fryers	5.00@	5.50
Hens, extra	7.00@	9.00
Hens, per doz.	5.00@	6.00
Small Hens	4.50@	5.00
Old Roosters	4.00@	4.50
Young Roosters	6.00@	7.00
Young Roosters, full grown	8.00@	9.00
Pigeons	1.00@	1.25
Squabs	2.00@	2.25
Ducks	4.00@	8.00
Geese, per pair	1.50@	2.00

BUTTER.

Prices continue to climb, fresh creamery extras being quoted at an advance of 2 cents, while firsts and seconds are correspondingly higher. While there is plenty of stock of lower grades for the current demand, the extra grade is coming in slowly, and the market is kept closely cleaned up most of the time.

California (extras), per lb.	32 c
Firsts	29 c
Seconds	27½c
Fresh Packing Stock, No. 1	24½c

EGGS.

Eggs have now reached comparatively high values, and there is some fluctuation from day to day, extras being now 1 cent lower than a day or two ago, though they are still quoted 3½ cents above last week's price. Extras are becoming quite scarce, and a large volume of trade is turning to the lower grades. Storage eggs are beginning to move on the street, though they are not yet quoted on the exchange.

California (extras), per doz.	40 c
Firsts	35 c
Seconds	30 c
Thirds	24 c

CHEESE.

Cheese remains quite firm, with about the average demand and limited offerings. Local Y. A.'s were rather weak a few days ago, but are now quite strong at an advance of ½ cent. Oregon Y. A.'s are also higher, and some Eastern stock is being offered at 18½ cents. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	16½c
Firsts	15½c
New Young Americas, fancy	18½c
Oregon Flats	16½c
Oregon Young Americas	16½c
N. Y., fancy	18½c

POTATOES.

Potatoes are now coming in more freely, and considerable stock is accumulating. Prices are accordingly lower for both boxed and sicked stock, and the market is weak at the decline. Sweet potatoes are arriving more freely, and are quoted lower.

Potatoes, Boxes	50@	85c
Sacks, per ctl.	65@	80c
Sweet Potatoes, ctl.	2.00@	2.25

FRESH FRUITS.

Arrivals have been moderate for the last few days, and a demand for shipment north helps to clean up the market, but the supply is still too large for local requirements, and with a quiet business from local traders prices are still weak. Berries are all lower and weak, with plentiful supplies. While watermelons are moving fairly well, the heavy arrivals have brought a decline. Cantaloupes remain as before, though nutmegs are a little stronger. Seedless grapes still bring former prices, but other varieties are considerably lower, with heavy offerings and no great demand. Apples are as last quoted, Gravensteins being very strong with a good demand for shipment. Figs show a sharp reduction, the present offerings being of unattractive quality. Small packages of peaches, especially freestones, are in good demand, and bulk lots are also higher, though clings find little market. Plums and prunes are dull at last quotations, and Bartlett pears are lower, as canning stock is no longer in much demand.

Melons, Cantaloupes, crate	$ 1.00@	1.50
Nutmeg, per box	40@	60c
Watermelons, per doz.	1.00@	2.00
Raspberries, per chest	5.00@	8.00
Blackberries, per chest	2.00@	3.00
Strawberries	2.50@	5.00
Huckleberries, per lb.	10@	12½c
Grapes, Seedless, per crate	50@	75c
Muscat	50@	85c
Tokay	65c@	1.25
Other varieties	35@	65c
Apples—		
Fancy Gravensteins, per box	1.40@	1.50
Fancy Red	1.00@	1.25
Common	60@	85c
Figs, per box	40@	75c
Peaches	40@	75c
Lug boxes	60@	1.25
Plums, per box	30@	50c
Prunes, per box	30@	50c
Nectarines, per crate	60c@	1.00
Pears—Bartletts, No. 1, box	1.00@	1.25
Quinces, box	75c@	1.00

CITRUS FRUITS.

The market is decidedly dull for all descriptions of citrus goods, though prices remain steady on oranges, grapefruit and limes. Some grades of lemons show a wider range, with a downward tendency.

Choice Lemons	$ 2.00@	2.00
Fancy Lemons	4.00@	4.50
Standard	1.00@	1.50
Limes	5.50@	6.00
Oranges, Valencias	1.75@	3.00
Grape Fruit	2.50@	3.25

DRIED FRUITS.

This market is fairly steady on most varieties, with a good demand for shipment. New crop is now coming forward rapidly, and there is very little old fruit moving. Peaches are taking a stronger position all over the country, on account of the heavy demand for green fruit, which is said to be limiting the pack. Local packers are actively buying up offerings in the country, and there is quite a heavy movement to outside markets, with some advance in price. Prunes are also slightly higher, with a much more active demand than has been noted for the last few weeks, and the market is stiffening up in good shape. Still higher prices are anticipated for both peaches and prunes. Apricots are rather quiet, but firm, with considerable quantities held back by growers in some sections. Offers for new crop raisins are lower all around, and the market is dull and extremely weak, with buying interests generally holding off. Spot goods are also dull, with irregular prices, some being offered as low as 1½ cents, though the holdover is being reduced to some extent.

Evaporated Apples, per lb.		7½c
Figs, black		2 c
Figs, white		3 c
Apricots, new crop	7½@	8 c
Peaches, new crop	1 @	1 ½c
Prunes, 4-size basis	2¼ @	2½c
Pears	3 @	5 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2 @	2½c
Thompson Seedless		2 c
Seedless Sultanas		2 c
London Layers, 3 crown	85@	95c

NUTS.

Nothing new is reported in almonds, purchases by packers being still of small proportions, and new prices are not very well established. The crop is now being gathered in some quarters. Buyers are anxious for spot stock, which is scarce and very firm. Walnuts are also in good demand and firm, though supplies are still sufficient for the market requirements.

Almonds, Nonpareils	13½c
I X L	13 c
Ne Plus Ultra	12 c
Drakes	9½c
Languedoc	8½c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

Local prices remain fairly steady at about the former quotations, though the market is still somewhat irregular. There is now plenty of stock on the market for all immediate requirements, but there is very little buying.

Comb	10 @	13 c
Extracted, Water White	7 @	7½c
Extracted, Amber		6 c
Old Extracted	3½@	4 c

HOPS.

The situation shows little change, reports showing a better outlook in the north, but a shortage in the Sacramento valley. The quotation for new crop is a little easier than last week, but the position of the market in general remains very strong.

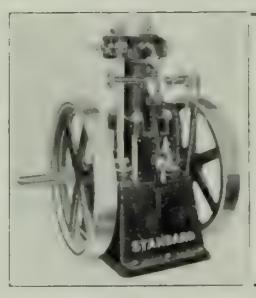
Hops, Old, per lb.	11@	14c
New Crop	18@	20c

WOOL.

New supplies consist mostly of lambs' wool, but some of the regular fall clip is now coming forward from the southern districts. The stock so far is more or less defective, and prices are at a much lower range than prevailed during the spring.

Southern, Fall Clip, defective. 7½@ 8½c





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MEAT.

The market remains about stationary, changes in values being few and unimportant. Live sheep are stronger, with no stock obtainable at the low quotation of last week, while live cattle are inclined to easiness. Arrivals of hogs are increasing, but with a little more demand the market shows more firmness.

Beef: Steers, per lb	6½@7½c
Cows	5@6½c
Heifers	5@6½c
Veal	7½@9½c
Mutton: Wethers	7@8½c
Ewes	6½@7½c
Lambs	9@10c
Hogs, dressed	9½@12c

LIVESTOCK.

Steers: No. 1	4@4¼c
No. 2	3¾c
Cows and Heifers: No. 1	3¼c
No. 2	3c
Bulls and Stags	1¾@2c
Calves: Light	5¼c
Medium	4¾c
Heavy	4@4¼c
Sheep: Wethers	4¼c
Ewes	3¾c
Lambs	5¼c
Hogs: Grain fed, 100to 150 lbs.	7¼c
150 to 250 lbs	7¾c
250 to 325 lbs	7c
Common Hogs, lb	4½@5c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, August 23, 1909.

Fruit sales in the Eastern markets today were announced by the California Fruit Distributors as follows: Pittsburg 5 cars, Distributors 4; Boston 14, Distributors 6; New York 39, Distributors 30; Chicago 34, Distributors 16; Philadelphia 8, Distributors 6.

The average prices today in the Eastern markets were as follows:

Chicago—Bartletts, ripe $2.75, green $3.15; Giants, $1.40; Germans, $1.75; Eggs, $1.45; Malagas, $1.20; Susquehannas, 80c; Lovells, 80c.

Boston—Bartletts, $4; Crawfords, 90c; Elbertas, 90c; Susquehannas, 75c; Crawford clings, 57c; Yellow frees, 57c.

New York—Elbertas, 85c; Lovells, 85c; Susquehannas, 75c; Malagas, $1.37; Bartletts, $3.35; Tokays, $2.60; Orange cling, 80c; Giants, $1.20.

Prices during the past week have held up well. Cars have grossed higher than for some time, running as high as $1,872 for one car composed of Bartletts, sold at Montreal.

Total shipments to August 24, 7,062 cars. Total shipments same date last year, 5,624 cars.

WEEKLY LETTER.

Sacramento, Cal., August 24th.

The following gives number of cars of deciduous fruit shipped to all points by all members of the California Fruit Distributors for the week ending Monday night, August 23, 1909:

Plums and Prunes—70 cars. Shipment of this variety of fruit has dropped off materially as will be seen by the number of cars shown in this report. Shipments will continue to decrease daily until the crop is entirely finished.

Peaches—121 cars. Less than one-half as many peaches were shipped out this week as during the preceding one. There is not much to offer in this line now except clings, although there are a few Picketts Late being harvested as well as a limited number of Salways. Shipments of this latter variety will be quite large next week and the week following. As reported in our last bulletin the crop wi prove to be a very light one. The demand for Salway peaches has been very large and it is advisable for all those who have not yet ordered, and desire this fruit, to place their orders at once.

Pears—145 cars. Pears also show a material dropping off in shipments. There are but few Bartletts available. Some winter pears are now moving and it will be well for those who desire this fruit to put in their orders early as the supply is quite short.

Grapes—342 cars. There has been a considerable gain in the grape movement during the last seven days and the next week will show a still further increase. The principal movement is still in Malagas although there are considerable quantities of Black Prince and Tokays going forward. The former are moving out in straight carloads and Tokays also will be available the latter part of the week. Weather is favorable and the crop is maturing very nicely. Many reports are being received at this office indicating that the grape crop will not be very much larger than that of 1908. We had been expecting a material increase over the figures of last year, but there is a possibility that this will prove to be a mistake.

Special Citrus Market Report.

Los Angeles, Cal., August 24, 1909.

The auctions are showing a little better prices on valencias and the average in New York on Monday was $2.75 for all grades and sizes. With a preponderence of small sizes and much poor stock in evidence this means that the large sizes and good fruit brought good figures.

The prospects are bright for this class of goods all through the season, but there is so very little of it that it will not tend to bring up the average for the whole output very much. The shippers state that valencias are now running 20% to standards, whereas in June it was about 10% of the total.

Prices are wide and the best stock is now being quoted at $1.90 where sizes are good and from that down to $1.35 a packed box for inferior and small stock. The demand has been very light and most of the stock going out is being rolled without orders.

Since June 10th there has been shipped 5,000 cars, very nearly all valencias and if the early estimates were correct, there are yet 1,500 cars to go. This means an output of over 25 cars a day for the remaining shipping days of the season up to October 31st, when the official shipping season closes. No doubt some few cars will go over into November, but it is a risky proposition as the northern navels and Florida oranges are beginning to reach the markets in early part of that month.

Lemons have been doing fairly well but prices have ranged wide, showing that much of the stock offered is of poor quality. The best stock from California and abroad is doing well and our shippers are now quoting at from $2.75 to $3.75 per box for extra choice fruit. There are some evidences of a price revival being right at hand and all are expecting prices to go higher before the close of the season. The Sicily stock on hand and available for the next thirty days is 157,000 boxes as against 62,000 at this time time last year and 140,000 in 1907. This amounts to about 470 cars.

The shipments from California to date have been 29,863 oranges and 5,690 cars of lemons. To same time last year, 23,799 oranges and 4,319 lemons.

PUBLISHER'S DEPARTMENT.

Attention is called to the advertisement of Davis & Sons, of San Francisco, who are the manufacturers of the Hercules Harness, guaranteed oak tanned. Write them for price list.

Mr. P. K. Wood, of Los Angeles, well-known pump manufacturer, was in San Francisco this week, on his return from Willows, Cal., where he has been making estimates on a large pumping plant to be installed at that place.

The Leonard Coats Nursery Co. announces two good varieties of walnut trees for sale. The "San Jose" Mayette and the Concord have been tested, withstand blight and are regular bearers. As the demand for walnut stock is large it will be to the interest of intending planters to write for further information, price and sample of nuts.

Since publishing the articles on goats in recent issues we have learned that a considerable interest is manifested in this State in goat raising. Many inquiries have come to us regarding the keeping of goats and where stock can be secured. In this issue we have the advertisement of H. V. Wheeler, of Sausalito, who has a fine herd which he offers for sale.

The Standard Gas Engine Co., of San Francisco, is making a specialty of its new type of 4 hp. stationary engine, for farmers' use, and for irrigation purposes. The Standard 4 hp. stationary engine is a simple but durably constructed machine, and when fully assembled, forms a complete type of strength and service, coupled with economy. One feature with this machine is that it is built to compete with Eastern competition, and it is doing this to the letter. Before buying a gas engine, we would advise our readers to be sure and learn every detail in the machinery of the Standard Gas Engine Co. Their engines are built to work out a destiny of success in their achievement.

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or

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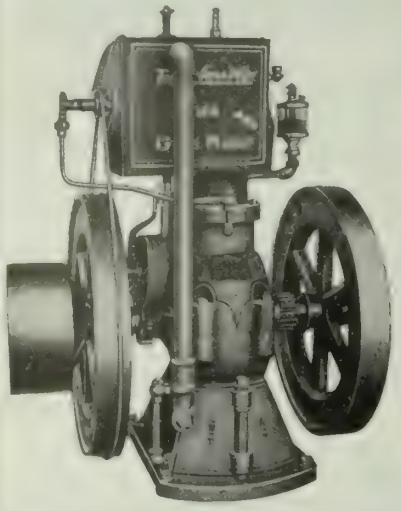
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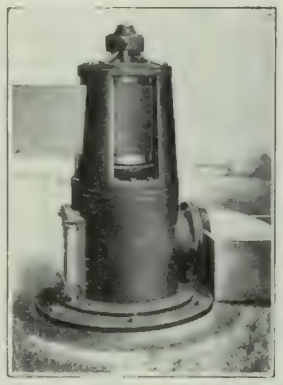


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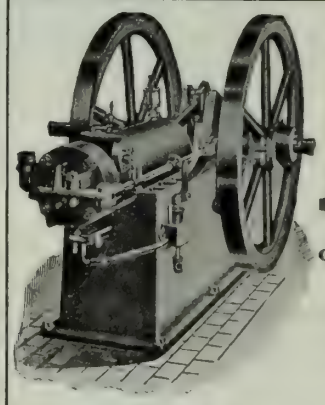
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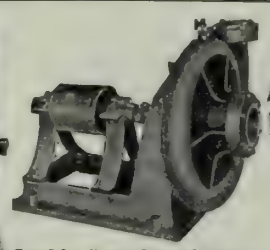
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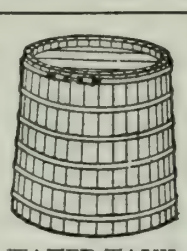


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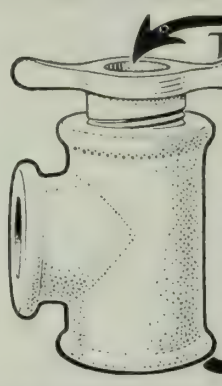


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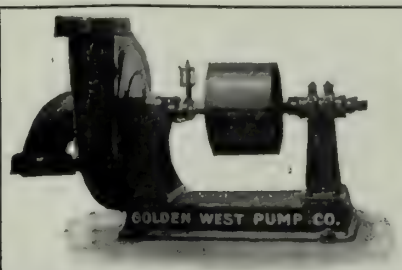
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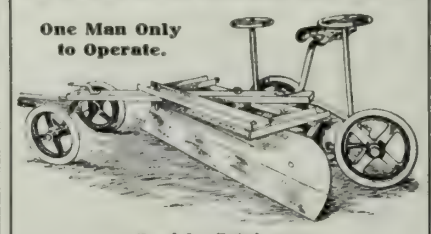
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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 10. SAN FRANCISCO, SATURDAY, SEPTEMBER 4, 1909. Thirty-ninth Year.

Stock Raising in California.

Written for the PACIFIC RURAL PRESS
By MR. PAUL PARKER.

The extent of the stock raising industry in California is not generally appreciated. Gold has been considered the great wealth producer and many people will be surprised to learn that over $30,000,000 was made last year from the sale of live stock, while gold only produced about $17,000,000. The part played by the stockmen in the business world is very large, and the merchants and producers feel it keenly when live stock are lost by drouth or disease, or the market is dull. The total valuation of the live stock in California last year was estimated at $91,816,000.

The only branch of stock raising which has shown any falling off within the last year or so was the sheep industry. This was due mainly to restrictions imposed by the government on sheep grazing in the forest reserves. It resulted in the wool clip for 1908 being only 15,000,000 lbs.—the smallest yield since 1868. The sheep industry will pick up, however, and will be operated on a different basis than has been done formerly. The bands of sheep will not be so large as in former years, but there will be more of them. Already we have seen the elimination of the large grazing ranches, which have been subdivided into smaller tracts where the feed for live stock is grown under cultivation. The result of this is that several head of stock are fed now where formerly one animal had to work hard to get sufficient food to live. As the feed becomes better it necessarily results in the discarding of long-horned cattle, razor-back hogs and inferior sheep for well bred stock. This means larger, healthier animals and an increase in the quality and quantity of the meat. The butcher, through the consumer, has done much to improve the breeds of stock. The stock are being bred now so that in cutting them up they will give the largest amount of "prime cuts" with the smallest amount of waste. As the buyer pays more for this type of animal, the stockraisers are bending every effort to breed their stock to meet these requirements.

The present method of growing feed for the stock and feeding them in corrals has resulted in the stockman being able to watch the progress of his cattle very closely. He has been able to regulate their feeding so as to get the best results at the least cost. He has been able to select with greater care the animals for breeding purposes, and he has learned that early maturity is the main consideration in fattening. The future size and development of every animal is influenced by the food received the first few months after birth.

Sheep raising has been an important industry since the creation of man, and ever since the importation of Spanish Merinos by the Jesuit Fathers, California has been a favorite place for sheep. The low lands for winter feeding and mountainous districts for summer feeding has made it possible to raise sheep very cheaply. But with the gradual settlement and development of the country this method is disappearing and more modern methods are taking its place.







Scenes in Kings County, a Favored California Stock Section.

Instead of making wool the primary object of sheep raising, the men engaged in the business are developing a mutton sheep, which also has a good fleece. This is obtained by crossing some good wool and mutton breeds. The object being in making the cross to get a sheep which will thrive best under the climatic and feed conditions where it is to live, as some breeds will do well in one locality and will be a failure in another. One of the favorite crosses of wool and mutton sheep is that between the Merino and Shropshire. This cross gives a large sheep with a broad back and rump and a good fleece. Only those lambs are taken for breeding purposes which show the best characteristics of the breed. Those not coming up to the standard are fattened and sold at the first opportunity, because a few undersized sheep in a band will soon ruin a whole flock, where the rams and ewes run together.

Sheep are the most inexpensive animals one can have on a farm, and where it is possible every farmer should have from 20 to 100 sheep on the place. They pick up the feed around the stalls which otherwise would go to waste, they clean up the weeds and are excellent fertilizers of the soil. Six to ten pounds of wool a year can be sheared from each animal, besides the returns from the sale of the lambs.

Also a person raising sheep on a small scale in this way can study the influences of the climate and feed on the various breeds, so in case he should care to go into the sheep business more extensively, he would have some good experience to fall back upon, because knowing what to do or what to avoid in the sheep business comes only after long experience.

One of the most essential factors in sheep raising is to properly maintain the breed of a flock. This is accomplished by having only good rams, and a few dollars more spent on the purchase price of a ram will soon show itself in high standard lambs.

It should be borne in mind that the younger the sheep the cheaper and quicker the cost of fattening. If a lamb is taken immediately after it is weaned and fed on nourishing food it will show the effects of feeding in three to four weeks and will be ready for the market in a few months. Farmers with plenty of green feed and good shelter should breed

(*Continued on Page 154.*)

Pacific Rural Press

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The Week.

In covering nearly a thousand miles within three Pacific shore States northward from San Francisco, we are impressed with the similarity of the land and the people, and with the conviction that a certain unity of feeling and purpose prevails throughout the three States which constitute the western waterfront of the United States—not including Alaska. Our journeys have carried us chiefly along the ocean side of the Sierra Nevada and the Cascade ranges, under the shelter, however, of the Coast ranges, and we have thought much of the continuous valley with climatic conditions moderated by the high eastward mountains; protected also from too direct access of ocean air-movements and yet favorably influenced thereby. If one has opportunity to study a relief map of the Pacific Coast district, such a contra-costal valley is seen to exist all the way from the Columbia river on the north to the San Gabriel on the south, more than 1,200 miles of somewhat irregular but still connected and related valley areas. It is a beneficent fact that these areas are distantly and not continuously connected. If there were an open valley carried through so many degrees of north and south latitude, without increasing width beyond present dimension, it would probably act as a trough through which storms might attain great velocity and violence, causing much greater temperature-extremes than are now experienced, and reducing adaptations to plant growth correspondingly. It is a grand topographical advantage to all parts of this long valley that the Tehachapi uplifts cross it at the south and the huge masses of Shasta and the Siskiyou mountains arise to break its northward extension into Oregon. And yet the valley, as it were, overlaps these barriers and pursues its course beyond them—just as a river may be retarded by barriers causing cataracts, or speeded by slopes causing rapids, but still carries its seaward course in spite of obstacles which may cause diversions. In some such way the San Gabriel, the San Joaquin, the Sacramento and the Willamette valleys appeal to us as continuous, ending with open, coast plains to San Diego on the south and beyond Seattle on the north—a geographical unity comprising differences in conditions, of course, but not wide diversity therein. And these differences are in themselves desirable in that they favor a wider range of products. The great natural obstacles which restrict too free a play of natural phenomena also work in a moral way probably: they are good for the curb which they place upon air-movements; they are good also for the opportunity which they afford for man's enterprise to surmount them with transportation facilities by which he may pass beyond them in his pursuit of industries and recreation.

This geographical continuance and the consequent topographical resemblance suggest to us new force in the suggestion which we recently took occasion to make in connection with what seemed to be desirable in a whole-coast undertaking in the marketing of fruit and fruit products. Having just had opportunity for a review of the whole territory involved, and much better chance than ever before to become acquainted with the northern people who are essential as allies and partakers in such an undertaking, we are more deeply impressed with the spirit, force and wisdom which they would bring to it. Quite a number of the men now leading in northern fruit enterprises were formerly Californians; a much greater number are like Californians in their activity, energy and optimism—and that is the best we could be expected to say of them. They have now some advantage of us in the number of overland railway lines traversing their territory, but this may not always be true, for the men who have done much in constructing railways to the northwest are now credited with the determination to break through our northeastern mountain rim into California valley and plant termini on the bay of San Francisco. These lines will bind still more closely the northern parts of the continuous valley to which we have alluded and connect them more closely also with the great interior regions of the upper coast which are now taking giant strides in fruit growing. All these regions of contra-costal valleys and interior valleys are in a way complementary and should be correlated in effort and enterprise. Though the fruits chiefly grown will vary according to degrees of adaptation, the policies of tree-training of soil tillage and irrigation, as more or less supplementary to rainfall, are strikingly similar throughout. What appeal to us as good trees in all the parts of the Coast which we have seen are wonderfully alike in form and are produced by similar methods. Thus we find substantial agreement not only in the spirit of the men but in their conceptions of what is good in a commercial fruit tree and all could learn much by personal acquaintance with the work of each.

The policies and methods of growing fruit which now prevail in the newer northern regions were undoubtedly worked out to their present definiteness in California. The old orchards of the Willamette valley look like the old orchards of the coast valleys of California, and show some defects both in shape of trees and in the results of scanty cultivation. They are farmers' and not up-to-date fruit growers' trees, and do not belong to the present era. They are both true to the old type of Eastern farm fruit trees which the pioneers were satisfied to attain because they knew no other when they began their work upon the coast. It is interesting to note that several of the earliest tree planters adjacent to the bay of San Francisco came to California from Oregon, and they brought the first grafted trees into this State and began local propagation soon after, as did many others who did not come by way of Oregon. There is, however, a debt, partly horticultural, partly sentimental, which we can recognize in the contribution which Oregon made to the beginning of commercial fruit growing in California, which, however, we have repaid with interest by the new methods which California has furnished for the later fruit developments of the north, until it may be clearly seen that our styles prevail there, as already intimated. The visiting Californian feels quite at home in such environment, and if he could be dropped into the newer orchards almost anywhere at the north, without memory of the journey he had made, would find it difficult to realize that he was a thousand miles away from his own property. For we found their August quite like our own in sky and earth and air, although variety of fruit, by their immaturity, showed us that they must have started to grow considerably later. The difference in choice of fruits and the differences of time of ripening of the same fruit constitute the chief variations which must be correlated in the growth and sale of fruits which the whole coast area should pursue co-operatively, and not competitively.

In the matter of land values there is at the present time a tendency to excessive valuation of bearing orchard and of land held to be suitable therefor. As nearly as we could judge current prices in places which had displayed most enterprise in development and exploitation, were about twice as great as equally good and productive property could be had for in California. There is, of course, plenty of cheap land in the North, and there is in California also. We are not speaking of cheap land, but of land which is in the midst of the most fashionable improvements in fruit growing lines. We have often thought that such land was held too low in California, in spite of the high figures which are occasionally reached. There is a much more conservative view prevailing in California than at the north; much more is said about the risks in such property; we see bugs and bugbears of which the northern vision is clear though there are really as many such menaces in one place as in the other. We have more knockers to the acre than they have to the township. To an unprejudiced mind it must appear that our northern developers are anticipating too much and may steady their optimism a little later, but the impression remains that though they may be too high we are just as much too low. They are figuring values on the basis of a good interest income we are figuring on the chances of getting back to much of the investment within a year or two. They are confident; we are timid. They have had no setbacks; we have experienced a few. There ought to be a better correlation of values, and it would be of general advantage if a thousand northern fruit growers could travel in California and a thousand Californians could see what they are doing at the north. Both would be surprised to say the least. It is perhaps a startling proposition to make to the world that California is fairly moss-backed with silurianism in this matter of land prices in popular fruit districts, and yet it is exactly true, when we are measured by the buoyancy of the newer districts in Oregon and Washington.

It really seems to be a fact that the more you say about inflated values and over-expectations the greater the attractions to investment become. A rush makes high prices, it is true, but the high prices continue the rush and cause still higher prices. Californians know enough about how such things go to be ready to take a hand in the game and so we find some of our freest thinkers sitting in the full light of the northern sunrise. They ought to be smart enough to get under cover before the dew falls—which is a purely figurative expression, for the dew never falls except in poetry. There is of course at the north much beside fruit, and the whole line of industrial activity is pulling taut. The northern people are rather pleased to attract the attention of Californians. This item from a Seattle journal is an index of the fact and the feeling: "Two capitalists from California have purchased the Mukilteo lumber plant near Everett, paying for it the sum of $800,000. Now if these gentlemen who receive that big sum of money will just invest it anywhere in the State of Washington, that will demonstrate that additional capital is coming to the State to stay. I

monstrates anyhow that California capital is oming to Washington."

The California exhibit at the Alaska-Yukon exsition is the most timely and fortunate the State er did for the proper appreciation of its reurces and industries. The building is very credable and its contents most varied and attractive. r. Frank Wiggin is in charge, while his colleague mmissioner, Mr. J. A. Filcher, is managing the ry successful State Fair at Sacramento. The attle exhibit is representative and good and rth making at any great public occasion, but pecially significant because it is an eloquent demstration for California directly under the eyes all who are interested in taking a hand in the velopment of the whole coast and might otherise lack a hint that California is doing business the old stand and offering a stock of various portunities, rewards and joys of life which cant be surpassed on the coast or elsewhere. It is ar to see that for California to have neglected speak for herself on this occasion would have en a public misfortune. Everybody enjoys and raises the displays, and most people recognize the et that California achievement is the basis upon hich present development is confidently proceedg.

A reference to Pacific coast progress should, of urse, include appreciative reference to the adncement of Hawaii, which is not ours geographilly but is complementary to our mainland comonwealths as affording tropical conditions with our own borders. Hawaii is coming continually oser to the mainland and connects well with the hole north and south extension of it. Hawaii is so rich in its displays at the Seattle exposition. is interesting to note, as shown by the report st prepared by Governor Freer, that the assessed luation of the real and personal property in awaii is greater today by $5,000,000 than at any me in the history of the islands, being $138,910,-20. The receipts of the territory from all sources r the last year amounted to $3,051,526, the fiscal ear having ended with a surplus of $116,524. axes collected in the last fiscal year amounted to 2,080,635, an increase of nearly $200,000 over hose of 1907. The territory is in excellent financial condition and is clearly just at the beginning f its career as a great American commonwealth.

Queries and Replies.

Importance of Late Summer Moisture.

To the Editor: Some people tell me that deciduous fruit trees do not need irrigation after the fruit has been gathered; that fruit buds are formed while the crop is growing and therefore the next crop is prepared for and the tree can be allowed to rest. It seems to me that you have written a good deal against that view, have you not?—Grower, Fresno.

It has been clearly demonstrated that although the beginning of the growth of fruit buds on deciduous trees takes place while the fruit of this year is forming and ripening, the full development of those fruit buds and their strength and effectiveness the following year depends upon growth made after the current year's fruit has ripened. In other words, fruit trees which are not supplied with summer moisture enough to maintain a satisfactory action of leaves during the early autumn cannot finish the development of fruit buds for the following year.

We are now experiencing in California quite wide injury to deciduous fruit trees from insufficient autumn moisture. This, in the first place, prevents formation of fruit buds, and if it goes beyond that it injures the absorbing root hairs to such an extent that die-back of the new growth may follow. It is particularly desirable, therefore, that adequate moisture should remain in the soil to carry the trees along their late summer and autumn growth and enable them to meet the loss of moisture resulting from evaporation through the bark, until the winter rains moisten the soil to a sufficient depth to meet the demand. Of course, late irrigation need not be large in amount; that would depend upon the character of the soil as to retentiveness, but it must be adequate or injury will result to the trees.

Eucalyptus Growing.

To the Editor: What is the effect of the colder climate near Sacramento, Cal., upon the rapidity of the growth of the blue gum? In the University Bulletin the average height of a 25 year old grove at Vacaville is put at 125 feet, and the diameter at 14¼ inches, while those in Ventura county show greater girth and height. I judge from this that the cold retards the growth; I wish you would tell me if I am right, and if you think the Vacaville trees can be taken as an average in rapidity of growth for that locality? In Bulletin No. 8, of the U. S. Department of Agriculture the diameter of 15 year old blue gums is given at 30 inches. It does not state where these test trees were grown, but I suppose they were taken from the station at Santa Monica.—Investigator, Illinois.

There is heat enough anywhere in the Sacramento valley to secure a rapid growth of the blue gum, providing the soil is good and the moisture ample. There are places in the valley, however, where the temperature may drop low enough to kill young trees. It is, therefore, not a question of the cold retarding the growth, because the temperature during the growing season in the Sacramento valley is higher than it is in the coast district of Ventura county.

We cannot meet your request for information about the amount of growth which you will be likely to secure, because, as already intimated, it is not a question of heat alone, but involves depth and richness of the soil and an ample water supply. An average growth is of little account unless you use it in connection with similar soils, heat and moisture conditions.

Concerning the United States statements of diameters accompanying tests of strength, the specimens were not all secured from Santa Monica, but from different parts of the United States where the trees were found of satisfactory size.

An Agricultural View of Land Adaptation.

To the Editor: I have a tract of land in the San Joaquin valley which I would like to know what to do with. Can I have analysis made which will tell me what kind of grain to grow, and whether I can also grow summer crops after the grain is harvested?—Owner, San Francisco.

It requires more than a chemical analysis to determine to what plant soil is adapted. You can usually get more direct suggestions from what is known of its previous production and by observation of what is now being profitably grown on similar land near by. It is quite important to know the commercial prospect of the crop also. Chemical analysis does not distinguish between the different grains, for example, and yet from other causes than the chemical composition one grain might fail or might be unprofitable while another would grow well and pay well. The same would be true of fruits, to a large extent. In short before undertaking cropping you should endeavor to secure the agricultural view of the suitability of the soil rather than the chemical, although for the fullest knowledge both considerations should be taken into account. If you can now get a good grain crop from the land, its suitability for summer crops may be largely inferred, providing you can supply the water required for summer growing plants.

Trouble With Young Peach Trees.

To the Editor: I have some three-year-old Muir peach trees that do not grow as I think they should, and I wish to know if you can tell me where the trouble is. They are planted on light, sandy land with a ditch running through the field. The land slopes gradually away, and is, I should say, about six feet lower than the ditch at the lowest place. All along the ditch they are doing nicely and in places the others are all right. The bad ones grow finely in the spring until the hot weather commences, or say about the first of July, then all the leaves become ragged and begin turning yellow, except the tip ends of the branches, and finally fall off. Some times all the leaves get that way, but then they usually die. I dug up a few last fall and found that some of them had knots on the trunks of them just below the surface. I do not think it can be the moisture, as I have tried irrigating some plentifully and others not at all and can see no difference. This spring I noticed a great many ladybirds on them. Can you tell the trouble and prescribe any remedy?—Fruit Grower, Fresno.

Some of the trees are probably suffering from lack of water during the middle of the season; others may be dwarfed and killed by root-knots. It is not necessary to conclude that all are suffering from the same trouble, but none of them are hurt by ladybirds. It looks as though the lack of moisture must affect some, from the behavior you describe; those which are badly knotted or stricken with root aphis would not be helped by irrigation, while those with clean roots ought to be held up by it, just as are those along the ditch. But the water must be applied before the acute signs of trouble appear. A tree already badly hurt by drouth cannot always be revived by irrigation. You seem to have quite irregular conditions prevailing underground, both in the soil and in the roots probably, and both should be looked into this winter. Be careful not to let the trees suffer for water this fall if the rains should be late. A dry fall on a sandy soil is often very hard on young trees.

Pounds per Tree, Not per Ton.

To the Editor: In your issue of August 28, page 132, you say that an average production of prunes "would be 150 pounds per ton," i. e., I suppose 150 dried from 2000 pounds of the ripe fruit. This means that it takes about 13 pounds of the ripe fruit to produce one pound of the prunes of the market. We generally figure 3 or 4 to 1, and sometimes even better results. Haven't your printers made a mistake?—Enquirer, Sacramento.

We are not sure whether the writer or the printer made the mistake. We intended to estimate the yield of fresh prunes at 150 pounds per tree or say 7½ tons of fresh fruit to the acre. We did not intend to discuss the yield in cured fruit. Your figures are, however, right for that, say about 3½ to 1 on the average. It must, of course, be understood that all such computations are only approximations and may not true up well with individual experiences, as they are governed by many conditions.

Burr Clover for Prune Orchard.

To the Editor: I would like to get information regarding cover crops suitable to a rolling prune and apricot orchard in the foothills west of the Santa Clara valley. The object is both to obtain nitrogen and humus and to prevent washing on the hillsides.—Subscriber, Los Gatos.

Probably nothing would be better than the common burr clover, which makes a good winter growth, and of which you can get seed in any quantity from seedsmen. This will give you humus; it will also make a quick start if sown as soon as possible after the first rains, and will hold the land from washing. When it comes to plowing under, disking before plowing will cut up the running stems, or you may be able to handle them with a rolling coulter.

Horticulture.

THE INQUIRY INTO SULPHURING FRUIT FOR DRYING.

California growers have had one thing which they desired. The referee board appointed by President Roosevelt has visited California, and seen the sulphur process in operation, and has gone along to a great pure food convention to be held in Denver next week. Nothing is given out, of course, as to their impressions; their visit is merely one item in the investigation which they are making.

The members of the referee board are Dr. Ira Remsen, president of Johns Hopkins University, of Baltimore; Dr. Russell H. Chittenden, director of the Sheffield School of Science of Yale University, New Haven, Conn., and Dr. John H. Long, professor of pysiological chemistry of Northwestern University, Chicago.

Together with their equally eminent conferees, Dr. Alonzo E. Taylor, professor of pathology of the University of California, and Dr. C. A. Herter, professor of pharmacology of Columbus University, the noted visitors constitute the national referee board, whose function it shall be to decide whether the sulphuring process of curing dried fruits is or is not injurious to health and life.

Upon the decision of this board rests the future of California's dried fruit industry. If, upon careful and exhaustive investigation, the board finds that deleterious effects ensue upon the eating of dried fruits cured with sulphur fumes, incalculable damage will be done to an immense industry, in which $16,000,000 are invested, unless a harmless substitute preservative may be discovered.

If, on the contrary, it is the opinion of the board that the sulphuring process is not harmful, then one of California's chief industries may continue to thrive, and the growers and packers of the State may confidently seek markets everywhere in the world.

It is for the purpose of studying the sulphuring problem in all of its intricacies that the members of the board are here. Their specific work in California will be a thorough investigation of the sulphur dioxide process and the beginning of a series of experiments with dried fruit products upon human subjects.

A Deliberate Inquiry.—Concerning the observation feature and other features of their work, Chairman Remsen is reported to have said: "The gentlemen at Washington wish to ascertain the facts concerning the sulphuring process. It will be our work to determine the facts. We have been to San Jose and to other cities in the Santa Clara valley, where we visited many growers and inspected many packing establishments. We shall also visit Fresno, where we shall continue our investigations. We have studied the problem in the south at Pomona and elsewhere. And we shall probably visit other cities in California where the sulphuring process is used.

"We at the same time are conducting experiments with the fruit products to determine the effect of the process upon human subjects. These experiments are being conducted at three separate laboratories. Such work is necessarily slow and the experiments will probably cover a long period. I do not believe we shall have formed any conclusions whatever before next February, and it may be a year before we feel competent to submit a report.

"When we were appointed we were told to take out time, and that is what we propose to do. The problem before us is purely a scientific one and we have undertaken if possible to solve it in a sane, scientific manner. That is our only interest in it, and our work will be to provide the Secretary of Agriculture with the scientific aspect of the sulphur dioxide process."

Laboratory Tests at Berkeley.—One of the laboratory tests mentioned by Dr. Remsen will be made in the University laboratories at Berkeley, where a squad of twelve students of the University of California is to be subjected to a thorough test as to the effect of sulphur-cured fruit. The experiment, to be conducted with students in the pre-medical courses in the State University, is to be under the direct supervision of Dr. A. E. Taylor. The date for beginning the test has not yet been set, as the requisite number of volunteers has not yet been secured. For the most part those invited to participate as "specimens" will be selected from among the ranks of students in the college pre-medical courses. Students will be paid $50 apiece, and will be boarded free of charge during the continuance of the tests. Men and women both have been invited to volunteer for the experiments, and already several have signified their intention of participating.

The result of the tests will be submitted to the board of referees by Dr. Taylor, which will report back to James Wilson, Secretary of Agriculture.

An Appeal to Consumers.—It is unquestionably true as wisely remarked by Mr. E. F. Adams, the well-known fruit-growing publicist and literateur, in the San Francisco Chronicle, that laboratory tests are not likely to settle the question in the public mind. He writes: "There is no question of the great value to humanity of the research and exact observation of scientific medical men. But in all the sciences there is a tendency of scientists to overestimate the value of their observations. Such observations as are proposed in this case can have value only when widely extended and under the direction of a great many observers working independently, and, what is more to the point, seeking for light on purely medical questions uncomplicated with economic questions. For the settlement of such important economic questions as those before the referee board these few poison squad tests are almost absolutely worthless, no matter how they turn out. In all the tests of this kind which have been made the psychological factor has been recognized as a most important factor and every effort has been made to eliminate it. It cannot be eliminated, nor is the wisest scientist in the world able to determine, in the case of such trifling aberrations from the normal as is to be expected in such tests, to how great a degree the results are affected by psychological or other undeterminable reactions.

"No such tests are a proper basis for economic legislation. For that the only safe basis is the general observation of the medical profession in its ordinary practice and the general common sense of the community. There are chances of life and death in this world which it is useless to try to escape, and among them are the occasional ill effects of food products ordinarily harmless. There is no pretense that there is evidence that any human being was ever injured in the least by the use of dried fruits, sulphured as is common in that industry, and until there is such evidence the industry should be let alone, regardless of what may happen to the members of some poison squad."

Patience.—California growers must possess their souls in patience. This year's crop is not to be interfered with by national regulations, though zealous State officials may attack it. The next outcropping of the subject will be at the Denver convention at which California will be well represented.

ANOTHER WAY WITH YELLOW JACKETS.

To the Editor: I would like to make a few remarks about yellow jackets. The various methods recommended are objectionable. To make a fruit syrup and scoop out the drowned ones is a lot of trouble. To use poisoned meat is still a worse remedy for the reason that poultry eat the dead insects and die, then the cats eat the dead chickens, and likewise are poisoned. This actually occurred in this neighborhood. As to the recently published remedy of placing a piece of meat on the underside of a board and trusting to luck for a small percentage of them to fall into soap suds and drown, I do not like it either.

Proceed as follows, and I will guarantee anyone to be rid of all the pests in a short time. Get a common woven wire fly trap, enlarge the hole in the cone to the size of an ordinary lead pencil and bait the trap with a piece of boiled liver the size of an egg. Use about one trap to each 50 trays. The traps cost 25 cents each and any butcher will sell a sheep's lights and liver for 10 cents. At night put your traps in a pail of water or in the sulphur box if it is in use, but do not put the bait in sulphur box.

Napa. GEO. W. COLLIER.

KEEPING CIDER SWEET.

Prof. J. C. Blair of the University of Illinois gives the following: "A large number of preservatives have been recommended for the keeping of cider, but chemists and others are now qui generally agreed that the best material to use sodium salicylate. To prevent complete ferment tion 1-7 of 1 per cent is required; 1-25 of 1 p cent prevents partial fermentation; 1-10 of 1 p cent is generally regarded a safe quantity. O this basis therefore 1⅓ ounces is sufficient pr servative for 10 gallons of cider."

[One must decide for himself whether he desir to take his rheumatism in that way. No such ad dition would be allowed by the pure food author ties, so one should not think of preserving cid for sale in that way, for he might get into troubl At the same time we should not hesitate to drin such cider if we liked it.—EDITOR.]

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

I was fortunate in meeting one of the most suc cessful orange growers of Tulare county in Lo Angeles this week. He is the owner of 35 acre of citrus land and has the distinction of havin been connected with the highest priced deal i citrus lands on record, even if it did not g through. Mr. C. O. Cowles, of Lindsay, is th man. He actually is the man to dispose of eigh and one-half acres of valencia land at $4,000 a acre, and when the time came he refused to tak it, claiming the contract of sale was voi through a technicality. Mr. Cowles bought th land a number of years ago for $8,500, and th first year he took off $9,500, and since that tim has been increasing the yield until the last yea he received $12,000 net for his product from th orchard.

Mr. Cowles cultivates as desperately as a swim mer making for the shore. He is at it all time and says that his cultivation never ceases. H is a light cultivator, however, and says that h never goes over six inches in depth, so as to spar the root feeders, which so many people favo cutting off. I found that Mr. Cowles is a grea believer in manure as a fertilizer and that he als favors cover crop of some kind. He says: "I d not care what the cover crop is, whether vetch peas or burr clover, but that a cover crop is great benefit I do contend. I usually plow in th last of February or the first of March, and whe I say plow in, I do not exactly mean it, for I al ways disk, using the Randall rotary harrow, whic cuts the growth just right so that there is n trouble about plowing it in, whether at that tim or later, for if you cannot for any reason follow up with the plow, and a hot wave comes along, th surface is just as well protected by the mulch o vegetation on top of the soil as it would have bee if it had been plowed under. I do not depend wholly upon stable manure as a fertilizer, but us commercial as well. Mr. Cowles states that o one of his orchards, consisting of 16½ acres o navels, that he put 110 tons of manure and tha he used ½ a ton of commercial to the acre be sides. He is also a great believer in pruning an states that he has men go through his orchard three to four times a year to cut off suckers an dead wood. He says: "Nothing so exhausts th vitality of a tree as suckers and they should b looked after constantly. I aim to keep the cente of my trees open to the sun as much as possible and all suckers and dead wood must surely go t accomplish this end. The sucker is the worst o all, it bears no fruit and is continually drawing upon the vitality of the tree. I figure that the less growth of this kind the tree has to support the better the returns from the actual bearing sur face capacity of the tree. I irrigate about the same as my neighbors do, giving the trees plenty of water every time my turn comes. Perhaps if I had a water system of my own and could get a supply adequate to my needs, and at just such a time as I wanted it, I might make experiments to determine just the time and the amount of the water needed, but as I have to take my turn or lose the opportunity, I utilize what advantages I have and pray for more at some time in the future."

I talked with Mr. W. O. Randolph, of the Randolph Fruit Company about Mr. Cowles' orchards and Mr. Randolph said that there was no more

rnest worker in the country nor one who took ore interest in the proper care and cultivation his possessions than Mr. Cowles, "and," said r .Randolph, "his oranges are among the finest oduced in Tulare county."

It certainly pays to be among the leaders. Take r. Cowles case for instance. All the shippers erating in Tulare county are after his product, d there is nothing too good for him. He can ve his fruit packed separately if he wants to, d have his own brand for that matter, and if carries out the intenseness of interest in the cking and handling of his production that he es in raising he could soon establish a reputaon second to none.

To guard against gum disease an Orange coungrower says that he has tried the following ethod with good results, that he has seen orhards that were suffering very much from it to brought back to health. Simply dig out around e roots of the tree and put back a light soil. I ink that this would be rendered unnecessary here the orchard has been properly cultivated, ut as a parallel case, neither would a well man o to the doctor for treatment. I believe that this medy should prove beneficial. I know of a rower who was putting out a young orchard on lobe soil, who dug extra large holes for the oung stock and filled them with a light loam auled in a comparatively great distance.

I heard of a treatment for gum disease that oes even further than that above mentioned. A lendora grower, who has the reputation in his wn vicinity for being one of the brightest and est growers in the State, and who has one of ose $1,000 an acre income orchards, splits the ark from the ground to the lower branches with sharp knife, and even on some of the larger mbs, from the trunk outward. He says that as he bark splits and spreads new bark immediately orms underneath and fills the space, thus preenting the trees from becoming hide-bound, and uch less susceptible to gum disease.

I found a grower, recently, who did not think hat cultivating right up to the tree of such special nportance, but who though that the way some of he orchards were pruned was a sin and a shame. He says that a tree should never be pruned to row high, and that the best fruit is raised on the imbs next to the ground, and that to cut off these branches is to sacrifice a great part of the producing and earning capacity of the tree. While t would not be possible to cultivate under trees vith such low branches with a machine, it could e accomplished by hand.

I talked this matter over with a packing house nanager, and he substantiates the statements of his grower. He said that the man who received he fruit from all the different groves was the ne who was in the best position to judge as to the nerits of the methods prevailing and that this, coupled with periodical visits to the orchards, enabled him to know what growers were doing the right thing, and otherwise. He said that of course soil and location had something to do with the quality and quantity of fruit raised, but that where all conditions were equal there seemed to be conclusive proof that some were doing right and some wrong. He states that the real fancy and in every way the best fruit and the greatest quantity, comes from the very low limbs, and that they should not be cut off.

This man believes that while barnyard manure makes fruit, it makes rough and coarse fruit, and that commercial fertilizers should be used. He says that the elements the tree has taken out of the soil must be put back artificially, that the soil will absorb these elements when it needs them, and not before. He says that he remembers cases where some of his growers used bone meal and phosphoric rock, that he had to change the arrangement of the bins of the grading machines to take care of the extra quantity of fancy fruit from those groves. He believes that 1 lb. of potash per tree should be applied every year, or 3 lbs. every three years. This potash, he claims, will never evaporate and the tree will take it up as needed. He also recommends 10 to 15 pounds of tankage, 10 pounds of bone meal, and if tree growth is needed, 3 pounds of nitrate of soda. He said: "If you do not believe this prescription is a good one, ask J. F. Bandholt or Mrs. M. H. Lafetra of Glendora. They have both had wonderful results this past year from such treatment and up to this year they never had a good crop."

Without seeking to knock I should say that this past year was an exceptional one with everybody and that the light crops were few and far between. This coming season will be a good one to test out the virtues of any given treatment, as the crop looks small all over the country and the exceptions will be right in clover.

Forestry.

MR. BLOCHMAN DISCUSSES EUCALYPTUS SPECIES.

To the Editor: In your issue of August 7, Mr. Leonard Coates has a very telling article about eucalyptus. Dropping his controversial articles he gives a very sensible write-up on the subject.

I will answer one question of his, why the Eucalyptus Robusta is slighted, as he says, for no good cause. It is a strong and rapid grower and stands considerable frost, but is very brittle. I have seen it grow in a great many places, and some branches, when a strong wind comes, will break off, more than with any other eucalyptus, which are generally very tough. The E. Robusta has a pretty leaf and a pretty growth, but for this one reason it is not in favor and will not be for a timber tree.

I am not taking up this matter of eucalyptus trees for discussion with Mr. Coates, but just for a word with those who would invest in eucalyptus tree propositions by the average advertising eucalyptus companies.

The statement is made that in 10 or 12 years a eucalyptus grove will be ready for cutting for timber. This is a very unfair and misleading statement. Only under the best of conditions will eucalyptus trees be large enough for a timber growth at that age. They must have good soil and plenty of rainfall and be reasonably well-cared for for the first two years so as to give them a good start and to fix their roots deep enough to carry through our long dry summers and keep on growing without becoming partially dormant.

We have some poor sandy lands in this valley that have been planted to Eucalyptus Globules for 15 years and they are not large enough for timber yet. Then I have seen trees at 8 or 10 years grown on strong soil in this valley, that are much larger and almost ready for timber cutting. In other places where the eucalyptus grows in the alluvial soil near water the growth is still greater.

I am citing these facts because it is generally told out that eucalyptus will grow well in any kind of soil in California, provided the temperature is not too low. They will indeed grow, but will not thrive, and will take two decades to make the timber growth that these promoters have promised in a single decade.

Another suggestion is that if eucalyptus are to be grown for lumber, they should be in some accessible point to water or railroad. It is also well to look after the management, as every other business depends upon proper management. As to varieties to be planted out, it is just as Mr. Coates says: different varieties do better in different localities.

The coast country with its moderate frosts has advantages over the interior, but it is wrong to place the whole of the Sacramento and San Joaquin valleys in the frost belt. Elevations of 500 feet and over, especially on the east slope, are very much freer from frost and have also an increased rainfall. This is a very important essential for any timber growth, as the larger it gets the more water it needs to thrive on. The trees which up to the fourth or fifth year will do reasonably well on natural rainfall, may not have sufficient to keep up their increasing growth after that period if planted too closely.

If anyone will observe natural timber growth from, say the San Joaquin river to the foot of the Sierra Nevada mountains, he will notice that the timber growth keeps on increasing and becomes larger as he approaches the Sierras. You can almost infer the rainfall from the growth of timber. It may start at about 10 inches in the San Joaquin and 15 on the Sacramento and run up to 75 or 100 inches (melted snow included), and the timber will vary from occasional scrub brush to the tall and mighty pines and firs of the Sierras. So nature always grows timber trees which require increasing moisture with age only where there is ample rainfall to justify it.

As to varieties to be grown hardly anyone gets the same order of choice. In the hot summer and cold winter regions the Eucalyptus Rudis leads, but it is one of the slowest growers and is not advocated except for street planting where one wants the slower growing eucalyptus.

The E. Leucoxylon is another good frost resistant, but a poky, slow grower. The E. Rostrata is also hardy and a good grower. In fact, if after my observation of the eucalyptus, I am asked to make a choice, of three eucalyptus trees, it would be: 1st, Rostrata; 2nd, Globulus; 3rd, Corynocalix or Sugar Gum, with a 4th and close follower—the E. Tereticornis, the Forest Gray Gum. Perhaps in some localities it ought to come in as the second best. For timber culture only the Rostrata and Tereticornis should lead, without, however, omitting the valuable Corynocalix or Sugar Gum. The wood of the Rostrata and Corynocalix take on a beautiful polish; elegant furniture is made from the E. Rostrata when properly cured.

There are other very valuable gums such as the Polyanthema, Sideroxylon, Cebra and Citriodora. For street planting nothing excels in beauty the Polyanthema except the over-sensitive slow growing beautiful Ficifolia, which in most places is too sensitive to frost.

The Polyanthema has a persistent bark, a rare trait amongst eucalyptus trees which are always shedding their bark, and this adds to its value as as avenue tree; there are few trees set out for ornamental or street trees that are more beautiful than this silver-gray, clean growing gum. We, however, make a decided distinction between street and ornamental trees and those for the forest. The latter must be of the larger type, faster growers and erect habit. There are many eucalypts in the different catalogues with various claims of merit, but for forest or timber planting only about half a dozen have been found to be tried and true.

Santa Maria. L. E. Blochman.

"HARD FACTS" ON THE EUCALYPTUS.

To the Editor: It has been pointed out that the expression used by me in recent communication to the Pacific Rural Press, "cut-over redwood lands" as likely to be the future hardwood forests, etc., may be misleading.

I had in mind the whole Coast range where good soil and moisture abounded. Of such there are many hundreds of thousands of acres, not necessarily and literally the cut-over redwood forest land, as this often means a condition where the redwood stumpage, with the soil full of live roots, would not encourage or make practicable any other commercial growth. On the other hand, Mr. Humphrey Pilkington, a gentleman well-known throughout the Santa Cruz forest district, concurs in what I contend, viz: that the oak and other timber lands included in what is known as the "Coast Range" or what I had alluded to as "redwood lands," combine ideal conditions for the growing of eucalyptus very profitably.

No one deprecates more than I do any exaggerated statements on this or any other undertaking; the truth is sufficient. But, because wild statements are made is no justification for statements under authority of the Department of Agriculture which are not only pessimistic, but often incorrect.

The fallibility of the Government bulletins is evidenced by the one fact that a "Revised Bulletin" on the same subject is published. Some of these well meaning gentlemen should remember that the people are not taxed to support preventable error.

Morganhill. Leonard Coates.

DR. WILEY ON WINES.

Dr. W. H. Wiley, food expert and chief of the bureau of chemistry, announced in Washington a few days ago that wine had to be made from grapes. This is a much more rigid construction than is put on the subject by the famous French wine merchant, who said that the beverage could be made from anything—"even grapes."

The trouble arose from the practice of a good many wine makers of adding water and sugar to the grape juice and making about three gallons of wine from one gallon of juice. Dr. Wiley holds that this is an adulteration under the pure food law. Another practice of the manufacturers is of

and grape-skins, which are used merely for flavoring purposes, the bulk of the liquid being made up of water with sugar added for fermentation. This will also be looked upon as adulteration. European and other names which indicate a local manufacture can be applied only to wines actually made in that locality. For example, Rhine wine must be made on the Rhine, etc.

AGRICULTURAL REVIEW.

Horticultural Notes.

Many orchard sales of apples are reported from Watsonville. Buyers are paying good prices for the fruit on the trees.

The almond crop in Sutter county is now being harvested, and is proving to be a fair crop. Most of the nuts will be hulled by hand.

The new walnut association packing house, at Orange, is nearing completion, and the machinery is to be installed in a couple of weeks.

The first car of grapes sent from California this year, sold at Chicago last week for $1,833. The first car sold last year brought $2,133.

D. L. and A. B. Martin have secured 40 acres of land near Porterville, and as soon as they can get the water on the tract, will set it out to oranges.

The date palms in the Coachella valley are beginning to bear, one tree being loaded with a crop of fine dates that it is estimated will weigh 300 pounds.

Rosenberg Bros. are making preparations to put up a big pack of dried figs at Yuba City this fall. Drying commenced there the first of this week.

The dried apricot crop of the Pajaro valley which amounted to about 500 tons, is being rapidly purchased by outside buyers at from 6 to 9 cents per pound.

The prospects for a large crop of olives this season in the upper Sacramento valley, are very good. An olive pickling expert is coming from France to help in putting up both the pickled olive and to make olive oil.

The prune crop around Anderson, Shasta county, is very large and it is stated that it will sell for $250,000. Indians are gathering there in large numbers to help harvest the crop, work commencing the first of next week.

Many crews of Japanese and Hindu laborers are at Fowler, Tulare county, to pick the grapes for raisins this season. While the season is early yet the growers say that the grapes are ripe and sweet and ready to harvest.

A meeting of grape growers was held at Modesto last week, at which 30 car loads of table grapes were offered to the Farmers' Union for shipment. A packing and shipping organization is being organized there by the farmers.

The orange crop of Florida is expected to be the largest this fall than any since the freeze in 1894. Last season the crop was 4,500,000 boxes, and this year it will be 500,000 boxes more. Tangerines and grape fruit will be less than a year ago from that section.

The peach, pear and apple crops around Ashland, Oregon, are now being marketed at satisfactory prices. Taken as a whole the quantity and quality of the fruit crop in that locality is good this season, though the yield is reported light generally through Oregon and Washington.

Wine grape growers around Lodi are now talking of starting more independent wineries. The price of $5 per ton for grapes, by the California Wine Association last week, is so low that growers can not afford to sell at the price. While it is too late to erect new wineries for this season's crop, the growers in San Joaquin county are now getting together and are talking of starting three independent wineries to place themselves in a position to save their crops in years to come. Doubtless many vineyards will not be touched this year, and from many others the grapes will be fed to hogs.

Chas. Buswell, the owner of the Zante Nurseries, near Porterville, states that he is now preparing to set out the largest citrus nursery stock there that has as yet been started in California. Mr. Buswell has already a large stock of citrus trees and will next spring set out 500,000 from his seed beds.

A Redlands capitalist has offered to erect a big olive oil mill at Fresno to cost $100,000, if the olive growers around that city will agree to raise enough fruit to justify the erecting of such a factory. The Fresno Chamber of Commerce is endeavoring to get enough farmers to sign up to assure the building of the plant.

Owing to little demand for wine grapes this season the California Farmers' Union at Fresno has released growers from their contracts, though it will handle a quantity of the fruit. It was announced at Fresno last week that grape growers of Atwater and Turlock had sold their entire crop to San Francisco wineries at $7 per ton.

The sale of the wine grapes on the big Tarpey vineyard, at Fresno, was announced Monday, but the price was not given. L. R. Rogers, of Las Palmas winery, was the buyer. The work of crushing 12,000 tons of grapes will be commenced at the Las Palmas winery at once, and the yield will be about 1,500,000 gallons of wine.

Wine grape growers seem to be in for low prices this season, it being announced that only $5 per ton will be paid for wine grapes this season by the California Wine Grape Growers' Association. This price will not be paid in cash—$2.50 per ton will be paid in December and the balance in March. Many growers will feed grapes to hogs rather than sell at the above price.

General Agriculture.

The hop crop of Mendicino county, now being harvested, is estimated will amount to from 11,500 to 12,000 bales.

The three big hay warehouses at Biggs, Sutter county, are being rapidly filled with hay, which will be held for higher prices.

A dispatch from Eureka states that heavy shipments of alfalfa hay are being received there from the Sacramento section.

The hay crop around Hollister is estimated will make 40,000 tons this season, and the Tres Pinos district will produce 17,000 tons.

C. C. Crow, of Crow's Landing, has recently purchased 320 acres of land from W. H. Garrison, near Modesto, and will seed it all to alfalfa.

A threshing machine run by Sterling on the Jacks ranch, near Gonzales, Monterey county, turned out 259,950 pounds of barley in one day's run last week. The grain was raised in summer fallow land.

A report from Fullerton, Orange county, states that the sweet potato crop to be shipped from that locality will be only about 12,000 sacks, as against nearly 25,000 sacks shipped last year. The local market opened at 4 cents a pound.

While the recent hot weather in Orange county damaged thebean crop considerably, yet reliable estimates give the yield as 175,000 sacks of Limas and 30,000 sacks of blackeyes, being about as much as last year. The prices offered are $3.75 for Limas and $3.25 for blackeyes.

Last week we reported a shortage of the sweet potato crop around Fullerton, Orange county, and now comes the report that the sweets around Atwater, Merced county, will also be a light yield. The cause of the small crop at Atwater is said to be overcropping the land.

Stock and Dairy Notes.

A large number of cattle have died recently from anthrax in the vicinity of Benicia, Solano county.

It is now announced that a big alfalfa feed mill is to be built at Hamilton City, near the big beet sugar factory.

The Ambrosia cream plant, of East Napa, has been purchased by Wm. Watt, of Longwood. The plant manufactures ice cream, butter and ice, and is to be enlarged under its new management.

Several cases of glanders are reported from Santa Cruz county. The supervisors of that county have decided to do away with drinking troughs through the country in an effort to keep the disease from spreading.

The report of the operations of the creamery at Laton, Fresno county, show that during the past year dairymen received $169,139 for 586,758 pounds of butter fat. There was made and sold 693,481 pounds of butter for $202,457, being an average of 29 cents per pound. Dairymen received an average of 30 cents for butter fat.

J. C. Thorne, Jr., of Porterville, last week sold his herd of 33 head of Holstein cows and one bull for $3400 to J. D. Barnett, who recently purchased a ranch near that place. It is understood that Mr. Barnett expects to build up one of the finest dairies of the State in Tulare county. Mr. Thorne announces that he will go into the sheep business.

Miscellaneous.

T. L. Orr is to build an addition to his winery at Sebastopol, to accommodate the big crop which he will handle this year.

The Sutter County Farmer states that more irrigating plants have been installed there this summer than ever before in one year.

A proposition to bond Orange county to secure funds to build good roads, is being vigorously pushed by the several Chambers of Commerce in that county.

The Pacific Pea Packing Company, of Oakdale, Stanislaus county, has finished canning peaches and has started on the tomato crop which will make a long run.

The Orange county preserving plant at Anaheim started on its long fall run of tomatoes this week. The cannery has a capacity of from 12,000 to 15,000 quart cans daily.

A new alfalfa mill is announced to be built at Meridan, Sutter county, and is to be ready to operate by next April.

The beet sugar factory, at Hamilton

BARTLETT PEARS, CHERRIES, ALMONDS, APPLES, PEACHES, PRUNES, PLUMS, FIGS, GRAPE VINES, BERRIES, ORNAMENTAL SHADE TREES, FLOWERING SHRUBS and ROSES.

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ity, is to commence its fall campaign oday, September 4th.

The Tulare county Fair will be held rom September 13th to the 18th. Prep- rations are being made for a big event, he main features are to be the exhibits, aces, ball games and a vaudeville ex- ibit.

R. H. Charlton, forest supervisor of the San Bernardino mountains, which is the econd largest grazing tract in the State, eports conditions ideal for stock there his summer. Feed is plentiful and vater abundant.

A decision of considerable importance was rendered by Judge Gesford at Napa his week, when he decided that the waters of Huichica creek, west of Napa, hereafter could be used by all parties for household purposes as against its use for irrigation.

The national reclamation service is advertising for bids for the construction of a distribution system of the Orland irrigation project; 200,000 cubic yards of earth are to be moved, the work is to commence in October and to be completed by May 1, 1910.

The beet sugar factory, at Corcoran, that has been operating for the past two months, closed down for the season the first of the week and the crew of workmen were transferred to the factory at Visalia, where the work will be continued till the beet crop in that vicinity is exhausted.

It is stated that the South San Joaquin Irrigation District has been offered all the water rights, surveys, canals, dams, etc., of the San Joaquin Canal and Irrigation Company for $700,000. The rights include 40,000 inches of water and 180 miles of canals. The price, if taken, means a cost of $13.10 for each acre covered by water in the irrigation district.

The new portable precooling plant being built by the Government at Lodi is nearing completion, and will be used in experimenting with grapes for shipment. The ammonia process, which is being tried out, is claimed will cool the fruit in a car much quicker than ice, and that after the car is cooled very little refrigeration is needed to keep it cool on its trip to Eastern markets.

A great meeting of farmers and land owners was held at Rio Vista last Saturday, at which time it was decided to widen the mouth of the Sacramento river which will prevent disastrous floods and permit the reclamation of vast bodies of fertile lands. Nearly $100,000 was raised at the meeting, which will be used to secure the land necessary to straighten the river, which will be given to the Government that its work of deepening the river may not be hampered.

POISONED BARLEY HEADS FOR SQUIRRELS.

The campaign for the extermination of ground squirrels and gophers conducted in southern California by Stanley S. Piper, expert of the Biological Survey, demonstrated that poisoned green or ripening barley heads were the most effective against the vermin, according to a statement issued by the forestry bureau.

The squirrels were found to be exceedingly fond of this herbage and eagerly ate the poisoned food placed along their runways.

Tests were also made with oats, wheat, barley, raisins, prunes, dried apples and cracked corn. The difficulty of securing green barley heads in sufficient quantities led to the use in some districts of dried barley grain treated with strychnine sulphate, saccharine and eggs.

This combination proved highly destructive against the ground squirrels, besides having practically no effect on doves and quails.

CALIFORNIA STATE FAIR.

Owing to general unpreparedness of exhibits the California State Fair did not have its formal opening on Saturday, August 28th, but on Monday of this week the opening exercises were held and the big annual event was started under favorable auspices.

The three handsome new buildings constructed and equipped at Agricultural Park at a cost of $100,000, were jammed to overflowing with the largest exhibit of California products the State has ever collected in one spot. Three immense tents were not enough to hold the overflow and many tardy exhibitors failed to secure space. Judge Harry Melvin, of Oakland, delivered the dedicatory address.

The City Trustees of Sacramento declared Tuesday a legal holiday, which was generally observed and a large crowd attended the fair. A feature of the day at Agricultural Park was the cattle parade, which began at 1 o'clock under the direction of C. W. Paine, the live stock manager. H. C. Pike led the parade with his team, Harold B. and Buster Brown. Paul Sims followed with George and Christmas Wilkes. Frank H. Burke had Sis Hopkins, and Shipper displayed Charles Derby, a youngster. Then came Judge Brent's entry from Walla Walla. He was followed by Frank Wright's Sijero, Dr. E. J. Weldon's Expedica, Dr. Hamlin's May Hamlin, E. A. Bridgeford's Rowdy M., Artist Jr., and Black Bow; Mrs. E. P. Riggle's Jacquelin, L. C. Trewnitt's Diamond Rose, John Bryan's Dewey, Alisa, Rey; W. Bernstein's Sunny Jim, C. Heilbron's Dick, E. A. Bridgeford's Weanling, the Lafayette stock farm's exhibit of Belgian, Percherons and German coach horses; H. G. Learned, of Stockton, six head of Percherons; Frank Hart's draft horses; Thomas Bourne's draft horses; Jacob Kunstle, of Freeport, draft horses, and T. B. Gibson, of Woodland, Belgians.

The cattle attracted widespread attention, although the showing in several divisions was rather weak. Mrs. G. H. Glide showed a herd of shorthorns, as also did the Howard Cattle Company. P. P. Murphy, T. B. Gibson and the Robia Lomas Company has Short-horns, Herefords and Polled Angus in line. A. W. Morris displayed his Holsteins, while the Stanford University farm, of Vina, was represented with Holsteins. George A. Smith, of Corcoran, N. H. Locke, of Lockford Company, Guy H. Miller, of Modesto, and J. E. Thorne, of Stockton, showed Jerseys.

Dutch belted cattle attracted notice. They are black, with a white band, and are all marked exactly the same. Mrs. Jennie Strader and Hugh G. Strader, of Ceres, had Dutch belted cattle in line, as also did F. R. Sanders, who shipped all the way here from Bristol, N. H. Sanders had a herd of Guernseys in the parade, as also did the Stanford University farm of Vina. There was a conspicuous lack of beef cattle in the parade.

George T. Bellows, of Missouri, judged the cattle this year, and conducted stock sales upon the grounds.

Many counties had exhibits, the best one being Los Angeles county, while the exhibit made by Alameda was more varied and striking.

A new departure of the Agricultural Society will be tried out this year in holding an auxiliary exhibit at Idora Park, Oakland, September 18th to October 2nd, at which the exhibits made at Sacramento will be shown.

ABOUT OLIVES.

To the Editor: In the July 24th number of the PACIFIC RURAL PRESS is an article entitled "An Olive Problem," which attracts attention.

The Nevadillo Blanco therein mentioned is generally a shy bearer, and strictly an ail olive, therefore, unprofitable. The tree is raedily recognized by its deep green foliage, its pendant habit, and extremely knotty, or lumpy trunk.

The fruit is small, oblong, single. The quality of its oil is fine, but the yield per ton is comparatively low, hence undesirable. The Manzanillo fruit moulds at the pit in many localities, but I am informed does not do so as far south as Los Angeles. It is generally of medium size, and is commendable both for pickling and oil, but the Mission supercedes it in every respect.

The new method of grafting olives is easy and sure. I get from 95 to 98 per cent to grow. Out of 600 trees grafted last spring, I find not a single failure. Some of these grafts have attained a growth of five feet since last March.

Palermo, Butte county. A. KAMP.

[Please tell us what you mean by the new method of grafting olives and how it is done. It would be very interesting.—EDITOR.]

AN OBSCURE TROUBLE.

To the Editor: Today I send you by express a grape vine five years old that seems to have some disease. There are about 40 vines in this vineyard affected the same way, most of them in one spot, but a few scattered through the vineyard. They commenced to dry up and shed their leaves about the first of June. Most of them are now dead. A few are making a feeble effort to start out again. They have always been healthy before. There are three varieties, Thompson seedless, Sultana and Mission. All are affected alike. All the rest of the vineyard is in a vigorous condition. The soil is good and well cultivated. The moisture condition is good, as far as I can tell; neither too wet or too dry. These vines made a good growth up to the 1st of June.

Tulare. P. D. FOWLER.

[We are glad to have had an opportunity to examine the specimens, but we are not able to fix the cause of death by them. Mr. Fowler's description of the behavior of the vines is very good and the specimens show just what he indicates in his letter, even to the disposition to make a new start by the development of the buds on the new growth. From what we can see, it appears to us that the trouble is in the soil or was in the soil at the time the vines collapsed in June, but may now have disappeared, and the vine is feebly endeavoring to make a new growth under better conditions, but will probably not be able to pull through. We suspect that the cause of the trouble might have been found underground in June last, but we cannot indicate which of several conditions might have been then present.—EDITOR.]

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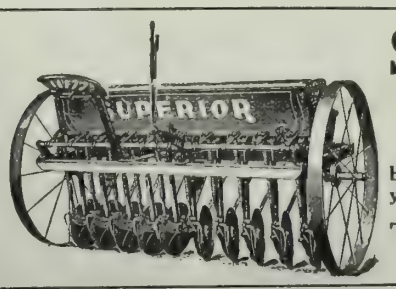
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Rural Sanitation.

A HOST OF WHOLESOME HINTS.

Professor E. F. Pernot, of the Oregon Agricultural College, gives a condensed account of things which make for rural health:

Domestic Water Supply.—The condition in which I find water received from various parts of the State, warrants my calling the attention of the public to the unsanitary conditions which must exist surrounding their water supply. Some samples of water taken in sterile bottles under aseptic precautions, contain as high as 63,580 germs per cubic centimeter (a drinking glass about 225 cubic centimeters). A glassful of such water would, therefore, contain 14,305,500 living germs. While true that many varieties of these germs are not directly disease producing, the continued introduction of such large quantities of them into the system lowers vitality and increases susceptibility to the disease producing types when they gain access to the body. Water containing so many organisms carries also, in solution, the ptomaines from the putrefaction of the organic matter in which they grew. These large number of organisms generally find their way into open wells by surface drainage and where they can pass, so may the disease producing types pass also.

The waters from driven wells are comparatively free from organisms. An open well is an abomination and is not in keeping with our present understanding of the laws of sanitation.

A Good Well.—The question arises how can we better our condition? Where a well is the only means of obtaining water, let it be dug to the water bearing stratum, wall it up with brick laid in cement, for ten feet, arch it over, with the pump-pipe and arch well cemented in, fill the remainder of the hole, which may be 15 to 20 feet with clay well tramped down, and the result will be a bottomless brick jug, deep under ground, into which no surface water, worms nor animals can penetrate. The water from such a well is as pure as can be obtained from the locality in which it si situated.

Polluting the Water.—There are many families living in the country who should enjoy the best of health, but who are always ailing. The cause of ill health may, as a rule, be traced to their use of polluted water produced by the unsanitary condition of their surroundings. But few homes have proper drainage from sinks and baths; dish water is thrown out of the back door on the ground near the well, garbage is similarly disposed of to decompose and drain into the well. Wash water containing filth that would not be tolerated on the clothing is also emptied on the ground to drain into the well. Most of the open wells situated near the house or barn are but cesspools. It is the lowest point in its vicinity into which liquids drain.

Frequently a privy is located within a stone's throw of an open well. When the water table rises to the surface of the ground, as it always does during the winter in Western Oregon, all surface water is contaminated, and, as the water level lowers, the open wells become reservoirs for the drainage.

The ordinary stone or brick wall of an open well only serves the purpose of preventing the caving in of the earth, and in no sense acts as a filter.

We have received samples of water from open wells, situated near barnyards or dwellings, which were loaded with organisms that are instrumental in decomposing manure. The samples gave strong reactions of ammonia by chemical analyses and were even tinted with the color of liquid manure. One particular sample was thus polluted from a flower bed near the house, the flower bed having been heavily manured.

Disposal of Sewage.—In localities where the water is piped into the house and there is no sewer, the toilets should be connected with a properly constructed septic tank and the effluent should be piped a long distance from the well and empty on the surface of the ground, where sun and air may still further purify it. If an open closet must be used, a concrete vault, well cemented, should be constructed, instead of a mere hole in the ground, and lime frequently thrown in it to prevent the breeding of flies. Earth closets have been very successful and consist of galvanized iron trays or tubs that may be emptied away from the premises; dry earth or ashes should be used in connection with them to absorb moisture and suppress odor.

Danger from Flies.—It is well known that flies breed in human and animal manure; for example, the deposits of human excreta are often seen to be a crawling mass of maggots, these are the larvæ hatched from the eggs deposited by flies, from this they pass into the pupa stage and again emerge as flies with the return of warm weather. These flies enter our dwellings, walk upon our food and directly transmit the organisms from excreta to our food. Contamination does not cease at that, for we have definitely proven that the organisms which the flies take into their bodies from the excreta are not destroyed by their digestion, and passing from their bodies with the excreta for food and multiply. Therefore, a fly speck containing 50 germs will increase its numbers fifty fold.

Disease Germs.—If perchance the organism happens to be the typhoid bacillus, a fly speck upon an apple, or other food, will eventually contain thousands of germs. This we have conclusively demonstrated by hatching flies in a sterile box, then feeding them with bread, or sugar, saturated with cultures of the typhoid bacilli, then allowing them to excrete upon apples, cabbage leaves or other material that gives off moisture. The fly speck, after some time, assumes the form of a colony and is found to be loaded with living typhoid bacilli, showing that they had passed through the fly uninjured and had multiplied abundantly in the fly's deposit.

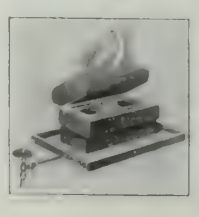
It is well known that milk is an ideal food for typhoid bacilli, and for that reason it should be well guarded from the invasion of flies. Keep flies out of the house, especially that part where food is kept.

Unsanitary Practice.—Attention should also be called to the abominable practice of disposing of dead animals by throwing their carcasses into abandoned wells, or emptying closets into them, for the water bearing strata will be polluted for miles. Typhoid fever is a filthy disease and any person who thus pollutes a water supply commits a criminal offense.

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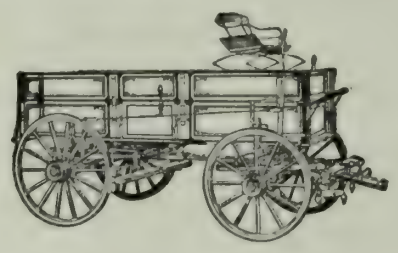
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Live Stock and Dairy.

UNIVERSITY OF CALIFORNIA EDUCATIONAL BUTTER SCORING CONTEST.

To the Editor: There were 21 entries to the fourth educational butter scoring contest held at the University Farm at Davis, and the highest score was 95, taken by the Pioneer Creamery at Ferndale, Humboldt county. Unfortunately, very few entries have ever come from Humboldt county; hence her tardy recognition. We are glad to report a continued interest in the educational effect of the scoring contest in California, as is shown by the number of entries received this time. Probably August is the most discouraging month here for buttermakers, and doubtless many sent butter knowing that circumstances were greatly against them. In general, the quality of the June entries was maintained. All packages arrived in good condition and were held in cold storage several days in order to insure uniformity in that regard. The judging was done by Mr. C. L. Mitchel, federal inspector for the coast; Mr. L. M. Davis, recently from Kansas and now with the College of Agriculture; and the undersigned. The scores are as follows:

Name of creamery and location.	Score.
Pioneer Creamery, Ferndale	95
Rose City Creamery, Chico	94½
Tulare Co-op. Creamery, Tulare	94¼
Suisun Creamery, Suisun	94
Hicks Valley Creamery, Hicks Valley	94
Laton Co-op. Creamery, Laton	93½
Golden Creamery, Etna Mills	93½
Gridley Creamery, Gridley	93
Castroville Creamery, Castroville	93
Salinas Creamery, Salinas	93
Ceres Creamery, Ceres	92½
Crystal Cream & Butter Co., Sacramento	92½
Western Yolo Creamery, Winters	92
Pozzi Creamery, Meridian	91½
Homestead Creamery, Nicasio	91
San Pasqual Creamery, Escondido	91

The good effects of using starter for which we have been contending the past few months begin to be apparent. All of the first ten on the list used starter, which includes all scores of 93 or above. No one failing to employ a starter received a score of more than 92½. We note with interest that those who have previously scored low on butter made without the use of starter have in this contest advanced well toward the top of the list by using a starter. At least they report having used starter, and we feel safe in attributing the improvement directly or indirectly to the starter. Of course a starter will not accomplish the impossible, but the results obtained by its use at this contest by those who have not employed it before should be encouraging and significant to all buttermakers. We urge all managers and creamery operators to supply their buttermakers with starter cans, if they have not already done so. The amount of starter used varied from 10 to 40 per cent. One creamery, where the buttermaker previously complained of being unable to secure milk for cultivating a starter, now reports the use of 10 per cent in making his enrty.

All entries were made from gathered cream with the exception of two or three that report a very small amount of whole milk, but too little to be of any significance. The first and third entries were made from pasteurized cream, using temperatures of 160 and 176 degrees respectively. It seems proper to warn the buttermakers against using too high temperatures for churning and washing. Those who were most successful in this contest cooled to 50 degrees or lower, churned at 55 to 57 degrees and used wash water at not over 60 degrees. Others averaged 5 degrees higher than this, and apparently to their disadvantage. Doubtless there is a temptation to raise the temperature in order to incorporate water, but at the same time body is injured, as was observed in several entries. Moisture tests of all entries have not yet been made, but so far they seem to average low. Individual letters of criticism and the score cards will go forth as soon as possible.

HERBERT A. HOPPER.

THE OUTLOOK FOR BEEF PRICES.

We have given in earlier issues several notes on this subject from local observation. The following reference to the same subject by the Butchers and Stock Growers' Journal, of Oakland, conveys a California point of view which is worth careful consideration:

In a recent article in this journal it was pointed out that meat prices had been and remained considerably lower than elsewhere in the country, but at the same time we predicted a local rise in present prices. It would appear from our exchanges that a rise in the meat market is expected far and wide. The National Provisioner, an excellent authority in all such matters, says:

"The high price of grains in recent times, resulting in a shortage of the meat supply, once again calls attention to the very close margin between supply and demand. The falling off in our exports of live and dead meat is not so much an indication of a poor foreign market for it as it is that we need our former surplus at home. Our population is increasing at the rate of more than a million a year, and this means that in every six or eight years we need 10 per cent more meat than in the previous similar period. The supply of livestock is increasing at no such rate. We are now almost squarely up to the point where all the meat we produce will be needed for domestic consumption. Taking this fact into consideration, together with the high price of grain, there is every economic reason for the present high price of meat and meat food products, and there is every likelihood that meat prices will never be upon a low plane again in this country."

This is just what we have been saying for a long time past, and with the same condition existing as to grain, all other conditions being the same, it follows that in future meat prices are bound to rise.

Reaching the Middle West the same cry is heard in Denver, from which city a dispatch states the possibility of the price of beef becoming prohibitory for the table of the average workingman because of decreased production in the great beef producing section of the West, is the reason for calling together in convention the cattle breeders of the country to meet in that city in January, 1910. It is said that this convention is to be called "the National Beef Producers' Congress." As we see it, the only good such a congress can do is to educate the farmer in his duty of raising stock of desirable breeds in sufficient quantity to liberally supply the market. With the grazing area fast disappearing and the price of fattening fodder increasing, it is hard to see from where else relief can come.

It is said that the ultimate purpose of the convention is to awaken the West to an appreciation of its duty in the matter and opportunity for revenue through extension of cattle breeding. Well and good, but how under the past methods of stock raising can this be done? The big ranches are either gone or going, free grazing except to a limited extent in forest reserves, is fast disappearing. What remains? The small general farms which have taken the place of the former ranges and free grazing ground. Therefore only relief to be obtained with or without such a congress is the raising of pure bred or highly graded live stock, in proportion to acreage, upon such farms. Such a course means scientific rotation farming, with live stock on hand to dispose of the fodder crops to the best advantage, all of which we have often said before. That such relief is necessary is shown by the dispatch in question, which says:

"Unless something is done in this regard, it is said by experts that the price of beef will soar to a height where the average workingman will be unable to pay and he must consequently deny himself this particular article of food."

Coming close to home we find the same belief existing in Los Angeles; in fact, the Express of that city declares that as late ago as July 22nd "predictions that meat prices in Los Angeles would soar to a new high level were being made by some of the big butchers in that city. Many as-

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serted that the outlook is for a season of unusually high prices, owing to the scarcity of cattle and sheep on the ranges. The increase in the value of grain will also prove a factor in keeping prices at the high water mark."

To sum up, the opinion seems to exist everywhere that high grain has but little to do with the situation but, as a leading Los Angeles butcher forcibly puts it, "the cattle are not in the country." Therefore, high grain or low grain, more stock must be raised of a desirable quality before any reduction in prices can be looked for, and only then if the extra production is greater than the demand caused by our rapid increase of population. Under such circumstances unless every cultivated acre carries its full amount of live stock, there can be no hope of relief. The days of immense ranges, vast herds of cattle and flocks of sheep are gradually disappearing in these United States and in their place, if meat is to remain an article of diet for any one except millionaires, small farms must take up the burden of supplying the country with meat. At any rate, this is the lesson we learn from the complaints which have recently reached us from Los Angeles, Denver and New York.

HOW HAY IS GRADED IN THE EAST.

The rules of the National Hay Association recognizes twenty-three grades of hay, which seem to fall into five classes: Timothy, clover, mixed timothy and clover, wild grasses and alfalfa. Choice timothy hay must be sound, properly cured, of bright natural color, not mixed with more than one-twentieth of other grasses, and well baled. Lower grades of timothy are Nos. 1, 2 and 3, and "no grade." Clover hay has two grades, No. 1 and 2. No. 1 clover must be medium clover, sound, properly cured, not mixed with more than one-twentieth of other grasses, and well baled. Choice alfalfa hay must be reasonably fine, leafy alfalfa of bright green color, properly cured, sound, sweet, and well baled. Other grades of alfalfa are Nos. 1, 2 and 3, and "no grade." These rules are used by most cities that have official inspection.

A large percentage of the timothy on the market is graded below No. 1. The reasons are that many meadows are cut for years, until they become weedy and mixed with other grasses, and that the hay is often cut too late, so that it loses the bright, natural color and palatability. If the farmer would send to market nothing but what the feeder considers good he would get a higher price. It might be necessary in some cases to educate the country buyer also.

Timothy has the lead, especially among city feeders, because it is not only nutritious but palatable and non-laxative, and the horse is not likely to overfeed. Nevertheless, other kinds of hay would often prove better for the feeder. Alfalfa, for instance, has high muscle-building qualities and is especially valuable for draft horses. It is highly relished, however, and the horse may overfeed. Doubtless the feeder will in time learn that hay from legumes has great value when properly used.

STOCK RAISING IN CALIFORNIA.

(Continued From Page 145.)

their ewes so that they will drop their lambs in early winter. These ewes should be good milkers, so that the young lambs can get plenty of nourishment when young, for that determines their subsequent development. These lambs should be given extra food and forced, so that by the holidays the farmer would find a ready market at a good price. The farmers in the Eastern States get excellent returns from these "hot-house" lambs, and there is no reason why the farmers on the Pacific coast should not do likewise.

The hog is the most popular animal on the farm today, and every farmer has a few. The reason for this is very plain, because they are easily kept, they eat the refuse on the place and they always bring a good price, since pork in its various forms is eaten by both prince and pauper.

The aim of all hog raisers is to have a hog that grows quickly and matures early, because they make more money and get quicker returns from porkers of this type than from any other. The most profitable time to sell a hog, if he has been fed properly, is when he is from 7 to 12 months old and weighs from 150 to 250 lbs. A young pig shows his feeding much more rapidly than an old hog, gaining from one to two pounds a day.

When pigs are just littered they should be watched carefully, as the death rate of young pigs is very large. A large percentage of this can be averted by feeding the sow properly. Corn or barley alone heats up the intestines too much, and the best food is skimmed milk, alfalfa and a little barley. After the little pigs are weaned they should be fed very often during the day on skimmed milk. Then after they get stronger, alfalfa is a good food for them. This alfalfa diet is very good until within a month or so of their sale, when they should be given corn or barley, and if near a sugar factory, beet pulp in with the cereal is very good.

Pigs will make wonderful progress on alfalfa for a few months, but as they grow older they need some other food in connection with the alfalfa. Acorns go very well with alfalfa, and fine results have been obtained by this combination where acorns were plentiful.

There are two kinds of hogs in the market today—the heavy, compact hog with large hams, and the bacon hog with long, deep sides, from which the slabs of bacon are cut. Here in California, where corn and other fattening foods are more expensive than in the middle West, we find more bacon hogs. This type of hog produces more bacon and has a large proportion of lean meat and does not require the food that is necessary to put the fat hog in condition.

The most profitable way to raise hogs is to always have the porkers in such condition that should the market go up one can by forced feeding get the hogs into the market while the price is good.

When hogs are allowed to graze on a tract of four or five hundred acres, it is impossible to get them in condition in time to sell at a good price, but they must be fattened when every other farmer is doing the same thing, and as a result they are usually sold when the market is swamped and prices are low.

Mule raising in California is an industry which has been greatly neglected. Situated as we are to supply the Philippine Islands, Alaska and the Orient with mules, we get practically nothing of this valuable trade, because the local demand for mules is so strong that they are sold as soon as they are brought into the market. Good mules bring from $125 to $300 apiece, and at present there is a strong demand for mules for railroad construction work and mines. Mules are indispensible for grading, lumbering and mining, as they can stand the work much better than a horse. Although mules are not sold according to breed, but according to the individuality and build of each particular mule, yet the desired type can only be obtained by proper breeding.

Mules 16 hands high and weighing from 1,050 to 1,350 lbs., are not to be obtained from an unsound mare or a poor jack. It is just as essential to have both mare and jack first-class as in breeding any other animal. If heavy mules are desired Percheron or Clydesdale are good breeds of mares to use. One of the best places to obtain heavy draft horses for mule breeding purposes is around the large cities, where tender footed mares of good breeds can be picked up, because they are no good on the hard pavements.

Mares of good length, with big bones and wide between the hips is the best type from which to get mule colts. Although the color of the mare is no very important, yet black, bay or brown are preferred.

A mule gets its size and strength from the mare and its patience and endurance from the jack. The ears, head, neck, legs and feet pattern after the jack, so that when bred to a large mare, the result is a mule which should fill all the requirements. Although the jack does not give the size to the mule, nevertheless many of the southern mule raisers never breed their mares to a jack under 15 hands high.

The best native jacks are derived by good imported crosses. These native jacks are becoming more popular every day as they have been bred to attain certain points, which the imported jacks cannot fill.

Poitou and Catalonian jacks are considered among the best of the imported stock. The Poitou is best for agricultural uses because of its wide feet and large, short legs. This jack does not grow very tall, but his fine points are large head and ears.

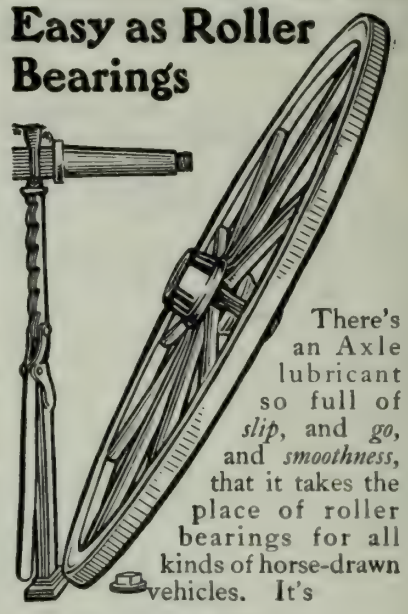
A mule colt should be well fed because it builds his bones and gives him a large frame. A mule is usually sold when about two years old, and he should be fattened for the occasion, as it affects the price materially. When a colt is to be sold in January or February, start in fattening by September or October. Female colts are in greater demand than male, because they get plumper, mature earlier and fatten quicker.

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Fruit Preservation.

THE CANNING INDUSTRY.

Written for the PACIFIC RURAL PRESS
By ALLEN J. LLOYD.

The "golden pomp of autumn" approaches, and before long mother earth will have yielded all her orchard treasures in bounteous succession. The fresh cherry, peach, apricot, pear, berry, each in turn, becomes a memory. The provident prune will soon be drying for market, and grapes and figs are ripening. A little later Dame Earth takes a well earned vacation, and we are now engaged in laying up some of the treasures she has provided for us, against the rainy days to come.

The canning industry assumes added dignity, year by year. Once canned fruit was regarded as a very indifferent substitute for the fresh article, but from several causes at work, many fruits preserved in this way for winter use and for shipment abroad, now approach very closely in quality to that gathered in the pristine freshness of the orchard. Formerly the can, too often, because an asylum for fruits more or less imperfect, and not so readily saleable, but things have been happening to elevate and expand the industry. There has been a gradual tendency to improvement in canning and packing methods, the trade now demanding it, to meet a growing fastidiousness of taste in consumers. The pure food laws, as they affect canning, are an outcome of this advance. There has been a general awakening among canners. Such requirements as true labeling, both as to materials and locality of shipment are wise reforms, and inspection as proposed, while it would repress unscrupulous and careless members of the trade would stimulate a sentiment of improvement in the better class of canners. Some of the latter would welcome even further legislation in this direction.

A State law absolutely prohibiting the use of preservatives ,and providing for sanitary inspection of canneries, would tend to further elevate the industry. Inspectors, who should remain on duty for the entire canning and packing season, would ensure the observance of the law, and place at merited premium the output of the best equipped and first-class canneries. The inspiration of complete confidence in consumers adds to the demand. In this particular, the sanitary can-top now in use, with no soldering, nor lead, to come in contact with the fruit, is a notable sanitary feature.

The growers, whose interest of course is to respond to the requirements of the trade, are more and more studying the needs of the canners, and cultivating those varieties of fruits that are increasing in demand. Twenty years ago Sellers and Nichols peaches were considered to be good canners, while now such improved varieties as Levi, Phillips, and Tuscan are in demand.

The industry has greatly expanded in the past five years, following the extensive planting of orchards, principally peaches in the San Joaquin valley.

Referring to the varieties most favored by the trade: in freestones, the Lovell peach is a most desirable acquisition to the canning list. The great ambition at present is to grow a peach equal to the Lovell in quality, and that will ripen as early as the Foster. Here is a fine field for experimental culture, as such a combination attained in one peach would ensure for it a most valuable demand.

The increased number of orchards is affording a larger field for selection, and canners and growers are more closely in touch than formerly, and have a better understanding.

The local demand largely governs as to what may be considered the leading fruits for canning. Probably the cling peach stands higher than any.

It has no outside competition, and it is an excellent shipper, maintaining its attractive appearance over any distance. The cling, too, can be packed when fully ripe, and is regarded as the best flavored among California canned fruits. Some canneries in the peach belt can peaches almost exclusively.

When apricots are plentiful, and in a year like 1908, when prices were low, and the foreign demand was brisk, nearly half of the pack of some canneries consisted of "cots.'

Pears are shipped to the different canneries all over the State.

The general pack this season will not be an extensive one, owing to the fact that a large quantity of fruit has been carried over from last season, and because the demand, both domestic and foreign, is below the average.

Prices are low both for fresh and canned fruits, with the exception of apricots and pears.

Fruit was so plentiful last season, and prices so low that growers packed very freely, the result being that a great quantity was carried over to this season, the fresh pack being correspondingly less.

When apricots are low, packers send large quantities to England, Germany and Belgium. Europe takes all the canned apricots that can be bought when prices are low, but when they approach $100 per ton, or even $60, European countries do not buy. In 1908 prices ranged from $15 to $30 a ton, and in consequence there was a large export to Europe. The California market extends to India and Australia, and the export trade can always be relied on.

Several underlying causes have contributed to depress the market in the United States. It has not fully recovered from the financial panic of 1907. Uncertainty of tariff has retarded business generally, and its effect is very noticeable in the canning industry, the law's delay in the making here working a palpable injury.

Canning dried prunes has been an experiment of late years, and has proved a marked success. There is necessarily very much more substance in each can, and the flavor is agreeable and popular. They have excellent shipping quality; canned dried prunes have been shipped to Manilla and back, and long after, have been found in perfect condition.

It is not surprising that this should be an "off" year in the canning business, from the various causes alluded to. Such fluctuations are inevitable, and present no cause for discouragement. The demand for canned fruits must tend to increase. There will constantly be more fruit, and better fruit to select from. Improved canning methods will continue to increase popularity of fruit in that form. Pacific Coast consumers are increasing, and so are transportation facilities and railway competition to Eastern markets. The foreign demand cannot retrogade, and will always be there when prices are low. Industrial and financial conditions throughout the whole country will improve.

Meanwhile along the line of most of her fruits, notably cherries, apricots, cling peaches and Bartlett pears, California has very little competition.

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In Memoriam.

Whereas, The Divine Master has seen, in His wisdom, to remove a much loved and respected sister from our Grange Home. Sister Sarah H. Dewey was a charter member of Oakland Grange, and, until sickness prevented, was an active worker in whatever would be of advantage to the order. She was a good officer, served on committees (and did it well), doing all things possible for the good of the order. Sister Dewey was also a charter member of the State Grange and Ceres one term. Some of us remember the able papers she prepared and read in the State Grange many years ago; and whereas, we realize the great loss we have sustained, therefore, be it

Resolved, That this Grange bows in silent submission to our Master's will, feeling that He doeth all things well.

Resolved, That we extend our sympathy to her brother, and children, who have lost a loving sister and devoted and self-sacrificing mother.

Resolved, That this slight tribute to her worth be placed upon our minutes, and a copy sent to the PACIFIC RURAL PRESS for publication.

CAROLINE F. EMERY,
SARAH J. CRUSS,
FRANCES A. WILLIAMSON,
NELLIE G. BABCOCK,
Committee.

Mrs. Sarah H. Dewey will be remembered as the relict of Mr. A. T. Dewey, who was one of the founders of the PACIFIC RURAL PRESS and active in the conduct of the journal during the first twenty-five years of its existence.

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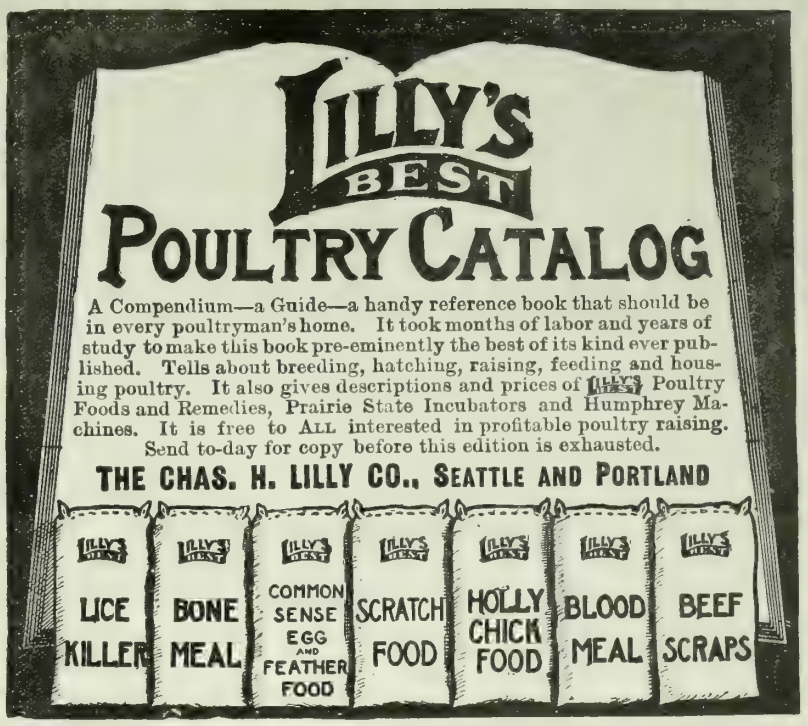
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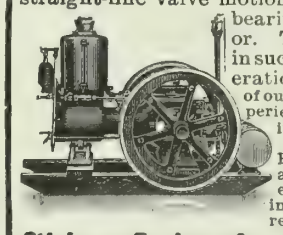
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The Poultry Yard.

THE FARMERS' BREEDING STOCK.

Written for the Pacific Rural Press
By M. Russell James.

The farmer, as a rule, knows little and cares less about breeds. In fact, he considers it a good plan to mix 'em up in order to ensure stamina. And to a certain extent he is right. The general farmer has not the time to keep up a strain of pure bred fowls by line-breeding. This requires a good deal of knowledge, gleaned from study and experience, as well as time; and many so-called poultry breeders do not understand the work sufficinetly well for best results. Hence, the weakened run-out stock so frequently turned upon the public by such breeders, and which are sure to give the particular breed they handle a black eye.

While admitting the danger of inbreeding with pure stock in careless or inexperienced hands, and the value of judicious outcrossing, we cannot commend the farmer's method of "mixing 'em up," which is usually promiscuous inbreeding that produces mongrels, not cross-breds, until eventually the breed-points of excellence which have taken years of pains taking and skill to fix, are eliminated and a flock of "dunghills" is the result. According to the ordinary farmer's lights, to "swap roosters" with a neighbor solves the breeding question neatly.

The farmer's failure to make poultry pay—in fact to make it the best paying stock on the farm—is due to poor breeding stock poorly cared for. However, the best breeding stock will produce poor results if poorly cared for; and poor breeding stock will not produce best results if well cared for. We have had personal knowledge of several cases where farmers have bought two or three sittings of eggs that were first class in every respect, to improve their stock. But did they hatch those eggs under good conditions, care for the chicks properly and keep them separate from the rag-tag and bob tail of the general flock, to develop properly to maturity and then to be put in breeding pens for the uplift of the flock? Far from it. They were put under "setters," in the general laying quarters, for hens to smash in their squabble over nests, and the few chicks that made a hatch of it had to take their chances with lice, mites and the rough and tumble existence with the promiscuous herd of all ages. As a result the "fancy stock" that did pull through made a poorer appearance than the common herd and the farmer complained bitterly that after paying an unheard of price for eggs the breeder had cheated him with common market eggs and kept his fine stock for himself.

The very best plan for the farmer who has not time to give proper care to chicks in the breeding season, is to buy two-months-old or three-months-old pullets from a reliable breeder of the kind of fowl he wishes to keep. These will be roosting and will need no more attention than old fowls. If he prepares for them clean comfortable quarters by themselves, with a good range, he has only to keep them clean and well fed, and the laying breeds that have been hatched in March and April will begin to lay in September and October, and produce the nickle eggs, which will count up before spring to a dollar or more profit on the investment from each pullet. The question is being seriously considered by some poultry plants of stocking up each season with such pullets from reliable sources instead of hatching and rearing them. One large plant put the plan in operation last season and declared it cheaper, when the expenses of work and equipment in hatching and keeping up breeding were all taken into account. The difficulty is in obtaining good young stock, and the orders will need to be in a good while before hatching time to secure the chick hatched at the proper time. Just now (August 21), however, we note an advertisement in another column of this page from one of the foremost breeders of White Leghorns on the coast of pullets three and four months old for sale. This is rather unusual, and such stock will soon be snapped up.

Where the farmer has pure-bred fowls and raises his own breeding stock, he should make a change of male birds every two years. But he should not pick up the birds any or everywhere even of the same breed. If his original stock has come from an established breeder, it is well to get his males from the same strain. The difference in the locality will be like new blood, and at the same time keep the strain intact. This is one advantage of starting with stock from a well known and established breeder.

As before remarked, most farmers are partial to cross-breeding. This will produce good results if properly done; but it requires quite as much care as line-breeding. The first cross from pure-bred stock often produces some specimens which excel either parent in laying qualities and vigor; but there will be many culls which are inferior to either. These should be weeded out. The cross-bred cockerels should not be used as breeders, however fine they may be; but the pick of the pullets may be bred to the father the next year if a predominance of that breed is desired, or to another cock of the mother's breed, if that one is preferred. Only pure-bred males should be used in any case. Those who follow cross-breeding find best results may be depended upon when pure-bred fowls of each breed are used as parent stock.

The best utility crosses are Leghorn cocks on hens of the American breeds. The eggs will be large and lighter in color than those of the latter breeds, though some may be quite dark and others white or nearly so.

POULTRY NOTES.

The Black Langshan.—As this breed came in next to the winning breed in the last Australian egg competition, there is a revival of interest in the Black Langshan as a utility fowl.

The Black Langshan is a product of the old Chinese fanciers. It was introduced into England by Major Croad in 1870. Some forty years' familiarity with big Chinese chickens had worn off the novelty which had carried everything before these birds in the '40s, and the Major's Langshans attracted little attention at first, but they won out (or in) on their merits. Between 1880 and 1890 they had a great boom which extended to this country where many of the fowls had been imported.

Of late years the American breeds have crowded this breed from the front row. Those, however, who keep the Black Langshans are enthusiastic in their praise, and claim for them all the virtues which a fowl can possess.

This fowl has been dubbed the "Lordly Langshan," because of its proud and stately carriage. Its unusual height is produced by depth of body and uprightness, together with gracefully rounded breast and tail carried erect. In the male the tail feathers are very long, the sickles sometimes measuring 17 inches. The gracefully curved and abundant sickles and tail coverts, together with close satiny plumage of clear black with a sheen of green, give great beauty to this fowl.

The fanciers, especially in England, have been breeding for a bird that stands still higher on legs, and Langshan winners in English shows sometimes equal the Standard Games in this respect. There are two Langshan clubs in that country: one that upholds the true Chinese type, and the other the Game-like build.

At the poultry show held in Oakland in the fall of 1907 was a pen of Langshans direct from China, and in the Chinese cage of wicker in which they were imported. These fowls were tough, energetic looking birds and seemed none the worse for their journey over seas. They were much smaller and less lordly than our Langshans.

The standard weight for this breed is: Cock, 10 pounds; cockerel, 8 pounds; hen, 7 pounds; pullet, 6 pounds. The skin is flesh color and the legs and toes slate colored, and feathered; the comb is single and of medium height; the comb, ear-lobes and wattles bright red. They have very small bones for their size; and excel as roasters. The Langshan stands at the head of the Asiatic breeds as egg-producers, and lay large brown eggs.

There is a white variety of this breed, but it has never become popular. Those who have made a study of the subject in China say that there is no distinct breed of White Langshans there.

The California flea has been having his eyes tested at the State University, and Prof. Woodworth has found that his eyesight is very poor, indeed. He gets there all the same.

An inquirer, writing from the State of Illinois, to one of the Coast poultry papers says that he has been told that among the chief obstacles to poultry raising here are snakes.

A New York paper records the demise of a highly respected hen that had weathered the storms of hen life, together with lice, mites and roup, for 17 years.



Black Langshans.

FOR EGGS NEXT FALL
FEED NOW
EGG-MORE

Don't make the common mistake of supposing that you can let the fowls get all run down before or during molting and then bring them up by heavy feeding later. They must be kept in good condition and fed feather-producing and egg-making food. You can make your own "Egg Food," as good as anybody can make, by mixing Egg-More with shorts or other good grain products, according to directions. Egg-More is not a strong tonic, but a highly concentrated Poultry Food. Your hens will certainly lay more eggs if you feed it, just a little each day. 25-lb. sack, $1.90; 50 lbs., $3.60; 100 lbs., $7.00. If not kept by your dealer we will prepay freight within 300 miles, if you mention this paper.

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ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

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The Home Circle.

The Household Angel.

Her name shines not in bannered field,
Where right and wrong so bodly war,
Nor rings her voice in any cause
Which men and women battle for;
Yet in her presence, subtle, sweet,
You long to kneel and kiss her feet.

No wondrous romance wreaths her life,
Nor hath she led a martyr's train;
Nor beautiful nor rich is she,
But poor, and—some would call her plain;
Yet in her two dear eyes you see,
A beauty shining constantly.

No silken robes enfold her form,
Nor dainty leisure has her hands;
Her jewels are a simple ring;
A ribbon binds her hair's smooth bands;
Yet in her garments' simple grace
Her soul's regality you trace.

No gift has she to shake and thrill
A thankless world with warbled songs,
And art, that wakes the ivory keys,
To other hands than her's belongs;
Yet in her words of tender cheer
A richer music charms the ear.

She walks in humble ways of life,
Which leads oftimes thro' gloom and shade,
And trials and crosses, not a few,
Are on her patient shoulders laid;
Yet smiles and drinks each bitter cup,
And keeps her brave eyes lifted up.

The homely ways she wreathes with grace,
Harsh duty turns to loving zest,
And cheery hope and steadfast will
Are at her side, in work and rest;
Yet never dreams she you may spy
The angel looking from her eye.

Old Poems.

Gave in and Then Gave Up.

They had been engaged—only, however, among themselves, the secret not being yet ripe for the outside world—for two whole weeks when he came up to stay over Sunday at the hotel.

"I hate those collars, dearie," she said. "Why don't you wear the low turnover ones like the boys in the hotel here? They'd be much more becoming to you, and they really are cooler."

He murmured something about rah-rah boys and not being just in their class.

"But you're as young as some of the men I see wearing them," she came back at him, "and I don't see why you should already count yourself with the old men. And then, you know I like 'em. And I have even asked you to wear them."

So he returned the following Saturday when they had been engaged for three weeks with his Adam's apple exposed to public gaze. They were sitting on the rocks the next afternoon. He had to take the night train this time.

"Why don't you wear your hair pompadour, dearie?" she asked. "I'm sure it would be becoming to you. Did you ever notice Jack Barrymore's. They just seem to brush it right back with perhaps a sort of a part on one side, and it looks terribly smart. You know you've beautiful hair, and that little thinness in front wouldn't ever show. Do try it."

This time he said something about the difficulty of imparting to elderly members of the canine family new tricks. Then he added that he was too much occupied anyhow about other things to be worrying as to how his hair was dressed so long as it was clean.

"Just try it once, dearie," she went back at the attack. "Just to see how it looks. I'm sure you'll be glad you did it."

The first of August came and the family moved northward, and when he had followed them to the White mountains his thin locks were drawn back from his forehead with a suddenness that gave him the look of a bald headed eagle. They had been engaged only five weeks then, and the date of its more public announcement was approaching. She gave a little look of abrupt surprise at the new coiffure. He stood with a certain self-consciousness, quite aware that nothing could have been less becoming to his thin face with its sparse thatch of hair arranged in this way.

"It is becoming, dearie; I knew it would be," she said, encouragingly, after she had scrutinized him several times very closely. "It gives you such a distinguished look."

He stayed until Tuesday this time. So it was on Monday that she was recalling that they had been engaged six weeks already, although the time seemed so short she could scarcely realize it.

"I want you to do something for me, dearie," she began. "You know what it is. I want you to show me how much you love me. I want to see how you would look witout a mustache."

Devoted as he was at this minute he was startled and showed it. If there was any physical attraction about his face it was in the full brown mustache that grew in two sweeping curls from each side of his lip. So he winced.

"You know," she explained, "a pompadour really needs a smooth face. They go together. I know Jack Barrymore may have a little mustache. But it's such a little one. Do, now, like a dear good sweet boy, try how you look without a mustache. You know it's for me. And your pompadour is so becoming. You see, I know what's best for you."

He made no promises, but thought in the train on the way home of the years it had taken him to grow that mustache, remembered how a chum had lost the only girl he ever loved rather than part with his, and thought she was asking a great deal. But when he told the barber on Tuesday night that he was going to take off his mustache that old friend and adviser was almost speechless from shock. But his protests did not avail.

His friends refrained from commenting on the change in his appearance for fear they might express themselves too strongly. They talked about his looks among themselves, however, and wondered how in the world a man could make such a monkey of himself. He was back on his way to the mountains eight weeks after their engagement to show himself in his latest manifestation. It was a hollow mockery for him to await her comment. He knew just what he looked like in his present state. A glance in the mirror of the dressing room in the sleeping car that morning had showed him. He saw the long upper lip stiff from years of wearing a mustache, he saw the front teeth which were hidden under the flowing brown hair and realized how much strength that mustache had imparted to an otherwise rather expressionless countenance.

She drove over to the station to meet him, and in the clear morning light had the fullest opportunity to observe the effect of her advice. She seemed to like it. He drew down his lip in the effort to hide those front teeth, which might have been as pearls so far as she was concerned. She assured him that the abolition of the mustache was a great success, that nothing had ever made such a change in nis appearance as the acquisition of the pompadour and the disappearance of the mustache. He had his own opinion as to her sincerity, however. Had he not seen himself in that swift glance into the unflattering sleeping car mirror? He knew just exactly what his apparition was now, even if it were not always so bad as an that particular occasion.

There was a learned lecturer that came to talk in the hotel dining room that night and they went to hear him. She was enthusiastic over his poetic language, but above all over his principles of character. He dwelt on the necessity of every man cultivating his own nature so far as lay within his power. With burning eloquence he told the small number of his listeners that they must above all things be true to themselves and stand by their own character, not allow themselves to be swayed in this direction and that by love, by respect or by any emotion or craving. Any demand that made them lose their own strength of character to please another was ignoble. In a ringing peroration he begged his hearers, who had now diminished by three young couples, who had heard the music in the ball room, to be true to themselves and not lose their independence by deferring to others.

"He certainly was wonderful," she said as they walked out on to the piazza after the lecture. "Do you know, dearie, if there was ever a thing in the world in which you might possibly be just the least little tiny bit different from what I had expected it is in your willingness to give in to people. It will be bad for you in your career. I'm perfectly sure all those men there in the office must impose on you. Don't you let 'em do it. Be firm. Have your own character and stick by your own opinions, just as a man ought to, that is, if he wants a woman to love him."

They passed a mirror and he saw himself just at this juncture. Then he remembered what he had looked like before the engagement. Perhaps he was not much better, yet he at all events was simple and not pretending to anything beyond his possibilities. It was not only his looks he thought over after he had said good-by and gone up to his room, as he had to take a train too early for her to see him in the morning. It was the feeling of the business. It had come to depress him, this going about with a physical make-up not in the least suited to him. He looked again and felt ashamed of himself. Then that talk on character.

He got off on the morning train. She heard the stage depart and got up to look through the shutters. When she came down to breakfast the clerk handed her a note. She saved it to read as the waiter got her breakfast. It ran:

Dear Mabel: I'm very much afraid that I really have not character enough to hold you to our agreement. This shows my weakness better than I could express it. I lost my collars, then lost my hair, then my mustache, and now I'm giving up you. Perhaps you were right last night. I am just the least tiny bit lacking in character. But I have summoned all I have to help me write you this letter and say that even with those new collars and my pompadour, but without my mustache, I am too weak in the point of character to deserve you. I won't be up next Saturday or any old Saturdays that I know of; try to accustom yourself to the loss of such a weakling.—*New York Sun.*

A movement which will meet a warm welcome among housekeepers and commission merchants is that which the International Apple Shippers' Association will take up at its forthcoming meeting in Buffalo. It is to bring about the standardization of boxes and barrels in which fruits and vegetables are packed, and is along the lines of bills prepared for introduction in Congress. There is no good reason why there should not be uniformity in weights and measures throughout the country, it is held, and there is a hope that it will be brought about by law, strictly enforced.

The Long-Suffering One—What is this, dear?

The One of Great Goodness—It's a pie I made out of my new cookery book.

The L. S. O.—Then this leathery part, I presume, is the binding.—The Sketch.

The Rural Press Household.

Homemade Bread.—In his late campaign, Governor Stubbs, of Kansas, brought this neglected article of fare to the fore, his pet variety being salt rising bread. And in so doing he has become something of a public benefactor.

Tasteless and worthless is the ordinary baker's loaf compared with a first-class homemade article. But, alack, few housewives in these degenerate days can achieve a first-class article of light bread. It requires experience and an amount of work and painstaking attention which few housekeepers are willing to give when they can get a cheaper substitute at the baker's. One cannot throw together some flour, yeast and water and set it away to rise and bake at any convenient time. Good bread demands good flour and good yeast, and more, the temperature, time, and oven must be just right—and the breadmaker neat, watchful an devoted to her task. But the result is worth it all. She has indeed provided her household, and especially the growing children, with the "staff of life."

In a later issue of the Pacific Rural Press we shall take up this important subject again and give some hints and choice recipes in bread-making. This week, through the kindness of Mrs. M. E. Painter, of Berkeley, we are able to give a home recipe for a wholesome and delicious bread which is quickly and easily made, and which will prove a delight to the children—and others.

Brown Bread.—With one tea cup of white flour and three tea cups of Graham flour sift one teaspoon of baking powder and one level teaspoon of salt. Mix with three-fourths of a cup of New Orleans molasses with a pinch of soda stirred in it, and two cups of milk; add one-half cup of raisins. Bake an hour, or till well done, in a slow oven. Either sweet or sour milk may be used, in the latter case a level teaspoon of soda should be added.

Peach Meringue Pie.—Line a deep pie tin with good paste, fill with ripe peaches quartered, cover with white sugar and bake till done; remove from oven and spread over the top the whites of two eggs beaten stiff with two tablespoons of powdered sugar; return to the oven till delicately browned.

Labor-Saving Hints.—During the dry dusty season the outside of windows need cleaning daily, but washing is not necessary. First, brush them off with a soft broom or dust brush, then wipe them with soft cheese cloth. To reach the upper panes, tie a clean flour sack over the broom. This method removes all the dust and leaves the windows clear, and is quickly and easily done.

When much cooking is done on the stove or range, the top is apt to become roughened by frequent blackings where things boil over and burn on it. Instead of blacking the top and hearth, if they are first rubbed with a bit of lard, then washed in clean strong soap suds, their surface becomes smooth and things do not readily stick to it. After washing, to rub while warm, with a cloth dipped in melted beeswax, will give a fine polish.

The ends of blankets and comforts often become soiled while the other portions remain clean. In good drying weather, pin such a blanket or comfort securely on the clothes line; have ready a clean hot suds made by dissolving white soap or kleeno in the water. Place the bucket or tub of suds on a bench under the line; immerse the soiled ends and rub till perfectly clean; then rinse thoroughly in clear warm water; squeeze out, shake and pat well between the hands, then leave to dry in the wind.

To protect the ends of such articles from soiling it is a good plan to baste a strip of white cheescloth over them. This may be removed and washed as often as necessary.

THE MARKETS.

San Francisco, September 1, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

The market has shown some further weakness, with more or less decline in the principal domestic markets. California club and Sonora grades are somewhat lower, and other varieties are not offered on the local market at present. Northern club is rather firm, but other northern grades show a wider range, with a downward tendency. Trading locally is still quiet, and the market shows little feature.

California Club	$1.75	@1.80
Northern Club	1.67½	@1.75
Northern Club		1.67½
Northern Bluestem	1.80	@1.92½
Russian Red	1.65	@1.75
Turkey Red	1.70	@1.85

BARLEY.

Arrivals of feed grades have continued large, and supplies now slightly exceed the current demand, bringing the local quotation on the lower grades down slightly. Choice grain, however, is still bought at $1.40, though shipping and brewing grades will scarcely bring above this price. Another cargo for foreign shipment has been cleared, and shipping grain is in fair demand. Chevalier is weaker.

Brewing		$1.40
Shipping		1.40
Chevalier		1.47½
Good to Choice Feed, per ctl.	1.37½	@1.40
Common Feed	1.32½	@1.35

OATS.

Trading in this grain is still confined to very narrow limits in the local market, and most varieties still show a downward tendency. Red seed oats are still firmly held, but feed grades have dropped again, and whites are also lower. Black oats are firmly held at higher prices, but there is very little buying.

White, per ctl		$1.80
New Red, choice	1.75	@1.80
Common	1.60	@1.72½
Red, seed	1.95	@2.10
Black	2.35	@2.70
Gray		1.75

CORN.

The market is lower all around, with considerable reduction on local grades. The market is anything but active, however, and while there is very little movement stocks held locally are small.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.59
Mixed, in bulk		1.57
White, in bulk		1.62

RYE.

This grain remains entirely nominal, as there is no large quantity on the market, and so far millers generally have refused to pay the prices asked. There is little agreement between the prices asked by holders.

Rye	Nominal

BEANS.

The bean market shows little change as far as general conditions are concerned, though some changes are made in quotations. In view of the light supplies on hand and the approach of the new crop, prices show some fluctuation from day to day, and are more or less irregular. There is practically no movement of small whites, and large whites show some decline. While the local demand is small at the moment, it is expected that the market will be closely cleaned up before the harvest is over. Dealers look for a strong demand for pinks before the new crop is available. There are very few bayos on the market at present. The yield of garvanzos is turning out light, and prices show considerable advance over former figures.

Bayos, per ctl	$5.00	@5.25
Blackeyes	3.25	@3.45
Cranberry Beans		Nominal
Garvanos	2.50	@3.50
Horse Beans	1.90	@2.20
Small Whites		Nominal
Large Whites	3.50	@4.50
Limas	4.20	@4.25
Pea		Nominal
Pink	3.00	@3.12½
Red		Nominal
Red Kidneys	3.50	@3.60

SEEDS.

Seeds continue in about the same quiet condition as before, with little feature to the market, as there is no buying of any consequence at the present time. Quotations on some varieties are a little lower, but the figures given are little more than nominal.

Alfalfa, per lb.	17½c
Broomcorn Seed, per ton	$20.00@ 25.00
Brown Mustard, per lb	3¾c
Canary	4¼c
Flaxseed	4 c
Hemp	3½c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

Prices are held steady to firm at the recent decline, and it is not believed that they will be any lower until the new crop wheat begins to figure more largely in milling operations, which will be in about a month. There will be little surplus of flour from the old grain in any quarter. Buyers are still confining their purchases to rather small compass.

Cal. Family Extras	$6.40	@6.80
Bakers' Extras	6.40	@6.80
Superfine	5.30	@5.50
Oregon and Washington	5.30	@6.30

HAY.

Arrivals in the local market during the past week are about the same as for the week previous, and materially lower than those of the first two months of the season. The market is still rather overloaded, however, and while dealers in general are maintaining prices with very little reduction from former quotations, concessions are frequently made to dispose of the stock. Wheat and tame oat hay are still comparatively scarce, and prices on them are firmly held, but the lower grades are weak. Some pressure to sell is reported in growing districts, and large shipments of the inferior grades are expected during the next month. Conditions are still unsatisfactory to dealers.

Choice Wheat, per ton	$17.00@19.00
Other Grade Wheat	12.00@16.50
Wheat and Oats	13.00@15.00
Tame Oat	13.00@16.00
Barley	10.00@12.50
Wild Oat	10.00@12.50
Alfalfa	10.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

Aside from an arrival of bran from the Orient, amounting to nearly 10,000 sacks, there is nothing new in the leading lines of millstuffs, prices being steady and demand and supply about balanced. Rolled barley and oats for feed are a little lower, owing to the weakness of the raw grains, but other feedstuffs are unchanged.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	36.50@37.50
Mixed Feeds	25.00@30.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	30.00@31.00
Shorts	31.50@33.00

VEGETABLES.

Some descriptions continue to accumulate on the market, bringing even lower prices than before, and the only article on the list to show any firmness is green corn, which has been coming in very slowly for the last few days, and is now held for stiff prices. Onions show no further reduction, but are weak with a large overstock. Tomatoes have been flooding the market most of the week, and while the arrivals have fallen off a little for the moment, the accumulation of old stock keeps prices at a low figure. Beans, peas and egg plant, together with pickle cucumbers, are still held at about the former range, but ordinary cucumbers, summer squash and green peppers are offered freely at low prices, and considerable quantities are held over from day to day.

Onions—New Yellow, per ctl	65@	75c
Garlic, per lb.	4@	5c
Green Peas, per lb.	2½@	3c
String Beans, per lb.	2@	3c
Lima Beans, per lb.	4@	5c
Tomatoes, per box	35@	75c
Green Peppers, per box	35@	50c
Green Corn, per sack	1.00@	1.50
Summer Squash, large box	25@	40c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	35@	50c
Pickle Cucumbers, per box	75c@	1.00
Egg Plant, per box	60@	75c
Okra, per box	50@	60c

POULTRY.

Receipts of Eastern poultry continue about up to the recent average, with two cars already in and another expected before the close of the week. Arrivals from local points, however, have been comparatively light for a number of days, and as a result, first-class stock is in good demand. Hens, fryers and broilers are doing a little better. Spring turkeys are in demand, and while very few have been marketed, buyers are willing to pay the quoted prices. Small stock in good condition is especially wanted. The Jewish holidays, about the middle of the month, are expected to bring out an extra demand for all sorts of poultry.

Broilers	$ 3.50@	4.00
Small Broilers	3.25@	3.50
Fryers	5.00@	6.00
Hens, extra	7.00@	9.00
Hens, per doz.	5.50@	6.50
Small Hens	4.50@	5.00
Old Roosters	4.00@	4.50
Young Roosters	6.00@	7.00
Young Roosters, full grown	8.00@	9.00
Pigeons	1.00@	1.25
Squabs	2.00@	2.25
Ducks	4.00@	8.00
Geese, per pair	1.50@	2.00
Spring Turkeys, per lb.	24@	28c

BUTTER.

Arrivals have been a little larger this week, and a 1 cent decline several days ago has not been entirely recovered. The market, however, is quite active, with large transactions in extra stock, which is in strong demand, and present prices are firm, with a slight advance on firsts.

California (extras), per lb.	31½c
Firsts	29½c
Seconds	27½c
Fresh Packing Stock, No. 1	24½c

EGGS.

The advance in eggs for the last few weeks has been brought by a demand for shipment north, and with the cessation of this demand early in the week the market declined about 6 cents. The local market, however, has rapidly absorbed all surplus, and extras are again in strong demand at the new quotation, with further advances expected. Firsts are a little lower, and there is no change on low grade stock, which continues to move freely.

California (extras), per doz.	38 c
Firsts	34 c
Seconds	30 c
Thirds	24 c

CHEESE.

All grades are still firm at the prices last quoted, though fancy flats stood for a time ½ cent higher. Everything has been in good demand, and all offerings of good quality are readily disposed of. The following quotations are given by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	16½c
Firsts	15½c
New Young Americas, fancy	16½c
Oregon Flats	16½c
Oregon Young Americas	16½c
N. Y., fancy	18½c

POTATOES.

General offerings of potatoes, both boxed and sacked lots, are rather weak, with some decline on boxes, as the market is carrying a heavy supply. Some Salinas stock, however, has been sold as high as $1.50. Sweet potatoes are more plentiful and lower.

Potatoes—Boxes	50@	75c
Sacks, per ctl	65@	80c
Sweet Potatoes, ctl	1.75@	1.90

FRESH FRUITS.

Most descriptions are weak, with numerous reductions in price, and the market is in rather poor condition. Supplies generally are heavy, with little outside demand and a sluggish local movement. Watermelons are a little higher, but meet with poor demand on account of the cool weather, while cantaloupes remain as before. Huckleberries are in demand at some advance, but other descriptions are dull and weak. All descriptions of grapes are very weak, and more is coming in than can be disposed of. In apples, fancy gravensteins are lower, but bellefleurs and other varieties are steady, with a better feeling in common stock. All peaches are weak, and clings are pressed for sale at low prices, while even carriers are not doing as well as usual. First-class Bartlett pears are higher, but there is little market for canning stock.

Melons, Cantaloupes, crate	$ 1.00@	1.50
Nutmeg, per box	40@	60c
Watermelons, per doz.	1.25@	2.00
Raspberries, per chest	5.00@	7.00
Blackberries, per chest	2.00@	3.00
Strawberries	2.50@	4.50
Huckleberries, per lb.		14c
Grapes, Seedless, per crate	40@	75c
Muscat	50@	75c
Tokays	50@	85c
Other varieties	25@	50c
Apples—		
Fancy Gravensteins, per box	1.25@	1.50
Fancy Red	1.00@	1.25
Bellefleurs	1.00@	1.25
Common	65c@	1.00
Figs, per box	40@	75c
Peaches	30@	65c
Lug boxes	40@	75c
Plums, per box	30@	50c
Crate	40@	60c
Nectarines, per crate	60c@	1.00
Pears—Bartletts, No. 1, box	1.25@	1.50
In bulk, per ton	15.00@	30.00
Quinces, per box	60@	75c

CITRUS FRUITS.

Citrus goods are not receiving much interest at present, but with moderate arrivals prices are steadily maintained on all descriptions.

Choice Lemons	$ 2.00@	3.00
Fancy Lemons	4.00@	4.50
Standard	1.00@	1.50
Limes	5.50@	6.00
Oranges, Valencias	1.75@	3.00
Grape Fruit	2.50@	3.25

DRIED FRUITS.

Prices show no quotable change this week on either raisins or fruits. The demand continues fairly active for most of the new fruits, however, and some varieties show increasing firmness. A somewhat wider range on apricots is quoted in some sections, but the prices named cover the majority of transactions. The fruit has been going forward rapidly, and in many districts the great proportion of the crop has been sold. Peaches are now coming forward in good shape, and while the immediate demand in the East is not very strong, there is a liberal movement, with a strong feeling in regard to prices in all markets. While there is an upward tendency in new prunes, buyers are acting with caution, and are not yet willing to take on large lots at the prices quoted. Evaporated apples are also strong, but without any advance in price. Raisins remain dull and featureless, and the outlook is very uncertain.

Evaporated Apples, per lb.		7½c
Figs, black		2 c
Figs, white		3 c
Apricots, new crop	7½@	8 c
Peaches, new crop	4 @	4¼c
Prunes, 4-size basis	2¼ @	2½c
Pears	3 @	5 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2 @	2½c
Thompson Seedless		2 c
Seedless Sultanas		2 c
London Layers, 3 crown	85@	95c

NUTS.

Old almonds have been practically out of the market for some time, and the new crop is meeting with a strong demand. Packers are quoting the following prices, which are even higher than those recently prevailing, for the new crop, and several lots have already been disposed of. The crop, as a whole, is considerably short. There is nothing new in walnuts.

Almonds (new crop)—		
Nonpareils	14½ @	15 c
I X L		14 c
Ne Plus Ultra		13½c
Drakes		11 c
Languedoc		10 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

The market shows a little more strength, but is still quiet locally, as buyers generally are unwilling to pay the prices asked. While some holders are asking higher prices than those quoted, the only sales locally are at about the figures given. There is a larger movement, however, in some of the producing sections.

Comb	10 @	13 c
Extracted, Water White	7 @	7½c
Extracted, Amber		6 c
Old Extracted	3½@	4 c

HOPS.

Hops are now being gathered in most California districts, and while the Sacramento yield is small, there is a heavy crop in Sonoma county. The market remains about the same, but is quiet at present, and will probably remain so until the crop is gathered.

Hops, Old, per lb.	11@	14c
New Crop	18@	20c

WOOL.

Some of the fall clip is now being offered in the southern and San Joaquin sections, but practically all seen so far is very defective, and is not wanted in the Eastern markets. Most of the local buyers are accordingly holding off, and the prices offered are low. Some sales have been reported in the San Joaquin valley at prices above those quoted, but the figures given cover practically everything offered at present.

Fall Lambs—Northern, per lb.	12 @	15 c
Southern	8 @	11 c
Fall Clip, Southern (defective)	8 @	9 c

MEAT.

Hogs have been coming in plentifully for the last week or two, and the market is accordingly easier, with slight reductions on both live and dressed stock. Dressed veal is slightly lower, and live lambs are firmer. Beef and mutton are steady at former quotations.

Beef: Steers, per lb.	6½@	7½c
Cows	5 @	6½c
Heifers	5 @	6½c
Veal	7½@	9 c
Mutton: Wethers	7 @	8½c
Ewes	6½ @	7½c
Lambs	9 @	10 c
Hogs, dressed	9 @	11½c

LIVESTOCK.

Steers: No. 1	4 @	4¼c
No. 2		3¾c
Cows and Heifers: No. 1		3¼c
No. 2		3 c
Bulls and Stags	1¾ @	2 c
Calves: Light		5¼c
Medium		4¾c
Heavy	4 @	4¼c
Sheep: Wethers		4¼c
Ewes		3¾c
Lambs	5¼ @	5½c
Hogs: Grain fed, 100 to 150 lbs.	7 @	7¼c
150 to 250 lbs.		7½c
250 to 325 lbs.		7 c
Common Hogs, lb.	4½@	5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, August 13, 1909.

The California Fruit Distributors announced the following fruit sales by carload lots in the Eastern markets today: Boston 6 cars, Distributors 4; Pittsburg 2, Distributors 2; New York 28, Distributors 15; Minneapolis 4, Distributors 4; Philadelphia 5, Distributors 5; Chicago 24, Distributors 15; St. Paul 4, Distributors 4.

The average prices received in three of the Eastern markets today were:

Chicago — Bartletts, $2.85; Giants, $1.20; Italians, $1.15; Lovells, 80c; Malagas, 45c at $1; Germans, $1.

New York—Tokays, $2.15; Bartletts, $3.15; Silvers, $1.35; Half Clairgeaus, $1.55; Grand Dukes, $1.60; Eggs, $1.35; Germans, $1.50.

Boston—Late Crawford, $1.50; Bartletts, $2.85; Elbertas, $1.60; Crawford Cling, 70c; Yellow Frees, $1.25; Malagas, $1.15; Tokays, $2.30.

The Tuesday market from various points was: New York, fairly strong, overloaded with Malagas; St. Paul, market strong; Cincinnati, prospect market declining; Cleveland, market strong on large red Prunes, fair on Bartletts and weak on Peaches and Plums; Boston, strong; Pittsburg, strong on Pears and Peaches, lower on Grapes.

As a whole fruit has sold well under heavy shipments. One car of Tokay grapes from Florin, shipped August 17th, sold at Chicago, August 26th, for $2,184 gross.

Total shipments to date, 7,772 cars; same date last season, 6,110 cars.

SALTED BRAN.—The public has become somewhat familiar with "salted mines," but acording to a report from the Poultry Keepers' Meeting in Petaluma, "salted bran" is the latest in graft. One poultryman said: "I know that salt is put in a certain bran, and those that handle it know it now. They would not tell before, but will now because they know why the salt is put in. It is salted to make it hold its weight; they claim that it loses in weight, and that the salt prevents this. Salt can be handled in this town for $3 a ton; they are getting $28 and $29 a ton for this bran; 150 or 200 pounds of salt in this bran is quite a profit in their pockets. Our feed may need salting but we can buy it cheaper separately, and know how much to use."

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Special Citrus Market Report.

Los Angeles, Cal., August 31, 1909.

So far as orders and prices at this end of the line are concerned, there is no change in the citrus situation from last week, but there is some improvement noted in the prices now being received for valencias in the Eastern auctions, particularly in that of New York City. Prices there average $2.82 at Monday's sale, and this is more in line with asking prices than at any time since June. It is noteworthy that the shippers in general have held to the early price when quoting to jobbers, though they have sold many a car in the auction and on the delivered plan for much less money that they were asking out here. With but few exceptions the shippers are asking around $1.85 cash for the average run of fruit, though some few are down to $1.65 and $1.70.

While the auctions do not show much improvement on lemons there are straws which show which was the wind blows and it is evident that there is some interest being manifested in lemons at this time. With but few inquiries from the East the shippers are holding their best stock as high as $4.00 a box cash California, with ordinary lemons down to $3.00 and some poorer stuff as low as $1.75. The stock now in California is in very few hands and strong hands at that and they all seem to have confidence in the future of lemons. For shipment within the next 30 days it is stated that there are not now over 40 cars and this means but 16 cars a day for the 25 shipping days. Of Sicily lemons there are now on hand and available within the next 30 days, 100,000 boxes as against 70,000 boxes at same time last year and 95,000 boxes in 1907. The citrus fruit shipments to date have been 30,119 cars of oranges and 5,814 cars of lemons. To same time last year there had been shipped 23,934 oranges and 4,381 cars of lemons.

FLY REPELLANTS.

Since the advent of the "horn fly" early in the nineties we have found it impossible to make any appreciable gains in flesh with our beef animals, or hold our own in milk production on the best pasture after the middle of June, writes a correspondent of an Eastern journal.

Two years ago, S. J. Baldwin, of Talmage, O., gave me the following mixture which he had used on his dairy herd with success. Coal oil, three gallons; pine tar, one quart, and crude carbolic acid one-half pint, mix and apply to suit your convenience. This mixture we applied twice a day with an atomizer always after milking and before turning out to pasture. The cows liked it so well that they did not want to leave the stable until they were sprayed. This is practical, humane and economical, taking about two minutes to each cow and costing about one cent per day. We shall continue its use as we added comfort to the cows and quantity to the milk pail.

WORKING MEN IN HAYING.

Mr. R. P. Wells gets a prize from the Nebraska Farm Journal for this account of alfalfa haying: We have formed here what we call a crew for stacking alfalfa. Four of us have 120 acres. One owns a swinging stacker and one buck, and two others own one buck each. These with a 12 foot rake and four mowers, three 6 and one 5 foot cut, make up the machinery for the outfit. It takes eight men and five teams to do the work when stacking in a field of 20 acres or more. Two men are needed on the stack, a third is required to run the stacker, one to drive team on stacker, one to rake and three to man the bucks.

We commence work by mowing in the forenoon and stacking the next afternoon. We stack in this way at the rate of 20 acres per day. We do not rake any of the hay until we are ready to stack. While the stacker is being set the man with the rake can get ahead far enough to have time to go over the windrows after the bucks. In this way he will save enough hay to make good wages for himself and team.

Never allow any hay to lie in windrow if it cannot be stacked the same day it is raked. If spread out it will be ready to stack before new mown hay will. It will bleach but will not mold, as it will in windrow or shock.

When the season is over if any member of our alfalfa crew has work coming to him he is paid day wages by the one owing him.

PUBLISHER'S DEPARTMENT.

NEW POULTRY BOOK PUBLISHED.

A new departure in catalogue making has been made by the Chas. H. Lilly Co., the pioneer seed and poultry house of the northwest.

This, their latest publication, consists of 32 pages and is different from any other poultry catalogue. It not only contains descriptions and prices of the goods they produce and sell, but contains a complete and scientific treatise on the raising, hatching, feeding, care and disease of poultry.

It might well be termed the poultry guide, being rich in information for the poultryman, culled from the experiences and opinions of the most expert and successful breeders in America.

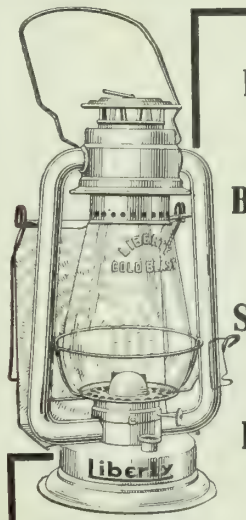
The Chas. H. Lilly Co. make a specialty of poultry supplies and manufacture a great variety of goods and remedies. Their advertisement, which appears in this issue, states that this catalogue can be obtained on request from either their Seattle or Portland offices.

Mr. D. Hurton, a new advertiser in this issue, has attained a strong reputation on his new horse collar conception. The Hurton collar is always a perfect fit, never galls, and in fact, cures sore shoulders. All the leading draymen of San Francisco and Oakland are adopting it. Farmers can save the sufferings of their horses, and practically double their effort in steady work, by the use of the Hurton collar. This idea is well worth looking into.

MORE ABOUT SKUNKS.

To the Editor: Referring to query in the PACIFIC RURAL PRESS in regard to extermination of skunks and my reply of August 10th, I was under the impression the questioner wished to trap. On re-reading I note he says to "poison." They sometimes object to poison, but some honey and strychnine in a dish, placed on the floor, will do the work. In case there should be odor from any method of extermniation used, by fumigating at once with burned coffee the odor is entirely neutralized.—Grower, Fullerton.

To the Editor: You can kill skunks by putting strychnine on the point of pocket knife into an egg, or the crystals may be pulverized and put on fresh meat. —Reader, Redding.



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Asparagus Growing, by Hexamer	.50
Cider Makers' Hand Book, by Trowbridge	.50
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State Horticultural Commissioner J. W. Jeffrey in The Los Angeles Times:

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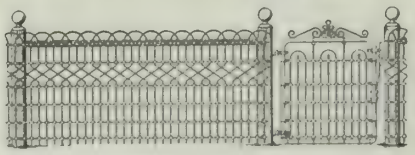


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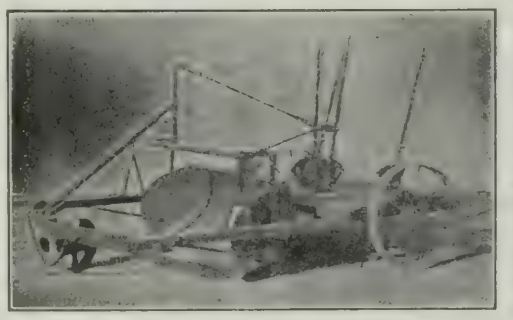


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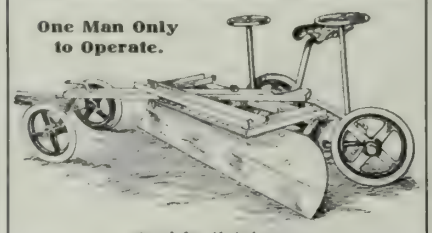
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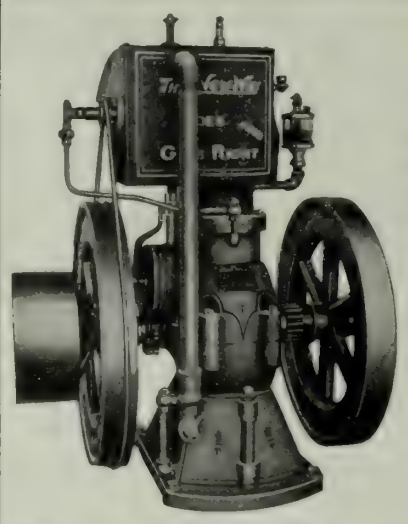
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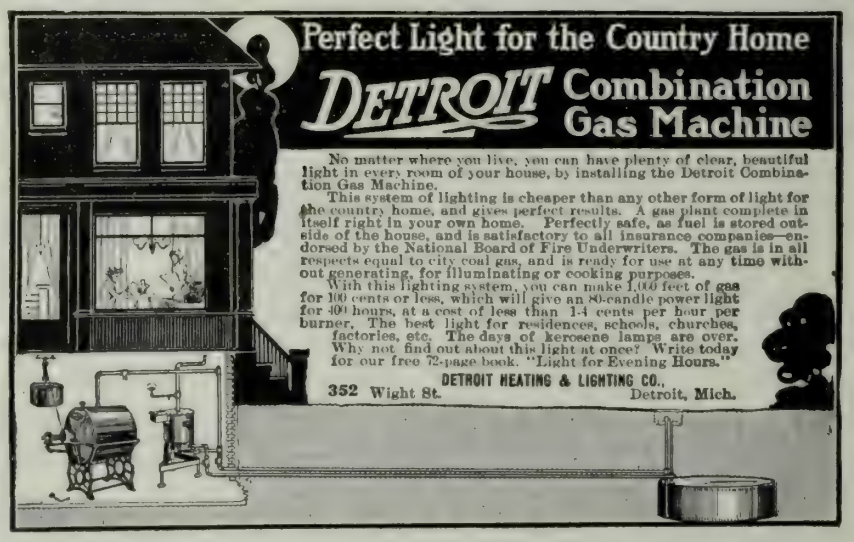
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AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 11. SAN FRANCISCO, SATURDAY, SEPTEMBER 11, 1909. Thirty-ninth Year.

CALIFORNIA STATE

SPRAYING FOR APPLE MILDEW.

In the PACIFIC RURAL PRESS of June 12 we gave an appreciative account of the work of Mr. W. H. Volck, county entomologist of Santa Cruz and Monterey counties, against the apple mildew and his outline of the occurence of this disease. The correspondence we have had from our readers since that publication shows that the trouble is very widespread, and all should endeavor to inform themselves of the treatment which protects the foliage from the fungus invasion, as is shown by the pictures of sprayed and unsprayed twigs upon this page.

Mr. Volck's prescription for the mildew is connected with treatment for other pests and diseases which appear at about the same time. The specific component which seems best in its effect upon the mildew is iron sulphide, which is a rather complex substance produced by the precipitation of iron from a solution of iron sulphate (copperas) by the use of a lime-sulphur solution which is a standard remedy for the San Jose scale.

In preparing iron sulphide the sulphate of iron is dissolved in water at the rate of 1 pound to 1.5 or 2 gallons and then this solution precipitated with lime-sulphur solution. For this purpose it is most convenient to use the commercial solution. While adding the lime-sulphur solution the iron sulphate solution is stirred constantly, and only enough of the lime-sulphur solution added to completely precipitate the iron. When this end point is reached the mixture becomes colored with the lime-sulphur solution. Before the end point the mixture is a thick black muck suspended in a clear colorless liquid. The end point is rather hard to determine exactly because of the thick black mass in which the color must be distinguished. In order to insure the absence of soluble sulphides and sulphates we wash this precipitate in several changes of water. For this purpose about double the original quantity of water is added and then the precipitate well agitated, after which it is allowed to settle for several hours. The clear liquid is then decanted, and if the lime-sulphur solution is in excess it will have the color of that solution, but if the iron sulphate is in excess the liquid will be colorless. If the liquid is colored with lime-sulphur solution the washing process is repeated until the color disappears.

The exact quantity of lime-sulphur solution is something that cannot be very well stated, as the strength or concentration of this solution is subject to considerable variation. With the commercial solution of 32 degrees Beaume one pound of

(*Continued on Page 164.*)



Bellflower Foliage Unsprayed; Appearance Due to Mildew.



Bellflower Foliage Sprayed With Iron Sulphide.



White Winter Pearmain Foliage, Unsprayed.



White Winter Pearmain Foliage Sprayed With Iron Sulphide.

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The Week.

The North Pole is ours! An American explorer, Dr. F. A. Cook, tied a United States flag to it on April 21, 1908, and has been busy all the time since then in getting back to tell about it. Judging by the heat of the controversy, between polar sharps who stayed at home, as to whether Dr. Cook really reached the pole or not, one must allow that he stirred up a pretty warm dish, remembering that the temperature was 80° below zero when he arrived. However, we believe that Dr. Cook did it. It belongs to an American to be at the top of the world and to claim all that he finds there, and it will adorn the polar landscape to have the pole look like a stick of red and white candy rising from an illimitable expanse of dazzling white. There is comfort in the thought that our new insular possession will not require an army to protect it from the world, nor shall we need a tariff to protect ourselves from it. The polar protuberance is in everyway the cheapest and safest of our possessions, and the moral value of it will be great. If now one of our sister South American republics will gather in the south pole we may yet have this hemisphere everlastingly secure under the Monroe doctrine, and with Americans looking down from both poles at them it ought not to be difficult to make the potentates of the other half tremble on their thrones, as we have promised they should do for ever so long. But, seriously, although the pole is of no particular account and although there was in fact nothing there, either in the form of projection or cavity, the success of an American in doing by a dash at the right moment with a few natives and dogs, what nearly all northern nations have failed to do for centuries with the best equipped expeditions they could contrive, has its lesson which it will require a century of poets and orators to adequately enforce upon the world's attention. It is, however, the same old lesson of what spirit and determination can do with the simplest means when both are directed by wisdom to recognize opportunity and seize upon it. Surely this generation will not be allowed to forget how Cook reached the pole and why. But as the pole has no special agricultural aspect, though its general suggestiveness about doing things in agriculture is just as rich as in other affairs, we slide down from it.

Just as we had proceeded thus far with our complacent comments upon the top-knot of the earth our wireless machinery began to fuss, and this was hauled down from the imponderable ether:

"Stars and stripes nailed to the pole."—ROBERT E. PEARY.

What impressive testimony to American proliferation! The world has wanted the north pole for four hundred years, and Americans have helped in the hunt more or less for a few decades—just enough to become really in earnest, and then they fairly tumble over each other in getting there and the second scores before the first can gather up the plaudits of an admiring world. It is overdoing it. We have spoken of Mr. Cook's simple way of reaching the pole, viz.: by lying low and stealing up on it. Commander Peary's way was different. He had a good outfit and marched boldly up to the goal. The poets and orators to whom we have alluded will have to praise both ways as they exalt both men. This will be then a tribute to American breadth in command of methods, for there are methods many, but one spirit. That is about all we can have out of the wreckage to which Peary has reduced the preceding paragraph.

As we have the pole by two witnesses, questions of its utilization will arise quickly and agriculture will not be backward in its claims. One has already appeared in a dispatch from a Philadelphia doctor, who says: "I have always been of the opinion that the northern regions of the world are by no means useless from a commercial standpoint. Many of us will doubtless yet see the hyperborean regions carefully cultivated, as it were, for the ivory of walrus, the eiderdown of various Arctic birds, and probably, if deep waters are found, for the cultivation of the whale and fur seal." The only advantage we can see in a polar eider duck ranch or a whale-breeding farm is that it would be reasonably safe from intrusion, considering the length of time it has taken people to get there, but it certainly has the disadvantaeg of being too far from the railroad, which cuts the value of much good agricultural property. Besides that, Uncle Sam already has plenty of better land and water in Alaska for the purposes of hyperborean agriculture.

Something warmer would probably be more acceptable to the reader, and there is hardly anything at a higher temperature than the feelings of the grape growers over the prices which the wineries are offering. We would share more fully in that heat if we could be sure that the wine grape buyers were to blame. Perhaps they are, but it seems to us that the situation in wine making and selling is quite murky, and if we had any capital in it it would take a good deal of optimism to keep us bright. No matter what the situation is, there is little to be gained by scolding anybody. The only chances of improving conditions seem to be two: the first and the easier is to proceed as they are doing at Woodland, where the growers are getting together in their Yolo Grape Growers' Association to protest against $5 per ton delivered, payable in December and March next, and, we hope, to see if anything better can be done. It is of little avail to protest unless some other outlet for grapes can be had. The second means of improving the situation is that of the Lodi growers, viz.: to establish independent wineries, of which they opened one last year and did well enough to warrant them in arranging for two more. They expect to sell their product in the East, by auction or otherwise, as fruits are now sold. There are at least two good reasons for such action: first it will force those who now have large capital in wineries to pay all they can for grapes, if they are not now doing so: second, it will demonstrate what there actually is in the business anyhow. It certainly will not be wise to hold the acreage now in wine grapes unless something better can be done with the product than now appears. Some of the acreage has been put in at minimum cost, and fortunately the loss will be moderate. Unless we are mistaken, the greatest losses will fall upon those who have put large capital in wineries and cooperage, anad they should certainly, from ordinary business sagacity, offer all they can to help growers who are disposed to do so to retain their vineyards.

It is also clearly desirable that table grape growers should put themselves in better shape to protect themselves, for there is an immense product coming on. The movement at Modesto is a good one. A number of the large growers have come together and, in connection with growers from adjoining districts, will start a large grape packing house in the immediate future. A. B. Shoemaker, one of the largest grape growers in Modesto, is back of the movement. They expect to be able to continue the packing house in future years as well as during the present season, provided this year's pack warrants a further continuance of the business. Our great fruit interests cannot longer wait for buyers to come. Growers must promote and distribute for themselves. If they do not they are likely to find something colder than the north pole.

Our readers will be pleased with the recognition which is being awarded to the eminent services of Professor E. W. Hilgard, of the University of California, by Eastern institutions in the agricultural interest. There was recently an appreciative sketch in the Experiment Station Record of the United States Department of Agriculture, from which we desire to give a paragraph prominently for the satisfaction of our older readers, and that younger readers may know whom their elders delight to honor, as follows: "Dr. Hilgard stands out as one of the foremost pioneers in agricultural science and in the experiment station movement. His scientific grasp of the problems presented made him effective and resourceful in attacking them. His success in that line helped to make it clear how science could be of service to the practice of agriculture and furnish a basis for its teaching. The high quality of his work has given it very great value in constructing a science of agriculture. Its nature has been such that the benefits have not been confined to California, but the whole Western empire, and in large measure the entire country has shared. However local an undertaking might be, his studies upon it have been fundamental, and this has lent to the results a national, and, in many cases, a world-wide scope. There is much of inspiration in his long and fruitful career for the younger workers in agricultural science. The standards he has set for thoroughness, accuracy and scientific deduction are among the greatest assets of his life work. The tangible product of his labors can be judged from the list of his investigations and their applications, but the influence of such a man on an embryo science and on the development of investigation is not easily measured."

The improvement of the Sacramento river seems to be beginning at the right end and with the joint effort of land owners with the State and nation. At meetings held last week it was announced that options have been secured on $200,000 worth of land between Rio Vista and Tolands Landing, for the purpose of widening and straightening the lower end of the river. This land will be purchased immediately and tendered to the federal government. With the $400,000 which Congress is expected to vote next winter, and the $400,000 which the State of California has already voted, there will thus be $1,000,000 available for the inauguration of the giant project which is to make 1,000,000 acres of fertile land safe. The money now being raised is to pay the $200,000 for the land which is needed for the improvement. Liberal subscriptions are being made, and owners along the river above are assessing themselves $1 per acre. The enterprise has a very promising look.

Queries and Replies.

Irrigating Alfalfa.

To the Editor: Is it an absolute necessity in California to grade alfalfa land in checks? Does it not take the best of the land for the division

ridges, and doesn't the land, especially where the subirrigation is near the surface, have a tendency to become wet and boggy? I come from Colorado and am thinking of putting in a few acres of alfalfa this fall as they do it there—a field sloping gently from my ditch, so that I can water it all with no danger of the water standing on any of it. My neighbors tell me if I do I will make a mistake. I would like your advice. My soil is rather sandy.—A Newcomer, Fresno county.

It is of course no more absolutely necessary to grade and check land for alfalfa in California than in Colorado, but it is decidedly desirable to do so if you are working on land without too great fall. You can, on rapidly sloping land, irrigate by overflow from contour ditches to advantage, because checking would be out of the question, but there is no question that the way to grow alfalfa on the plains and on meadow flats in the foothills, etc., is by grading the land to an even surface and putting in low broad levees on contour lines as it is now commonly done in your valley. By making the levees broad and low and the check small, as they usually have to be to set back the water from a low levee, it is possible to have your levee practically covered with alfalfa and to work haying machinery over the levees. Such laying off has almost entirely superceded the old square-check high-levee system. By grading and checking you get a much more even application of water than by any system of free flooding from overflowing ditches. Of course the system must depend upon the land. If, however, your neighbors say you will make a mistake by using the way you have in mind they are probably right.

Irrigating Apricots.

To the Editor: Should apricot trees be irrigated after fruit is all gathered, and, if so, why? At what particular times should they be irrigated, and why the reasons for each particular date?—Grower, Ventura county.

Any fruit tree which does not bear a good amount of fruit of good commercial size may need irrigation. We do not say must need irrigation, for there are many other causes of failure, but enough moisture in the soil to fill out good size and to carry leaf action late enough to make strong fruit buds for the following year, is essential and is the first thing to enquire into, because without these there must be disappointment in size or amount of crop, though everything else may be favorable. It is impossible to state just when and how much irrigation is necessary, because that depends wholly upon local conditions. On deep fairly retentive soil such a rainfall would not be long enough. Whatever rainfall may be had in the locality it may sometimes be made sufficient by winter irrigation if the soil is deep and retentive enough to hold it for use six months afterward. If not then summer irrigation must be provided. In some places where trees can be nearly carried by rainfall, the fruit can be made good by one irrigation about three weeks before ripening. In some places the fruit may be all right by rainfall, but the tree may need a good irrigation after picking to carry it through the late summer and autumn, and to deny this is to have unthrifty and unprofitable trees in some cases. Study the tree and its behavior and aspect; it can tell you what it needs better than we can without seeing it.

Are Our Dried Seedless Grapes Currants?

To the Editor: The California Sultana raisins and the Thompson Seedless have been selling at very low prices of late, and considering their quality it has seemed to me that their use in this country should be much more general. I believe that if permission could be secured from the Department of Agriculture to put these out under the name of "California Currants" that their distribution would be much wider; and we would like to know if the vine on which these are produced is similar to the currant vine on which the foreign article is grown. We have always understood that this was the case, and was one of the arguments advanced in order that the present duty on currants might be maintained.—Reader, San Francisco.

The currant of commerce is made from the Corinth grape, which is a different variety from the Sultana and Sultanina (Thompson Seedless) grown in California. All the fruits when dried are presumably entitled to be called "currants" in that they are all products of the grape vine. If, however, the pure food authorities are inclined to require recognition of particular varieties of fruits and will not recognize the broader classification which we sometimes call "kinds of fruit," perhaps the plan of calling anything but the fruit of the Corinth grape a currant would be disfavored. The argument in favor of the tariff, that the currant was really a grape is, of course, sound, but the other matter involving specific varieties of grapes seems to go further. Your course to make a contention that all currants are grapes is clear enough; the objection would have to be raised by the other side.

Dry Farming in California.

To the Editor: Can you give me information regarding areas and valleys in California where farming is carried on with 12 to 18 inches of rainfall; that is, those sections where it is too dry to insure a crop annually, but which can be farmed at a profit by moisture conserving methods without irrigation. The location and size of such areas, if given, would suit my purpose admirably.—R. W., Arizona.

Commenting briefly on your questions, it may be said that all through the great San Joaquin and Sacramento valleys of California grain crops can and are being successfully produced with from 12 to 18 inches of rainfall. This comprises an area approximately 250 miles long by an average of 60 miles in width. In fact they do get measurably profitable yields of grain on much less rainfall, and some time ago the farmers in a medium dry situation, after discussion in an open meeting, decided that they were sure of a profitable return of barley whenever they secure ten inches of rain favorably distributed throughout the growing season. Some parts of southern California would also come under this classification and some of the coast valleys south of San Francisco where the rainfall is only moderate. There are places, however, on the foothills, on shallower soils and more sloping land, where equally good results could not be obtained with this amount of rainfall.

The Disk Drill and Smut.

To the Editor: I had planned to put in my crop the coming season with a disk drill, but I hear from a farmer a few miles away that they tried it and will cut it out on account of smut. One man says one-half of his oats smutted; another lost $1000 this year on his wheat crop from the same cause. They attribute it to the drill. What do you think of that?—Farmer, San Diego.

We cannot conceive that putting in the grain with a disk drill had anything to do with the smutting. From what you say of the losses this year, conditions must have favored the growth of the smut, and, apparently, would have been the case whatever tools were used after putting in the grain. If you can conveniently, it would be desirable to find out whether there was as much or less smut on grain in the same localities and on the same soils when the seed was put in with other implements. Nothing short of a pretty thorough demonstration by such comparison would cause us to consider the suggestion reasonable enough to look into.

Alfalfa on Reclaimed Salt Marsh.

To the Editor: I wish to ascertain if I could raise alfalfa on reclaimed marsh land, providing said land is properly reclaimed and drained and supplied with plenty of fresh water for irrigation. I wish also to know what is the best grass to grow on such land for dairy cow feeding.—Enquirer, San Francisco.

Whether you can raise alfalfa successfully on reclaimed salt marsh depends upon the thoroughness with which the salt is removed and the depth to which the standing water has been drawn by the reclamation. If there is a good depth of soil free from salt the alfalfa should do well, but in irrigation you must be careful not to use too much water at a time, unless you are sure that there is good drainage to the land. Otherwise the alfalfa, even if successful at first, is liable to be short lived. Where water is naturally too near the surface and where you have water also for irrigation, red clover is often more successful than alfalfa, because it has a fibrous root which is not as subject to decay as the fleshy root of the alfalfa plant is. As for grass on reclaimed salt marsh and other lands retaining some moisture, probably nothing is better than the Australian rye grass, of which you can get seed in any quantity from the seedsmen.

What Are Hops?

To the Editor: Will you kindly send me the classification of hops in order that we may settle a debate? Some say they are fruit, vegetable, grain, etc.—Reader, Ukiah.

The question which you mention as to whether hops are fruit, vegetables or grain seems to be a most admirable subject for debate, because there is no way to definitely determine it. Hops are, however, neither fruit nor grain; they do, of course, come under the classification of vegetables, which is broad enough to take in everything that grows, and there would be some reason for holding that they were vegetables in a narrower sense, because they are grown in small tracts in Europe with about the same cultivation that is given to vegetables, and the places in which they are grown are called hop gardens in some cases. In the United States, however, hops constitute a field crop and are not considered as belonging to either the fruit, vegetable or grain groups.

Grain for Drouth and Alkali.

To the Editor: What kind of grain would you recommend (wheat, barley, milo maize or other) to plant on a light dry soil of a sandy nature, with quite a percentage af alkali in it; for this section of California?—Reader, Kern county.

We do not know any grain that will be successful on land containing much alkali. Barley is perhaps most resistant, and if you cannot get a good crop of barley, the land is practically hopeless, unless you can remove the alkali by free use of irrigation attended with suitable underdrainage. This latter provision is essential. You do not say anything about irrigation, but milo maize and other sorghums are out of the question with rainfall alone, except on moist river bottom land, because they will not grow in the winter. You may be able to get wheat or barley on the basis of rainfall, because they are winter growers. You will have to undertake a little experimentation with different grains in order to determine whether your land and moisture supply will carry them or not.

Clusters of Muscats.

To the Editor: I am sending you a crate of Muscats picked from old vines which produced little or nothing last season. Would these come under the head of "loose, straggling bunches," as mentioned in various articles on grapes; that is, Muscats?—Grower, Merced.

Yes, these are the true Muscat type of cluster. They are not the excessively straggling clusters produced by culture, for they do not have much of that, but are well filled clusters of the straggling form.

Horticulture.

SPRAYING FOR APPLE MILDEW.

(*Continued From Page 161.*)

iron sulphate will require about 0.232 gallons of the solution. This quantity can be multiplied by the number of pounds of iron used to give the total quantity.

In making iron sulphide the work is very conveniently done in barrels. Then to 15 pounds of copperas may be dissolved in one-half barrel of water (best done by suspending in a sack, same as with bluestone), and then the lime-sulphur solution added. Agitate thoroughly while adding the sulphur solution, and when enough has been added pour in water to fill the barrel. Agitate thoroughly (best done with a shovel or spade) and then allow to settle for several hours. Now decant the clear liquid by tipping the barrel slowly so as not to stir up the precipitate. Continue pouring off the liquid as long as it can be done without loss of the black precipitate. Refill the barrel with water, agitate, allow to settle and decant again, continue the operation until there is no color of lime-sulphur solution left in the clear liquid (4 or 5 times). The precipitate is now ready for dilution and application.

According to the results obtained in the experiments, the spraying in March (just before the blossoms opened) had little if any effect upon the mildew, but the apple scab is often susceptible to spraying at this time. Further, this spraying is too early for leaf-eating insects. For these reasons it is not necessary to use iron sulphide at this time, but a spraying with lime-sulphur solution one-half to full winter strength may prove very beneficial in controlling the apple scab and San Jose scale, also probably, the greedy scale.

The first iron sulphide spraying for the mildew should be applied along with the calyx cup spraying for the codling moth. This spraying is applied as soon as the fruit forming blossoms have shed their petals, and of course must contain arsenate of lead.

The use of arsenate of lead along with the iron sulphide requires that the sulphide precipitate should be very carefully washed to free it from soluble sulphur so it will not injure the lead. For this spraying 10 pounds of iron sulphate (copperas) precipitated with lime-sulphur solution and carefully washed should make 100 gallons of spray. With this use six pounds of arsenate of lead. Add the arsenate of lead to the spray tank after it has been well worked up in a small amount of water.

Spray very thoroughly, endeavoring to fill the blossom cups with the mixture. Bordeaux nozzles are becoming very popular for this first spring spraying. The nozzles should be crooked on the rod at an angle so that the stream can be directed downward by a simple twisting of the rod. This is done in an effort to fill the blossoms that are standing straight up. Some growers in the Northwest spray from platforms in order to accomplish this better.

Of course all these precautions are for codling moth, but at the same time the iron sulphide is being very thoroughly applied, and will do the maximum of good. It may be remarked here that the black color of the iron sulphide spray brings about more thorough work, as the men can see any parts missed very readily.

This spraying will, under most conditions, be sufficiently early to control the apple scab in the Pajaro valley and adjoining sections, but as has already been stated, the spraying in March with lime-sulphur solution may prove very beneficial in controlling early attacks of the scab. In this paragraph we are assuming the substitution of iron sulphide for the Bordeaux mixture ordinarily used, but are not certain that the control of the scab will be equal to that obtained with the old and well-tried fungicide. We know that there was no estimable percentage of scabby fruit upon the iron sulphide sprayed trees, while those not sprayed with any fungicide showed a small percentage. Also the spores of the apple scab are prevented from germinating by the presence of a small amount of iron sulphide in the water with the spores.

The second iron sulphide spraying for the mildew should be applied about three weeks after the first, but may be delayed as long as a month with fair results. The three weeks period is strongly urged, however, both to bring about better control of the mildew and develop sulphur immunity in the trees so that there will be no loss of foliage or fruit as a result of the applications. This second spraying need contain no arsenate of lead, but no harm is done by using the arsenate if it is free from burning properties (ortho), and may do good if there are caterpillars present. In our experience the formula for this spraying should be 7 pounds of copperas, precipitated with lime-sulphur solution, washed and diluted with 100 gallons of water.

The third spraying should follow the second in about three weeks and should contain arsenate of lead for the codling moth. Use 5 pounds of copperas, treated as already described, to 100 gallons of water, and arsenate of lead at the rate of 4 pounds to the 100 gallons. Spray very thoroughly.

The fourth spraying with iron sulphide should be applied about three weeks after the third and be the same strength, but need contain no arsenate of lead unless the orchard has an especially wormy reputation. The spraying should be thoroughly applied.

For bearing trees these four applications should be enough for the year. In the case of young trees the sprayings should be continued through the entire growing season at intervals of three to four weeks, but, of course, need contain no arsenate of lead.

The iron sulphide sprayings as indicated above will effect a practical control of the mildew under Pajaro valley conditions, and in all probability in other localities. The trees will not be entirely free from the disease, but it will be held in check to a sufficient extent to allow the development of healthy foliage.

Among the results there may appear certain undesirable ones such as have already been mentioned. The shedding of some of the young fruit may occur, but our experience would indicate not to a serious extent if the sprayings are applied with sufficient regularity. Falling of the foliage will only occur where the applications are delayed too late or are very irregular.

The woolly aphis may increase to greater extent upon the sprayed trees than on the checks, and may in some cases require additional measures to subject this insect.

Among the secondary desirable results may be mentioned the probable control of the apple scab and partial control of San Jose and greedy scale.

The black color of the iron sulphide spray mixture has already been alluded to. This color does not remain, but soon turns to a reddish brown which is not so objectionable. The fact that bearing trees do not have to be sprayed later than the first of July prevents the appearance of any of this deposit upon the ripe fruit.

THE SUBURBANITE'S DWARF FRUIT-TREE GARDEN.

Written for the PACIFIC RURAL PRESS
By Dr. A. W. THORNTON, Ferndale, Whatcom County, Wash.

It has been found that by treating fruit trees in a particular manner they may be so dwarfed in growth that many apple trees may be grown on the same space ordinarily required for one standard apple tree, at the same time increasing their prolificacy and vastly improving the quality and beauty of the fruit. Other fruits, as peaches, pears, plums, apricots, nectarines and cherries, are subject to the same change.

This dwarfing of fruits has been successfully practiced in Europe for centuries, and in Japan for a millinium, and has been reduced to a system that is perfectly simple, and may be practiced by anyone who is capable of doing as they are told.

There are three varieties of apple roots that have this power of dwarfing the growth of apple trees, if budded or grafted upon them; they are known as the Paradise, the Doucin, and the Crab. Of these the Paradise is the best; apple trees worked on it are so reduced in size that they may be planted only 3 or 4 feet apart, and the bearing age is so hastened that they will begin to bear, sometimes the first year, and by the fourth may bear a bushel a year of the choisest quality of apples. They are generally known as bush trees, from their small size. They may also be trained in a variety of forms, as pyramids, cordons (or spindles), etc. These dwarf trees may be grown in pots, and may be transplanted at any age, without checking their fruit bearing. On Doucin stock, apples are not dwarfed so much as on Paradise; but still, they may be grown in pots, and may yield larger crops of fruit. Worked on the crab stock, they may be reduced to half standards, and pyramids, but can hardly be classed with the Paradise apple, and are better adapted as "fillers," in the commercial orchard. All other apples are grown on ordinary apple roots. The dwarfing of fruit trees is subject to definite laws, which may be briefly expressed thus: "Anything that retards the flow of sap, in growing plants, has a tendency to dwarf the growth, increase fruitfulness and hasten maturity in bearing." It is therefore evident, how peculiarly adapted these dwarf trees are, to the suburbanite's use; who on his own town lot can have his miniature garden, consisting of 40 or 50 of these little trees of the choisest varieties of apples, apricots, cherries, nectarines, peaches, plums, etc.; not to mention the pleasure of tending and training them. I do not know anything more beautiful than these little trees from the time they first break into bloom, in the spring, to the perfecting of their delicious fruit. Above all is the unalloyed pleasure and satisfaction of going morning and evening to care for the little beauties; a snip here, and a pinch there trains them in the way they should go. Can you realize the satisfaction, after training one of those little trees with your own hand to grow in pots, and loaded with gorgeous flowers, or luscious fruit; when entertaining your friends at dinner, to place pot, and tree, to decorate your table as a center piece, and surprise them, by showing the result of your own handwork. This is an experience not uncommon in Europe. In this purpose, however, the trees must be specially prepared, and selected for best effects.

To resume, pears are dwarfed by working on quince stock, which dwarfs them into bushes, pyramids, cordons, etc. Root pruning is also practiced, to keep them still more within bounds; they will also do well in pots. Not all pears take kindly to working on the quince, but those that are rebellious can be compelled to submit. This is accomplished by what is termed "double grafting," or first working a variety of pear that naturally takes kindly to the quince, and then working the rebellious scion on to it. This has proved a complete success. While the double grafted pear trees are, of course, a little more costly, they are all of the highest quality. Whether this arises from combined influence of the pear and quince modifying the sap I know not, but the fact remains that always the double grafted pear is of the highest quality and well worth the extra cost of thus working them.

The question here arises: If the dwarf fruit trees are so well adapted to use in the United States, and have been grown in Europe for centuries, why have they not been introduced here? They have been introduced several times, but under the European system of management, that was not adapted to American conditions, and the introducers, in fact, tried to open an American lock with an European key that did not fit. Later, however, some of the Agricultural Colleges and some private experimenters have been investigating the subject with good results.

To illustrate what apparently trival errors of detail may work havoc to the fruit industry, I may mention: When the practice of training fruit trees to walls was introduced from Europe (where it was a common custom) the trees for some reason died. This mystery was not solved for many years, when it was discovered that in our hot summers the walls became so heated that the trees were killed, and that the difficulty could be overcome by training the wall trees, not to the walls, but to wires or trellises three to six inches from the wall, in order to allow the heat to pass between the wall and the tree and thus secure ventilation. It is now a fully established fact that dwarf trees can be as successfully produced in the United States as they can in England, or France, and the adaptability of these dwarf trees to suburbanites' use is freely admitted by experts on the subject. Their adaptability to the commercial orchardist's requirements is, however, still an open question, though with many and strong arguments in its favor.

The suburbanite generally has a limited piece of ground, and the use of large standard trees is out of the question. He requires to combine the ornamental with the useful, as far as possible; his

ground has the great advantage of being sheltered from harsh winds (a very important consideration in fruit culture). As a rule he does not look for profit from selling his fruit. He does look, however, for the enjoyment of beautifying his home and making it attractive to passers; and if at the same time he can produce fruit of highest quality for himself, family and friends, he will feel himself amply repaid. While he is thus enjoying rural life, he is at the same time making a valuable investment by increasing the money value of his property should he at any time wish to sell. Also (if he has children), by giving each of them one or more of those little trees for his very own, and teaching him how to care for them he may develop a tact for nature studies that will go far to wean them from bad influences, to which suburbanite boys and girls are exposed.

The health question is not to be ignored, and like those little trees in which the nearer the fruits are grown to the ground the healthier and more beautiful they grow, so the wearied man or woman; the more their business or pleasure brings them to work in the soil, the more they will be benefitted; and that, too, without the aid of the physician.

There was a physician in California so alive to this fact that he started his female patients to work in the garden and put them upon vegetable diet, which he insisted on their cultivating themselves. The way he managed it was, to say the least, ingenious. Instead of prescribing medicine for themselves to take, he prescribed for the plants, and through the plants, for them. He made them fertilize the plants with their medicine at stated times, and in fixed doses, and convinced his fair patients that the juices of the vegetables would be so altered by the medicine that the patient would be cured by eating them. He was most particular to impress on them that by fertilizing them with his medicine they became altogether different and superior to the stuff that was sold in the shops. He was also particular to instruct them as to the amount of work, and the time of doing it, and when he called to visit his patient, it was the cabbage, lettuce, celery, and so forth that engaged his attention. His patients recovered, as might be expected, the change from the idle rocking chair and shaded rooms to God's bright sunshine and working down close to dear old mother earth being the chief cause.

While the commercial fruit grower requires only a few varieties of fruit trees, but enough of each to secure carload lots, the suburbanite, on the other hand, requires as many varieties as possible within certain limits if only one or two of each, in order to secure fresh fruit, of his own growing, every month in the year. The dwarf fruit garden fully meets his requirements. He can have a dozen little trees of dessert pears, ripening their fruit from July, and every succeeding month, till the following April. He can also have a few varieties specially suited for baking and stewing, and he may have a few specially adapted for exhibition, if he so desires, for these dwarf trees will produce the largest and handsomest fruit to be found anywhere. He can have the same experience with apples. He can have his own apricots, nectarines, peaches, plums, cherries, figs and grapes, as well as the small fruits.

I fancy I can hear some suburbanite possessing only a 25 foot lot, close in town, say: "How can I plant all these trees on my little piece of ground?" Wait a bit, my friend. There are suburbanites, and suburbanites, some living close in town with only 25 foot lots, and some farther out with lots of one acre, or more and all dimensions between who are interested in this subject. Do not repine at your conditions, but take advantage of the opportunities within your reach. If you cannot find space for 50 trees, plant 25, if that is too many, plant 10, or, at all events, try just one.

Remember, it is the man behind the gun that makes the shooting good or bad. As all these trees are grown under high pressure, they must be treated with due respect and proper attention. The work is by no means hard or difficult, and may be easily accomplished by any intelligent man, woman or child who can, and is willing to do as they are told.

Where can those trees be obtained? may be asked. At present the chief supply must be obtained from Europe, as the American supply is very limited, but American nurserymen will produce them in any quantity that may be demanded.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

A timely suggestion regarding frost damage to citrus orchards comes to me from a Pomona grower. He says that when the frost came last November and December, the growers were not prepared as formerly and had become careless. I think it was in 1905 that we had quite a severe frost and for a year or two after that time the growers were on the lookout all the time, but that with three years of comparatively no damage, they began to neglect needful precautions.

There is no question but that smudging will raise the temperature of a grove enough so that if the outside temperature does not go too low the fruit may be saved. I was talking with Mr. L. F. Chase, of Chicago, a prominent fruit man of that city who has been in Los Angeles during the past week, and he states that the apple crop of Colorado was saved to the growers this past year by smudging. He says that a Colorado man has invented the best smudge ever used, that it is shaped a great deal like a baker's bread pan, only closed at the top, with the exception of a series of holes throughout the surface. Over this top lays a sliding cover perforated with duplicate holes so that the draft may be controlled and much or little smoke used. Crude oil is used for fuel, the ovens may be easily and quickly lighted and easily put out by closing the drafts. [A report of Colorado experience was given in the PACIFIC RURAL PRESS of August 7th last.—Editor].

This past year every section of California where citrus fruit was raised was hit to some extent by the frost. By this, I mean, the sections that raise great amounts of fruit, for exceptions to this broad statement might be taken by growers in such sections as Hollywood, Colegrove, the La Canada valley and San Diego; also I have it from a high authority that the Ojai valley in Ventura county, was immune.

Thousands of cars of fruit were sent out this year that showed some signs of frost. In some the eating quality was not impaired in the slightest, some showed a few dry cells while others were almost wholly devoid of juice, and in general the market as a whole was hurt by this kind of stock, selling not only low itself, but having its detrimental influence upon the prices obtained for better fruit.

Our Pomona friend suggests that if the growers will prepare this coming fall and keep prepared at all times much of this disaster may be avoided. He was one of those who were caught asleep and his whole crop was affected and he says, "never again." He has come to the conclusion that wire fences and eucalyptus windbreaks are not frost turners, and hereafter he will be well provided with fire pots, and says that he will have one of those new fangled thermometer alarms in the house that will wake him up at any time the temperature in his orchards gets below the 35 degree mark.

I know that many growers in frosty sections did fire this past year and with only partial success, for it is a great deal harder to bring up the temperature of one orchard than it would be if all the neighbors were firing at the same time. One man doing it alone stands a mighty poor show for if there is the least air stirring the cold is continually drifting in upon him, but if his neighbors all around were firing at the same time the drifting air would be partially warmed instead of wholly frosty.

A good farmer will certainly produce one car of fruit to the acre from a full bearing grove and this is worth at a low calculation, $400 net, to him, a total of $4,000 on a 10 acre grove, which is the average acreage here in California. Forest damage will cut this valuation in halves and might prove a total loss.

Some years ago the Riverside Horticultural Club appointed a committee to investigate the question of orchard protection against frost and in the report they made they arrived at the following conclusion: That the temperature of orchards could be raised by the use of dry heat; that the temperature 20 feet above the ground is one to two degrees higher than at the surface, and that when the cold is severe enough to injure the ripest fruit 50 feet above the ground there is almost invariably a temperature above the freezing point of water; that coal baskets, sufficiently numerous, will prove an effectual means of warming an orchard, and that while oil pots will make a hot and inexpensive fire, the deposit of lampblack resulting from their use condemns this system. The value of smudging was not so well agreed upon, though no doubt it would prove a valuable protection where the temperature falls but little below the danger point, and where there is considerable area of young orchard exposed, provided the protection is made general. The benefit of smudging comes as much from it protecting the fruit and trees from the morning sun after a freezing night as from any modifying the temperature during the time of danger.

The committee reported that they found the most satisfactory results were when from 20 to 50 coal baskets were used to the acre. If energetically used, this plant will never fail except where the temperature goes below the 24 degree mark. Even the smaller number of baskets has been known to raise the temperature from three to five degrees, and to save the crop. To equip an orchard with 50 baskets to the acre means an outlay of but a little over $5. The fuel to run them one night costs from $2.50 to $3, and if the crop is worth $400, it will certainly pay to spend in fuel and labor $4 a night, or one percent of the value of the crop to insure its safety.

To get all the growers together on this question of firing all at the same time is very important. There are so many cliques and factions among the growers, owing to the different methods of marketing fruit, that this would be hard to do, but there are two ways to go about it that seem logical, and that should gain results. One is through the medium of the fruit newspapers, and the other through the Citrus Protective League, which has, so far, done such good work for the citrus fruit men, and which is entirely non-partisan in all its work. The League includes in its membership about 85% of the growers as represented by the different marketing companies and could easily and with little expense carry on a campaign for better protection against frost damage. Possibly the experiences of last year will key the growers up to the necessities of the situation this year and next, but after one or two seasons of immunity they are apt to get careless and a little work by the League would largely prevent this danger.

In fumigation, as well as in firing for frost protection, the advisability of preconcerted action becomes more evident all the time. As now practiced the scale is barely checked and can never be wholly eradicated. If one orchard is fumigated one year and the adjoining orchard the next, the scale has plenty of time to work from the infected grove to the one just fumigated, whereas if all were cleaned at practically the same time, the fumigating periods would be further apart and the expense would consequently be less.

A number of growers whom I have talked with lately have advocated preconcerted action along this line, but so for it has developed into nothing but talk, and the leader has not yet come forward who is capable of developing a plan to bring about such action. Here again is an opportunity for the Citrus Protective League, and while the efforts of this institution since its inception have been directed mainly toward the correction of traffic abuses, the lowering of railroad rates, and the raising of the tariff on lemons, it would appear that there are other legitimate channels for its activity.

A foothill grower, who is also a newspaper man, said recently: "The fumigation ordinances are all right and the State and County Boards of Horticulture have sufficient authority to enforce them and they are doing their duty so far as I know, and I do know, because I have tried it, that if a complaint is made against any badly infected grove that the matter will be investigated. But take my own case for instance, I fumigated last year and my neighbor this year. My trees that are next to his orchard are already black with scale and his adjoining trees will be in the same condition next year. By the present methods we are running incubators for scale breeding whereas if we would all do our work the same

year I feel that in time we could almost wholly eradicate scale altogether."

While of course it would not be feasible to fumigate every orchard in the State at the same time I believe that the orange citrus country could be divided into districts and that a large force of fumigators could work rapidly enough so that all could be cleaned up with the least possible danger of contagion.

AGRICULTURAL REVIEW.

BEAN ESTIMATES.

The tenth annual bean crop report of J. B. Meloche gives the following acreage and yield in this State.

Northern Counties—53,500 acres and 1,020,000 bags.

Central Counties—16,500 acres and 20,000 bags.

Southern Counties—60,000 acres and 1,100,000 bags.

Acres in State—130,000 and 2,340,000 bags as total yield.

Estimates in pounds, tons and carloads—198,900,000 pounds, 99,450 tons and 4978 carloads of 20 tons each.

The average weight of various varieties of beans: Small whites, 92 pounds per standard bag; large whites, 90 pounds; pinks and reds, 87 pounds; bayo, 85 pounds; blackeyes, 80 pounds and limas, 75.

Horticultural Notes.

Grape picking for raisins is now in progress in Kings county.

Examinations for a County Horticultural Commissioner will be held at Riverside October 8.

The vineyardists around Fowler, Fresno county, are complaining of a lack of help to gather the crop.

An examination for Horticultural Commissioner for Orange county, under the new State law, will be held at Santa Ana, October 8.

Oranges boxes will cost the growers 11 cents each this year, which is one cent lower than last and eight cents below the price of two years ago.

Examinations under the new State law for County Horticultural Commissioner will be held at Los Angeles, October 6, and at San Bernardino, October 7.

Owing to the loss of many vines in the vineyards of Sutter county, a grape expert inspected the various affected places last week but did not find traces of the phylloxera.

Two carloads of almonds, the first of the season, were shipped from Contra Costa county last week. The nuts came from Almond Growers' Association and were valued at $6000.

According to the Fullerton Tribune, Orange county will raise from 65 to 70% of an average crop of walnuts this season. The crop is looking fine, and has not been injured by the recent hot spell.

The apple crop of Hood River, Oregon, is estimated at 125 cars this season, as against 302 cars last year. The larger size of the fruit this season may swell the total number of cars over the present estimate.

Orange county supervisors are discussing the passing of an ordinance to license the business of fumigating, and spraying under which it is intended to regulate the fighting of scale pests in that county.

Owing to a heavy frost in Wisconsin on the night of September 1, the cranberry crop there will be only about half its usual amount. Twenty cents a quart is the price expected to be reached about Thanksgiving time.

At the annual meeting of the Irwindale, Los Angeles county, Citrus Association, held last week, the reports made showed that 60 more cars of fruit were shipped than for the preceding year. The net price of navel oranges per box was $1.10 as against $1.02 for the year previous.

Nearly 600 people are busy in the vineyards near Yuba City picking and drying grapes. The Thompson's Seedless is a good crop and many cars have been shipped and sold for good prices.

The newly organized fruit association at Acampo, Sacramento county, has completed work on its big sheds, and now have help and stock in readiness for packing. This Association will ship through the California Fruit Exchange.

State Horticultural Commissioner J. W. Jeffrey is working up a meeting of fruit growers to be held at Newcastle the latter end of this month, to discuss the questions of spraying and county horticultural inspection. The date of the meeting has not yet been set.

Fruit growers in the Grass Valley district of Nevada county have had a very successful season. Bartlett pears have been selling in the East at prices which have netted the growers $2 and over per box. Other fruits have brought proportionately good prices.

D. O. Hills, general manager of the Butte County Citrus Association, estimates that this season's orange crop will be 40% larger than that of last season. The quality will be good, and the prices, so far as can be told at this time promise well. Picking is expected to begin in the latter part of October.

Oroville will hold a Citrus fair during the latter part of November or first of December. A large pavilion is to be built to accommodate the exhibits, which it is proposed to maintain permanently. While citrus fruits will be the principal exhibits, yet space is to be given to other productions of Butte county.

The Sebastopol Times says that apple growers in that section are realizing good money from their orchards this season. The apples from that place are mostly of the early varieties and have netted as high as $1.60 f. o. b. per box. One orchard near there of 80 acres will produce a crop of about 12,000 boxes, for which the owner is receiving $1 per box on the tree.

A meeting of orange growers was held at Anaheim recently, and re-organized the local fruit association there, which will become part of the California Fruit Growers' Exchange, through which they will market their fruit. Valencia oranges remaining in the orchards of its members will be at once sent forward, and it is expected that between 150 and 200 cars will be shipped by this Association next season.

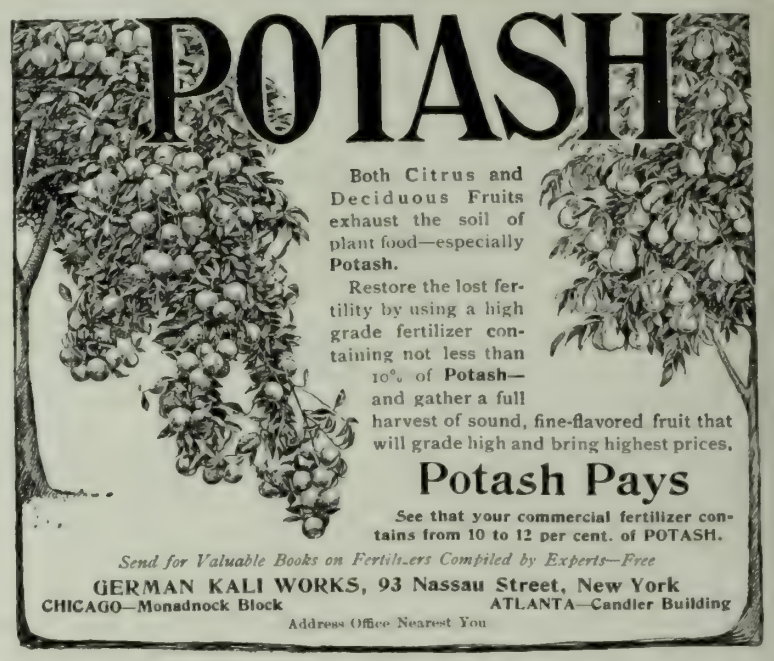
The indications point to a renewal of interest in the growing of olives over the State. At several points it is proposed to build olive mills for the extraction of oil and picking. The crop this year gives prospect of being a good one, and prices are expected to be higher. The sale made recently in Orange county by Judge Victor Montgomery, of his crop of Mission and Manzanilla olives from his 10 acre orchard for $2500, to the Los Angeles Olive Growers' Association, indicates that the price will be good, and that there is money in raising this fruit.

General Agriculture.

A meeting of the local Farmers' Union representatives of Imperial county, was held at El Centro last Saturday to organize a county union.

Potato Day was observed at Greeley, Colorado, last Saturday. Two tons of spuds were roasted at one time and served to visitors who came in by thousands on excursion trains.

The bean crop on the islands near


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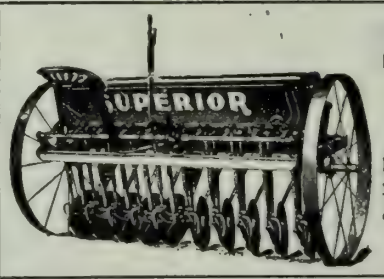
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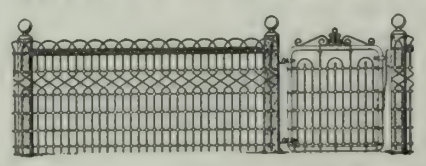
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Stockton is reported to have been quite badly damaged by frost last week. In some places the frost was so heavy that the crop was destroyed.

The growers of seeds in the section about Alpaugh, Kern county, have had a successful season. One grower of onion seeds raised 800 pounds to the acre which he sold for 50 cents per pound.

The harvesting of the hop crop in the Sacramento valley is completed and amounts to about 35,000 bales. Of this number Horst Brothers will control 15,000 bales, 11,000 bales are under contract and nearly 9000 bales will be subject to sale. Hops are now quoted at 25 cents, a very high price.

Picking the 1500 acres of cotton grown in the Imperial valley commenced this week. Two hundred Mexicans were imported to do the work and 80 cents per 100 pounds is the price being paid for gathering the crop. A cotton gin has been set up at El Centro and every prospect is good for a money making crop this season.

A dispatch from Fresno states that a deal was closed there last week by the Turkish-American Tobacco Company for the purchase of 480 acres of orange land in the Mount Campbell tract, which will be placed under cultivation within the next 10 days, preparatory to setting out Turkish tobacco plants next April. A tobacco factory is to be erected on the tract, and the company is to manufacture genuine Turkish smoking tobacco.

In Yolo county the beet crop is being harvested by steam on one ranch. The plowing plant cost $25,000 and is operated by means of cables and stationary engines. An engine of 60 horsepower is stationed at each end of the rows. The plows are hauled back and forth across the field by means of cables. They dig six rows at a time and the daily capacity is about 20 acres. The work is done cleanly and effectively. It is not necessary to go over the ground more than once.

Stock and Dairy Notes.

Several head of cattle near East San Jose have died from anthrax recently.

Last week J. A. Philpot, of Pleasanton, contracted to deliver to the Dairy Delivery Company, of San Francisco, 100 gallons of milk each day.

Last week J. A. Philpot, of Pleasanton, held at Ceres recently, endorsed the plan of having an official tester and weigher at each creamery, to be placed there and paid for by the dairymen. The cost is estimated to be 5% of the sales of each customer.

At the sale of yearling colts held at Sheepshead Bay, N. Y., last Monday, 12 colts from the W. O'B. McDonough California ranch, brought $17,800, an average of $1483 per head. This sale was one of the best held this year and the California colts topped the market.

State Veterinarian Keane is endeavoring to stamp out the plague of anthrax in cattle in Solano county, where already 300 head have died from the disease. Every cow in that section is being examined and vaccinated, and all infected ranches are placed under quarentine.

A big sale of stock was effected last week in Modoc county, when J. D. Milkey, of Goose Lake valley, sold his herd of 1000 head to N. Mattes, who put them on his ranches there. Four thousand head of sheep from Modoc county were also sold last week at good prices, to a buyer from Reno, Nevada.

Buyers of beef cattle are reported to be in the Sierra's looking for stock, and that some offers have been made ranging from 5½ to 7 cents wnich are not being accepted by the owners. In a few instances sales of stock have been made at from 6½ to 7½ cents for steers, which is a little better than last year's price. Cattle are in good condition.

Miscellaneous.

The Cone ranch in Tehama county, consisting of 3000 acres is to be subdivided and sold in small tracts.

Judge J. H. Logan, of Santa Cruz, last Saturday filed on 250,000 inches of water of the Pitt river in Shasta county. If the location of the water is held to be valid a big power plant will be located there.

The Waters cannery at Pomona is now putting up fruit at the rate of 50,000 cans per day, and it will make a pack of 1,500,000 cans during the season. The fruit is being shipped to the Central States at the rate of two carloads a day.

The price of $5 per ton for sweet wine grapes, offered by the California Wine Association, seems to be the lowest made, as many independent wineries have been buying up crops at prices ranging from $7 to $10 per ton in different counties. For the better varieties much higher prices are being paid.

Drinkable alcohol is claimed to be produced by John M. Ewen, Chicago Harbor Commissioner, after five years spent in experimenting. The new process alcohol is claimed to be as good as that made from grain and the cost of production is only seven cents a gallon, as against 35 cents cost of grain alcohol.

A demonstration of the new hop picking machines was made at the Horst yards, near Sacramento, last Friday. Hop vines were cut close to the ground and fed into the machine, which dumped the leaves and small bits of vine on one side and the flowers on the other. Machines that do the work will save growers very heavy labor bills.

At a meeting of landowners of Grand Island, held at Rhyde last week, an assessment of $1 per acre was levied by unanimous vote to aid in the work of widening the channel of the lower Sacramento river to make room for the passage of the flood waters during the winter season. This assessment will apply to all lands on Grand Island. Other districts that are expected to levy similar assessments are Brannan, Twitchell, Ryer, Andrus, Sherman and Sutter islands and the Pearson district.

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The Field.

METHODS OF SUPPRESSING MORNING GLORY.

By Mr. H. R. Cox, in Farmers' Bulletin No. 368 of the U. S. Department of Agriculture.

The only successful methods for the eradication of morning glory or bindweed must be based on the suppression of all top growth, in order to starve out the underground parts, except, of course, those methods, at present of little value, which have for their object the direct killing of the roots or rootstocks by the application of chemicals. A great many farmers are looking for some easy method of killing the bindweed, and in the meantime are letting it cover the fields and festoon the trees of the orchard. They are looking for some magic "remedy" that will completely eradicate the weed with a small amount of exertion on their part. It must be understood that such a formidable enemy as this weed requires heroic treatment. Other farmers have gone at the problem heedlessly, as in the case of a man who followed the root of a plant to the depth of four feet and then applied a large quantity of salt in the hole.

Various methods have been tried to keep down the top growth, and hence starve out the underground parts. There are three methods that have given satisfactory results, namely, clean cultivation, alfalfa growing and hog pasturing. There are other methods that have been tried, but not with a large measure of success. These include the placing of building paper, beet pulp, apple pomace, straw, or manure on the ground to smother the weed growth, and also the application of chemicals. Conditions in irrigated regions are complicated by the fact that bindweed is often allowed to grow along irrigation ditches, the water in which distributes the seed. The water of streams, especially at flood times, is also a factor in distributing the seeds and roots to other land.

Clean Cultivation.—Bindweed can be eradicated by clean cultivation if thorough and persistent. The case requires going over the land once every week or ten days during the entire growing season of the weed, which is between the spring and fall frosts. Two years of this treatment will accomplish the result in most cases, and it is probable that one year will suffice where the plant does not root deeply. The difficulty is that many farmers will not cultivate as thoroughly as is necessary. Even a small top growth is enough to form new underground growth and rejuvenate the old roots or rootstock, there by carrying the plant over to the next season. Cultivation has the further advantage of inducing a rapid germination of all seeds of the weed which are in the soil, the young seedlings being promptly destroyed by the subsequent tillage.

Conditions in orchard lands are such as to offer a favorable opportunity to get rid of this weed, or at least to so reduce it that it does not do much damage. Many California orchardists use a type of implement that has been found to be very successful in the control of weeds—the weed knife. This is made in various patterns, the principal feature being a knife which is run under the surface of the soil at a depth of three to six inches, thereby cutting off the tops of all weeds. Fortunately the underground parts of the bindweed are quite fragile, and hence this implement does very effective work against this weed. Most of these weed knives are attached to a rig somewhat similar to the two-horse corn worker. The knives are of two different kinds for the most part, the straight blade and the V-shaped blade. The latter seems to be the most satisfactory, since in soils in which a sod or a cover crop has been plowed under the straight blade is apt to clog. These knives make cuts of different widths, varying from three to six feet. In soils that are cloddy or of a rather stiff nature it is necessary to attach a sharp beak, pointing downward, at an angle of the V, so that the knife will not be forced upward.

Another implement is beginning to be used. It consists of a beam resting on the ground, forming a sled, varying in width from 8 to 12 feet, with a series of knives below, all inclined inward. Its draft is light, it makes a wide cut, it can be worked close to the trees, and is comparatively inexpensive. It is rather difficult to use, however, in cloddy soils.

It is possible, of course, to eradicate the bindweed in bare fallow land by the use of the implements mentioned or the disk if the farmer is willing to do this for a year or more without any return. It is also practicable to give sufficient cultivation with an intertilled crop to get rid of the weed. It is necessary in that case to supplement the cultivator with the hoe after the crop is laid by. This is rather tedious, but it would pay in many cases. Such implements as the "heel" scrape of the South or the "gopher" cutter of the corn belt are the best to use in the cultivation of the crop. These perform about the same function as the weed knife in cutting off the tops of the weeds.

As a variation of this plan it might be best to fallow during the first part of the season, using an implement that would keep down the top growth of the bindweed; then in July or August to plant a late intertilled crop, such as rape, sorghum or Kaffir corn. This would carry the cultivation until late in the season. If rape were planted and hogs turned on after laying by they would do much toward killing the weed.

Another plan that has been successfully employed in California is to alternate fallow with a smothering crop. Such a crop is sown in the fall or early winter, so that by the time the weed begins its growth in the spring the crop has made enough headway to shade the land and exert a smothering effect on the weed. As soon as the crop is off in early summer the land is plowed and fallowed the rest of the season. A repetition of this plan for several years will greatly reduce the weed growth, although no cases have been found in which it has been entirely eradicated. Such crops as peas or horsebeans are adapted to this scheme, and in the seed-growing districts sweet peas or mustard.

It is important to note that where the bindweed occurs in patches these should be marked off and given special attention. It is much cheaper to cultivate thoroughly a part of the field than the whole field. Clean cultivation is the most available method of eradicating the bindweed in many cases, and if entered into with a full knowledge of conditions it can be done with less labor and expense than is commonly supposed.

Growing Alfalfa Hay.—Numerous cases have been found in which bindweed was greatly lessened or entirely eliminated by seeding an infested field to alfalfa for hay. This is effected by two factors, namely, the frequent cutting and the smothering effect of the crop. The frequent cutting serves about the same purpose as clean cultivation in keeping down the top growth of the weed, and hence starving the underground parts. After each cutting alfalfa makes a rapid growth, more rapid than the weed, which is thereby shaded. After the first year of alfalfa, bindweed is usually found to be making only a small growth, with stems but a few inches long and leaves of miniature proportions. This method is most effective where the cuttings are made as frequently as possible and where a thick, vigorous stand of alfalfa is secured. An interesting case was brought to notice in the Muskingum bottom land near Marietta, Ohio. Two adjoining fields, both thickly set with bindweed, were seeded the same season, one to timothy and the other to alfalfa. After several years both fields were plowed and the whole planted to corn. It was very apparent where the alfalfa had been by the absence of bindweed, while the other piece of land still contained the weed.

Alfalfa growing as a method of bindweed eradication is applicable, of course, only where it is possible and desirable to grow alfalfa. But where conditions are favorable there is little doubt that two or three years of alfalfa will greatly reduce or sometimes entirely destroy the weed in the most thickly infested fields. By following this crop with a cultivated crop and carefully keeping down the weed growth that still persist the land can be finally cleaned.

Use of Smothering Crops.—By smothering crops are meant those crops, other than alfalfa, that exert a shading effect on weed growth, such as cowpeas, soy beans, millet, sorghum and buckwheat. No extensive trials of these crops as a means of controlling the bindweed have been made, so it is impossible to define at the present time their adaptability for this purpose. With a continuous succession of such crops, and when thick stands are secured, it is probable that in time the weeds would be much reduced. At best, however, these crops are hardly as effective as alfalfa.

Use of Artificial Smothering Material.—Building paper, manure, beet pulp, apple pomace, straw and other litter have been much used in the attempt to smother out bindweed growing in patches. It is necessary to apply such material, except building paper, quite thickly on the ground to prevent the weed from pushing through, as it has been known to go through a thickness of two feet. This method is therefore rather expensive and is not applicable to any but small areas. Indeed, in most cases it is misdirected energy, which could be employed more profitably in some other direction. The use of building paper has been tried with some success on small areas where the laps were carefully weighted down with soil to exclude all light. Such paper can be purchased at from $2.25 to $4 per 1000 square feet, depending on the thickness of the ply, which is at the rate of $97 to $172 per acre. This cost makes the method impracticable except for very small areas. The thin ply would be about as satisfactory as the thick. If the bindweed were inclined to grow through at the laps it would be necessary to lay another thickness of the paper, the laps running at an angle to those underneath. The paper would probably have to be renewed each season, and it would take as long to subdue the weed as it would by means of clean cultivation.

Use of Chemicals.—Many farmers have applied salt, kerosene, lime, and other substances for the purpose of killing the underground parts of the bindweed. One difficulty with this method is that on account of the habits of the roots and rootstocks of bindweed such applications must be spread all over the infested area, which makes the cost so high that these materials can be used profitably in only a limited number of cases. Another difficulty is that a quantity sufficient to kill the weeds will also injure the land to such an extent that no crops can be grown for several years subsequently. Crude salt is probably the cheapest material for the purpose.

Tests have been made by agricultural experiment stations and farmers to kill bindweed by repeated applications of salt, iron sulphate, arsenite of soda and other chemicals in solution as sprays. Such experiments have failed to show that this method is of any value. Although the tops are killed to the ground new plants immediately spring up. The spraying must be given once every few days during the growing season for at lest two years before the weed finally ceases to grow. The result can undoubtedly be accomplished in less time and with less expense by some other method.

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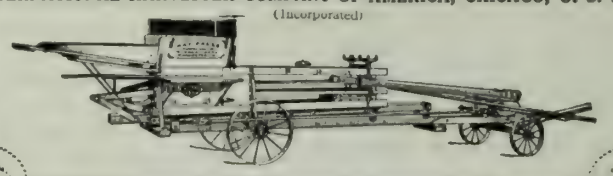
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Live Stock and Dairy.

BEET PULP SILOS AND FEEDING.

Written for the PACIFIC RURAL PRESS
By MR. PAUL PARKER.

Referring to my article in the PACIFIC RURAL PRESS, of August 21st, I remark that the location of the beet pulp silo should be selected with great care, because a silo advantageously located will cut down expenses materially by reducing the number of men, horses and wagons employed about the feeding grounds. The first consideration in selecting a site for a silo should be to place it near a railroad, so that the pulp can be hauled from the sugar factory to the silo without being handled.

The second consideration should be to place the silo on a slope where the water from the pulp will drain off easily, because water standing in a silo prevents the pulp from curing properly and eventually causes it to become soft and waterlogged. The cattle do not eat it as readily as they do the firmer pulp, besides it is much more difficult to handle and has a tendency to sour.

The best feature, however, in having the silo on an elevation, or at least in having it above the feeding corrals, is that all the hauling of the pulp will be down grade. A silo so situated benefits the stockman who feeds in such quantities that he can haul the pulp by gravity cars, or the stockman who uses wagons or dump carts. It saves time and money for both, as quicker time can be made to the feeding boxes and it does not require so many horses or teams to do the work. Especially does it help the teams in winter to get over the muddy feeding corrals. An elevated silo also makes it possible to scatter the feeding boxes over a greater territory, and thus give the cattle more room in which to feed.

BUILDING.—Beet pulp silos are not constructed in the same manner as are alfalfa or corn silos, because beet pulp has a tremendous lateral swelling power, so that it is necessary to excavate and build the silo below the surface of the ground. Beet pulp does not follow the path of least resistance and swell upward, but exerts it force laterally, so that a wall of earth is about the only thing that can resist its pressure. To build a silo on top of the ground that can stand this pressure costs more than most stockmen are willing to pay for a silo. Some of the cattlemen tried silos made of three-inch redwood boards, reinforced with iron bands, but they could not stand the strain. Giving way to the inevitable, the stockman buried his silo and soon invented loading and unloading devices which made the work easy.

In building a beet silo it is best to make the excavation in gravelly soil, so as to afford sufficient drainage for the pulp. Beet pulp loses one-third of its weight in curing, so the amount of water coming out of an average sized silo is enormous.

When a small silo is being built it is best not to have the excavation very deep, because it makes it difficult to load wagons when the pulp is being thrown from the bottom. A silo wide and shallow is much better than one deep and narrow. A large silo can be made deep because it is possible by means of wooden aprons to drive the teams down into the silo where they can be loaded without having to throw the pulp more than a few feet.

Inch redwood planks are strong enough for the walls or sides of a silo, as they are only needed to withstand the pressure of the earth when the pulp gets low in the silo.

The floor or bottom of a silo should be built very carefully, as the curing of the pulp depends greatly on the drainage. Where the soil is bad it is necessary to lay two-inch redwood planks closely together at an angle of about 10 degrees, so that the seepage will run to one end of the silo, where it can be carried off by drainage pipes. The best floor for a silo is one laid over a gravel bed. The redwood planks are raised about two inches from the soil, and are placed about a quarter of an inch apart, so that the water can drain through into the gravel.

Concrete silos have been tried, but they were not very successful, considering their cost over redwood silos. The acids in the pulp seem to disintegrate the cement and eventually ruin them.

HANDLING.—In order to facilitate the loading and unloading of pulp the driveway alongside the silo should be planked or heavily graveled, then there can never be any danger of the loaded wagons bogging in the slush which forms around the silo. There are several methods of unloading the pulp; one is simply forking it out of the car or wagon with the large pulp forks, but this is long and tedious work, especially when the railway company has delayed sending your cars for several days, and then finally sends you a string of them to be unloaded in a few hours. The most popular and quickest way of unloading the pulp is by means of the pulp scoop. It bears a strong resemblance to the Fresno scraper and is operated in the same way. The scoop is pulled by a horse which carries the load out over the silo, distributing it where most needed.

The action of the horse's feet and the moving of the scoop over the pulp in the silo levels it out and thus saves the labor of forking. These scoops are useless when the pulp cures, because the pulp runs together in a solid mass. When the pulp is in this state, a pulp knife or saw is the only instrument that can make rapid headway through it. These knives cut the pulp up in chunks so that it is much easier to handle than the green pulp.

When it is not feasible to have a silo alongside a railway track and the pulp has to be carried in wagons to the silo, dump carts are the best means of conveying it, because they can be backed out on the silo and the cart dumped. This does away with any extra handling of the pulp.

FEED BOXES.—The stalls or boxes into which the pulp is dumped are built on the same plan as watering troughs. The most convenient size is about 18 inches high, 10 feet long and 3 feet wide. The boxes are made this width so that the cattle can feed from aH sides of the box without locking horns or otherwise interfering with each other while feeding.

The bottom of the feeding boxes should be made so that the water will drain from the pulp. This is accomplished in several ways. Some cattlemen simply bore holes in the bottom of the box; others leave about a quarter of an inch space between the boards, and those stockmen who wish to use them for some other purpose, tilt the boxes to one corner in which there is a hole. This hole is bored so that it can be plugged up and the box made watertight.

Feeding boxes should not be made too large or heavy, because it is necessary to move them frequently during the rainy season when the mud forms around in the corrals. It also happens quite frequently that feeding boxes have to be moved from one feeding corral to the other, and when they are made large it makes very unwieldy work putting them on wagons, especially since they are usually water-soaked.

FEEDING.—The pulp feeding season in California commences in early September when the sugar factories commence cutting beets. The length of the pulp feeding season depends entirely on the size of the silo and the number of cattle fed. A hundred cattle will eat eight or nine tons of green pulp a day or about five or six tons of the cured pulp.

In the early part of the season green pulp is used exclusively in feeding, but as the season advances the cured pulp is used. Where a certain number of loads of pulp come in every day, the cattle are

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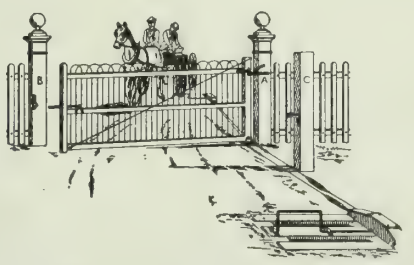
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given their allotment from this and the surplus is put into the silo. In this way the pulp is only handled once, because the cattle eat the green pulp as readily as they do the cured, the only difference being that it takes a little more green pulp per animal.

It sometimes happens that the pulp is delayed in coming from the factory, so that the green pulp will have to be taken from the silo. This can be avoided by keeping a quantity of pulp on the side for just such emergencies. The silo should be kept full, as the pulp when curing settles very much, and every advantage should be taken of this additional space that appears in the silo.

A ton of green pulp costs 20 cents at the Salinas factory, but it usually costs twice this amount to deliver it by railroad within a radius of 15 miles of the factory. One animal will eat a ton of the fresh pulp every 13 to 15 days. The amount given each "feeder' ranges from 150 to 180 pounds per day, experience having proved that the best results are obtained from this allotment.

Cured pulp being almost dry is not given in such large quantities, each animal being given from 80 to 110 pounds per day, and it takes them from 20 to 22 days to eat a ton.

At first glance it would seem that it would be cheaper to feed cured pulp, but there is very little difference in the actual cost, because it must be taken into consideration that the 200 pounds of pulp has lost about 600 pounds in the curing process.

The average steer which is gathered up over the country and brought to the feeding corrals takes from two to three months to fatten. Occasionally there is an exception to this when cattle in excellent condition are fed on the best alfalfa or hay. Cattle under these conditions have been known to fatten in six weeks.

Feeds to Use With Pulp.—Beet pulp fed alone to the cattle is practically worthless. It is absolutely necessary to give some other food in conjunction with it. Hay, straw and alfalfa are the popular feeds given with the pulp.

Alfalfa makes the best combination with the pulp, but the high price of this feed keeps most of the stockmen from using it, except when feeding some special stock for the holiday trade.

Each animal is given 10 pounds of hay per day in connection with the beet pulp. When pulp feeding was in its infancy the hay and pulp were mixed together and chopped, but this method has been abandoned by the most successful cattlemen of today, because of the waste. At the present time the hay and pulp are fed separately. It was found when the pulp and hay were combined the mixture fermented very easily, the result being that large quantities of this combination were left in the feeding boxes untouched. The sour pulp in the bottom would contaminate every new load immediately after it was placed in the feeding boxes. This necessitated cleaning the boxes out continually and littering the feed corrals with fermented pulp. Some stockmen use straw with the pulp. While they have been partially successful they would have been more so had they used a little hay or alfalfa in connection with the straw.

Some cattlemen do not fill up the pulp boxes, but scatter a small portion of the feed in the boxes every few hours. In this way there is very little waste, as the cattle keep the boxes cleaned up. When this is done it requires more men and teams, so whether the gain in waste makes up for the added expense is a question. The hay during the wet weather is fed from stalls, but when the weather is good it is scattered from the wagons, so that the weaker cattle can get their share of the hay. When the hay is fed from stalls the smaller and weaker cattle often do not get a chance to eat it until the other cattle have had their fill.

Selecting Pulp Feeders.—The cattle most sought after by the stockmen are those animals ranging from three to five years. Two-year-olds do not seem to do as well as older cattle on pulp, and besides the corrals must be kept in better condition for them when they are being fed than for older stock.

In selecting cattle to feed on pulp the stockmen prefer those animals which have large ribs, broad backs and small necks and shoulders. Animals of this type gain more weight and bring better prices than cattle of any other stamp.

Durhams seem very popular with the pulp feeders, because they fatten so quickly in the corrals. Even when a long horn has a strain of Durham in him he shows it in his general improvement and the rapidity with which he takes on fat.

THIS YEAR'S SHORT COURSE AT THE UNIVERSITY FARM.

The College of Agriculture of the State University has just issued its circular 45, announcing the short courses for farmers, to be given this fall on the University Farm at Davis. The plan is much the same as that of last year, but with some significant changes. The courses are intended for busy people, who are not able to take much time from their work. To suit their convenience the courses have been condensed as much as possible, by beginning each day's work a little earlier and closing a little later, and by the use of evening lectures. In this way, every course, save that in dairy manufactures, is made a week shorter than it was last year, while the same amount of work will be done. A new course is offered in the dairy department, in market milk and cream supply.

A new feature which has been tried elsewhere with great success is the institution of "Farmer's Week." This is for the purpose of concentrating into the shortest possible time the greatest possible amount of valuable and stimulating suggestion and instruction in agricultural topics. No California farmer can afford to miss this week. It is hoped that every one who attends any of the short courses may include this week in his stay at the Farm, and that many who cannot take time for other more extended courses will succeed in coming to "Farmer's Week."

Last year more than a hundred students were enrolled in the short courses. It is expected that a much larger number will attend this year. A list of the courses, with dates, is appended, and circular 45 will be sent upon application to the superintendent of farm schools at Davis.

Dairy Manufacture—Eight weeks: October 4 to November 24.

Market Milk and Cream Supply—Two weeks: October 11 to 24.

Irrigation, Fertilizers, Field and Forage Crops—Two weeks: October 11 to 23.

Poultry Husbandry—Two weeks: October 11 to 23.

Animal Industry and Veterinary Science—Three weeks: November 1 to 19.

Horticulture, Viticulture an Entomology—Two weeks: November 1 to 13.

Farmer's Week—October 25 to 30.

LIVE OAK STOCK FARM

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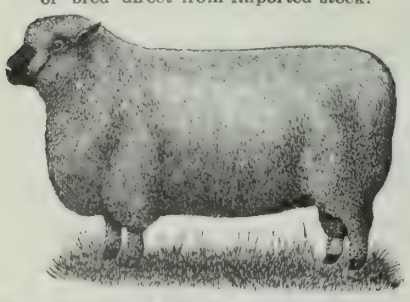
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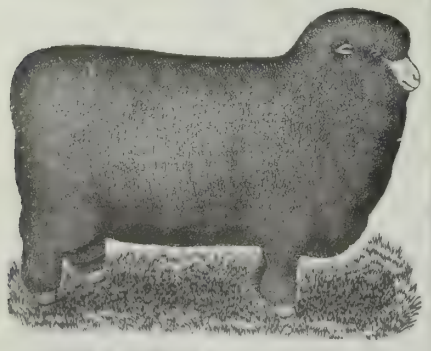
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They were all imported from England or bred direct from imported stock.



We have also bred American Merinos—Hornless Sheep—for 30 years. They are a large sheep without wrinkles. Rams will produce 20 to 25 pounds of long, white wool yearly. Sheep of both sexes for sale.



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Shipping Points: PETALUMA and SANTA ROSA, SONOMA CO. CAL.

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THE LIP AND LEG DISEASE OF SHEEP.

Owing to the presence in Wyoming of an infectious disease known as lip and leg disease or necrobacilosis of sheep, the Secretary of Agriculture has ordered a quarantine, effective August 12, in a number of counties in that State. Sheep that are affected with this disease will under no conditions be allowed to be moved interstate from the quarantined area. Sheep that have been exposed may be moved for stocking or feeding purposes after one dipping under government supervision or they may be shipped interstate for immediate slaughter without dipping, under certain restrictions. Healthy sheep that have not been exposed may be moved interstate from the quarantined area only when accompanied by a certificate of inspection issued by an inspector of the Bureau of Animal Industry.

Lip and leg disease is caused by a germ known as the necrosis bacillus, and is marked by an ulcerative condition of the legs, muscles and lips. Other parts may be likewise affected. Sheds, feed lots, corrals or pastures become infected with the germs which enter the tissues when the mouth or leg is injured by briars, stubble, rough forage, etc., and set up disease.

Treatment of this disease is very satisfactory if begun in time and applied energetically. It should not be deferred, as better results will be obtained by attacking the outbreak as soon as discovered than can be expected if the disease is permitted to spread among the band or to penetrate deeper into the tissues of the affected parts. One of the first steps to be taken in the treatment is to separate all the sheep that are in any degree diseased from those that are healthy. Large flocks should be dipped into one of the cresol or coal-tar creosote dips permitted by the Department of Agriculture for the dipping of sheep, the dip being used at a strength one-fourth greater than in dipping sheep for scabies. When only a few animals are to be treated the same solution may be used as a local application.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

THE MINNEWAWA HOLSTEIN FREISIAN HERD

We offer for sale—Three-two-year old bulls, five bull calves. All the celebrated strains represented. We have bred sixty-five A.R.O., cows. Some that have held World's Records.

M. E. SHERMAN, Fresno, Cal.

WANTED

Four Swiss Dairymen to lease four hundred acres of land under irrigation, with good buildings and equipment for dairy and poultry raising. Apply to

P. L. WISDOM, Owner,
Marysville, Cal.

Cereal Crops.

IMPROVING GRAIN BY SELECTION.

Mr. Byron Hunter gives the Northwest Horticulturist a sketch of a way in which any grain grower, who desires to make the effort, may considerably improve the productive capacity of the variety he is growing.

A field of wheat is made up of the average of a large number of individual plants. Some of them are poor, some are medium and some are far above the average. The object in hand selecting seed should be to develop a strain that is equal to the best. This is done by selecting the very best plants and discarding the poor and medium. If taken from the sack or bin, seed grain is made up of the average of all the plants in the field.

In addition to the benefit derived from increasing the productiveness of the standard varieties of wheats, there is another important reason why hand selection of seed should be generally practiced by farmers. In passing through the country it is extremely difficult to find a field of wheat that even approaches a dergee of purity. While some variety in each field usually predominates, the varieties are badly mixed. Were the varieties kept pure it would be much more satisfactory to the grower as well as to the buyer. Both of these objects, the development of a pure and higher yielding strain, may be obtained by selecting seed from the best yielding and most vigorous plants.

In undertaking the improvement of wheat by selection one should adopt a standard variety that has given the best satisfaction in the locality where the improvement is to be made. In some localities it will be one variety while in other districts with different conditions of soil, altitude and precipitation other varieties will give best results.

The novice in wheat breeding should decide pretty definitely the type of plant he desires to produce before making his selections. This can be done best by making a careful study of the plants in the field. The entire plant must be taken into consideration. Just as it is not profitable to keep a good sow that raises but two or three fine pigs out of each litter, so a stool of wheat with but two or three first-class heads should not be selected as the type. A little time spent in the field studying the variation of the individual plants will enable one to decide upon the characteristics of the type of plant that he wishes to develop.

The first year pick out enough individual plants of the desired type to furnish seed for at least a quarter of an acre. When the heads have become thoroughly dry thresh out the seed by hand and clean it on the fanning mill, being sure that the mill is clean so that the seed will not become mixed with other wheat. Plant the seed on clean ground that will be free from volunteer plants.

The second year from the quarter of an acre of selected grain gather enough of the best plants of the desired type to plant another quarter acre. Harvest the rest of the quarter acre of selected grain separately and plant it on clean ground where it can be kept pure. Plant the seed selected for the quarter of an acre on clean ground as before.

The third year you will have a fourth of an acre of grain selected from the second generation and a general seed plot of 4 to 6 acres. During the succeeding years the hand selection of the quarter acre should be kept up and the general seed plot continued also. It will be seen that only a few years will be required to furnish enough seed for a good sized farm.

Sports or chance variations of superior qualities sometimes occur in fields of wheat, oats, or barley. Many of our best standard varieties of wheat have been developed by observing growers from individual plants found growing with other grains. The method usually followed in such instances on the farm is to gather the seed of the individual plant or plants, sow it where it can be kept separate, and when enough seed has been produced distribute it for seed purposes at an advanced price. Some examples of wheat breeding on the farm are given below.

Some 10 or 12 years ago Mr. W. J. Mariner, of Blalock, Oregon, was at Wilbur, Washington, where he found the farmers growing Jenkins Club. He was pleased with the wheat and shipped a car load home for seed. In growing the Jenkins he noticed stools of another variety growing here and there that were earlier and filled better than the Jenkins. Seed of this early variety was gathered and grown separately until 2500 bushels were on hand, when it was sold at $1.00 per bushel for seed. Each year the plot was carefully looked over and individual plants not true to type were discarded. Because of its earliness and because the wheat was found in seed that came from Wilbur, Wash., Mr. Mariner called it Early Wilbur. Considerable of this wheat is now grown in Sherman and Gilliam counties, Oregon, as well as other localities.

During the year 1900, Mr. Wm. H. Dale of Helix, Umatilla county, Oregon, found a stool of wheat of eight heads growing amongst his otner wheat. He recognized the superior qualities of this individual plant, saved the seed, and planted it by itself. The next year, 1901, he raised 4 pounds of seed. In 1902 he raised 5 bushels, in 1903, there was 51 sacks, and in 1904, 4,000 bushels. Knowing no name for the variety he called it Dale Gloria.

Just how this individual stool of wheat happened to be growing in Mr. Dale's wheat does not concern us materially. The important point in the matter is this: He recognized its worth and grew it. During the fall of 1904 he began selling it to his neighbors for seed at $2.50 per bushel when ordinary wheat was worth about 50 cents per bushel. During the present season, 1909, fully 90% of the wheat within 6 or 7 miles of Helix consists of this variety. Much of the wheat about Athena, Weston, Milton and other places is also Dale Gloria. Farmers who grow it claim that it yields far better than the wheats they formerly grew. It certainly has considerable merit or it would not be grown so extensively by the farmers who saw it developed.



"John, you're just the man I want to talk to. You know I'm going to build a new barn. And I don't want to make any mistake about the roof. I had too much trouble with the old roof. Always needing repairs. I guess there wasn't a year that I didn't have a lot of spoiled hay or something, on account of those everlasting leaks. This time I want a roof that won't leak like a sieve, and that'll last awhile'.'

"Well, you can take it from me, Tom, Rex Flintkote is in every way the best roofing you or anybody else can get. After fifteen years my roof doesn't show a single sign any place of being any the worse for wear. Never cost me a solitary cent for repairs."

"Well, you've put it pretty strong, John. Now, what I want to know is *why* Rex Flintkote Roofing is best You know there are two or three other roofings that are claimed to be the Best-in-the-World."

"Listen. You see Rex is made of long-fibre wool-felt. Now, wool-felt is something that lasts like eternity. Look how a good 'slouch' felt-hat wears—forever, almost. Then this hard-packed wool-felt is thoroughly saturated and impregnated with a special compound that protects against decay. Rain can't soak through that combination the sun can't soften it and it's proof against the action of the oxygen in the air, and all those things that sweat the life right out of other prepared roofings."

"That's good, John; now how about fire."

"Send for a free sample. Try it with a live coal of fire—prove for yourself that Rex Flintkote won't catch fire. Just write to the manufacturers. They'll also tell you just what dealer to go to. And they'll send you free a mighty good book about roofing. Remember, look for the Boy trademark on every roll. Better write to-night, Tom, before you forget it. Here's the address:



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Portland, Oregon.

The Poultry Yard.

THE CARE OF SHOW BIRDS.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

The winning of the Blue is a live question in many poultry yards just now. Perhaps some of our readers may think that this has little to do with farm poultry—in fact may consider the "fancy" a mere fad of the leisure class with no bearing upon utility points and practical poultry raising. Formerly, this view of the subject was pretty general among farmers and others, but it is fast changing. While the fancy in poultry is not the whole thing even if it is the whole show, it is being recognized as having been and as being the strongest element in bringing the poultry interests to the front and the hen to her own. Even the most conservative and hardheaded are unconsciously influenced by the estimate which others place upon a thing. The man to whom "chickens is chickens" and entitled to little but pickings and brickbats, may pooh-pooh to see this Pariah of the barnyard pictured and talked over and valued into the hundreds, but unconsciously the fact "soaks in" that the hen may have virtues he has not discovered. When he sees a flock of pure-bred birds, beautiful in uniformity of shape and color and in the pink of condition through expert care, he begins to notice his own fowls and to give them a bit more attention. As his flock responds to this extra care with a finer appearance and better egg-yield his interest increases, poultry raising begins to look worth while, and anon he may even pay a stiff price to the "fancy fellers" for a start in pure-bred stock.

If the attendance at poultry shows was more general among farmers there would be more entries made by this class, with a gain in interest and intelligent breeding in poultry, which would redound to the improvement of the show, of the poultry, and incidentally of the farmer.

As before suggested the person not up in poultry points should make a close study and comparison of his birds that look good to him with the ideal points as described and pictured in the Standard of Perfection, for the breed in question. In the Mediterranean class of fowl head points are very important. Their large combs and wattles make any defect in these points very prominent. While the Standard calls for five points to the comb both male and female, one or two more points or one less, is not the most serious comb defect in these breeds, but this is the one most quickly noticed by the poultry novice. As one such expressed it: "My rooster is a tor-bred for he's got five pints to his comb."

A loppy or twisted comb or one with side sprigs or lumps, or one that is overgrown, coarse and beefy or one which, while extending well back as is proper, follows the shape of the neck instead of standing up from the neck, presents the serious and disqualifying defects of comb.

Shape is really one of the most important breed qualifications, but judges usually lay more stress upon color. The novice requires some training before he can decide on shape or on color in the parti-colored breeds. However, there are many disqualifying points which are quickly apparent to the novice: thus, the "wry tail" or the tail carried to one side, or the "squirrel tail" the tail curving over the back in the manner of a squirrel; feathers on the legs or down between the toes of clean legged breeds; also clipped wings or absence of tail feathers. In selecting fowls to train for the show room, those possessing such defects should not be chosen; nor those with off-colored legs or off-colored feathers in the plumage, or white in red earlobes or red in white earlobes.

CARE AND TRAINING OF THE SHOW CANDIDATES.—If the fowls have had proper and systematic feeding and care, no change should be made in this respect with the birds selected for show purposes. The point is to get the birds in the pink of condition and this can be done only by keeping them in vigorous health. Shutting up a fowl and stuffing it with rich or even unaccustomed food will soon put it out of condition; thus the practice of feeding birds tallow and such greasy foods to give lustre to the plumage is liable to have the opposite effect. Lusty health and vitality are what give lustre to the plumage and grace to the carriage. Have sound grain, pure water, grit, shells and charcoal always accessible to the birds, also fresh clean green feed. The very best green feed is tender grass of young wheat or barley blades, but alfalfa, beet and chard leaves and cabbage heads are excellent. If such greens and hard grain are always obtainable by the birds there will be no danger of overeating. Once a day they should be given a feed of good dry mash containing beef cracklings or fresh meat cooked well with rolled barley, cracked corn and vegetables. Great care is required in keeping the fowls clean and free from insects. Have clean dry litter in their pens and do not allow them in the rain or mud. Be careful about the roosting quarters that the plumage does not become broken or frayed by contact. Often the beauty of the tail is ruined by the perch being too near the wall. The male birds should have individual pens, but from four to six of the females may usually be kept together if one of them does not develop a vicious disposition. Such a bird should be removed from the others and kept by herself.

One should spend as much time as practicable with the fowls each day, talk to them in a gentle voice and try to tame them, also get them accustomed to others coming to the pens. Fowls soon recognize and respond to a caressing tone. After they are gone to roost make them a short visit each evening. If they are very nervous, at first accustom them to your presence with a light, then gradually to being patted on the back but do not handle them further. There is so much in the way one approaches a fowl or even a wild bird. Some invariably give such creatures a scare even when trying to pripitiate them, while a few have what is termed "a way with them" which calms and sooths.

All this may be considered preparatory fitting of the fowls for the show room; some three weeks before the show dates the real training should begin. Coops, the size of the exhibition coops, should be prepared and each fowl kept in them a portion of each day; now they should be accustomed to handling, and any broken feathers carefully removed, if the legs are rough or scaly this should be remedied but with great care that the salve used for this purpose does not soil the feathers. With expert management some of the birds may be taught cute tricks at this time, indeed, some of them will take to such things while others are unteachable. It is quite easy to teach a cockerel to crow for some tidbit; a little more difficult to induce him to step up on your hand. Above all accustom the birds to strangers noticing them while in the coops. A bird that will not flutter and struggle when the judge examines it scores a point at once, and if it will step up on his hand and display some little trick it appeals to his heart and has the inside running for the blue ribbon.

Next week we shall give some suggestions in regard to washing fowls, and about sending them to the show room.

POULTRY NOTES.

The colder the climate the warmer seems to grow the poultry interests. Minnesota is considered a pretty cold State but she is sending two car loads of poultry exhibits to the Alaska-Yukon-Pacific Exhibition. Naturally California's two sister States north are boiling over with enthusiasm. The State of Washington is making an effort to meet every blue-blooded visitor in feathers with another equally good or a little better.

The exposition company has appropriated $2,500 for the erection of a building suitable for the poultry exhibit. The plan presented by the architect in charge is a floor space 152x208 feet, divided into two sections by an aisle through the center 24 feet in width. There is room for 12 rows of coops in double sections 80 feet long, in each section of the building, with single rows across the end, making a cooping capacity of more than 6,000 birds. There will be space in addition for the exhibit of incubators, poultry supplies and appliances.

The Pacific Northwest is not slow in recognizing the value of pure-bred livestock, says the Northwest Poultry Journal, as is evidenced by the fact that the Alaska-Yukon-Pacific Exposition is offering $63,500 in cash premiums, in addition to the special premiums, cups, medals, diplomas, for the livestock exhibit to be held from September 27th to October 9th. In his Oregon Day speech, Judge Fenton said: "The Lewis and Clark Exposition was a failure, financially, until the date of the livestock show in September, when the attendance in round numbers reached 350,000. This was during the two weeks of the livestock show, and no other special event was held at that time. No other single week of the entire fair equaled either week of the livestock show in point of attendance."

TAN BARK PROTEIN.—A large poultryman said: "I examined some dried blood and found it over half ground tan bark. I soaked it in cold water, then in hot water, and then boiled out everything else and examined it under a glass. I was going to use it for dried blood because of its high protein qualities."

On top of the high price of poultry feed, this is the straw that we hope will break the Petaluma poultryman's patience—but not his back. We trust that the Association will set the Pure Food Laws to the feed grafters and make things warm for them.

POULTRY.

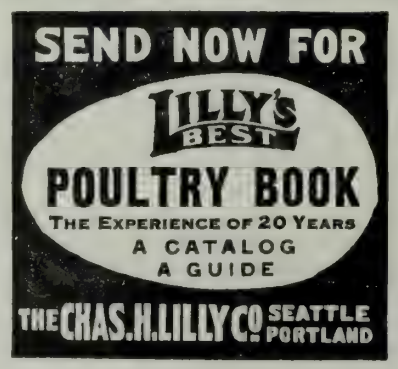
ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

COTTONWOOD FARM, Pleasant Grove, Cal. Bees, Chickens, Geese, Hares, Pigeons, Turkeys.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley s "Little Red Book No. 51." Free. Send postal GEORGE H. CROLEY, 637 Brannan St., San Francisco. **POULTRY SUPPLIES.**



FOR EGGS NEXT FALL

FEED NOW

EGG-MORE

Don't make the common mistake of supposing that you can let the fowls get all run down before or during molting and then bring them up by heavy feeding later. They must be kept in good condition and fed feather-producing and egg-making food. You can make your own "Egg Food," as good as anybody can make, by mixing Egg-More with shorts or other good grain products, according to directions. Egg-More is not a strong tonic, but a highly concentrated Poultry Food. Your hens will certainly lay more eggs if you feed it, just a little each day. 25-lb. sack, $1.90; 50 lbs., $3.60; 100 lbs., $7.00. If not kept by your dealer we will prepay freight within 300 miles, if you mention this paper.

West Coast Mill Co.,

Cor. Griffin & Alhambra Sts.,
LOS ANGELES.

GO EAST

Low Rate Tickets Sold

Sale Dates:

Sept. 7-8-9-10-13-14-15-1909.

Other dates and rates to various points in effect during October, 1909.

Some Rates:

Omaha	$ 60.00
Council Bluffs	60.00
St. Louis	67.50
Chicago	72.50
New Orleans	67.50
Washington	107.50
New York	108.50
Boston	110.50

Tickets good until Oct. 31, 1909. Some cases longer. Choice of routes, stopovers. Write agents for details.

Southern Pacific

Ticket Offices:
Flood Building
Market St., Ferry Depot
13th and Franklin Sts., Oakland.

LASHER'S CHICKEN HATCHERY

Petaluma, California.
Capacity, 40,000 Day-Old Chicks.
All Leading Varieties.
Rhode Island Reds, Barred or White Rocks, White Minorcas and Leghorns.
Shipped anywhere on Pacific Coast.
Correspondence Solicited.

The Home Circle.

The Real Hero.

Let others write of battles fought
On bloody, ghastly fields,
Where honor greets the man who wins,
And death the man who yields;
But I will write of him who fights
And vanquishes his sins,
Who struggles on through weary years
Against himself, and wins.

He is a hero, staunch and brave,
Who fights an unseen foe,
And puts at last beneath his feet
His passions, base and low,
And stands erect in manhood's might,
Undaunted, undismayed—
The bravest man that drew a sword
In foray or in raid.

It calls for something more than brawn
Or muscle to o'ercome
An enemy who marcheth not
With banner, plume and drum—
A foe forever lurking nigh,
With silent, stealthy tread,
Forever near your board by day,
At night beside your bed.

All honor then to that brave heart,
Though poor or rich he be,
Who struggles with his baser part—
Who conquers and is free.
He may not wear a hero's crown,
Nor fill a hero's grave,
But truth will place his name among
The bravest of the brave.

—*Grant P. Robinson.*

Garden Notes.

With the advent of September the home gardner should prepare for her bulbs, sweet peas, pansies and violets. Though in the Coast section of California, where spring instead of sitting in the lap of winter, as she has been accused of doing, ousts him from his place and takes the whole seat, bulbs need not be planted until in October, November, or even in December, it is well to prepare the ground for them this month. While bulbs revel in richly fertilized soil the manure must not come in contact with them, or it will cause yellowed foliage and small ill-colored flowers. Most of the bulbs need a heavy top soil to hold the dampness but the subsoil must be porous and well-drained. In our adobe soil a foot or more of earth should be removed from the bed. then the undersoil spaded and mellowed and this covered with two or three inches of coarse sand or gravel, over this spread an inch of well-rotted barnyard manure or finely pulverized poultry manure, then fill up with the thoroughly worked and sifted earth that was removed. A gardner's rule for planting bulbs is the depth of their circumference and from three to six inches and even twelve inches apart according to size and growth attained. In light soils bulbs should be planted an inch deeper than in heavy soils. The blooms show a richer color and last longer where they have partial shade. Orders for bulbs should be sent in to the seed companies at once; then one is sure of getting the varieties desired and very apt to get a better conditioned bulb. If the bulb is firm and hard when pressed, it is all right. The variety of daffodil most adapted to all soils and easiest of cultivation is the large trumpet yellow daffodil; the poet's daffodil is particularly adapted to heavy soils.

In the early spring, the hyacinth, tulip, daffodil, jonquil and crocus, with their gay shining faces and fragrant breath, have a charm of their own and are well worth while the care and expense required to bring them to their best estate.

A Chinese gardner living in California has for years been engaged in the philanthropic labor of trying to grow an onion that should have all the virtues of the familiar vegetable without the odor so offensive to the fastidious. He asserts that his efforts have been successful.

Gardeners in the western part of the State of Washington are experimenting with the growing of the English holly. The conditions there are said to be favorable to the growth of this plant. It is a beautiful plant for holiday decorations and would prove quite a bonanza to Washingtonians at Christmastide.

One of the most extraordinary flowers in cultivation, says the Garden Magazine, is Hall's amaryllis, which reverses the order of nature by blooming in midsummer without any foliage. Ordinary bulbs bloom in spring and rest in summer, but this amaryllis suddenly appears out of the ground during the dry season. This extraordinary plant has fragrant, rosy lilac flowers which are banded with yellow. In the spring the leaves make their growth, die down, and after a long interval of rest the flower stalks appear with the strange effect here described.

The Rural Press Household.

PEACHES.—This season the peaches are plentiful and excellent, and the housewife is busy canning and preserving this delicious fruit. For this purpose the yellow freestone peach is the best. Peaches should be thoroughly ripe, but not soft, to can. At this stage the skin may be removed without waste by dipping them a minute in boiling water a few at a time, then in cold water, when the skin will easily peel off. But this will not do if the peaches are either soft or green. When the peaches are firm they will need to be parboiled or steamed till a silver fork will easily pierce them before putting them into the boiling syrup; after which they require simmering but a few minutes in the syrup; then dip them carefully with a wire spoon into the jar, fill with boiling syrup and seal. If the peaches are soft they may be put at once into the syrup. A good syrup is made by putting one pint of best cane sugar into quart of water; let boil and skim till perfectly clear. Peal and cook only enough at a time for one or two jars.

Fresh peaches should not be peeled until just ready to serve, as they soon become discolored by standing. When really ripe and first-class, in no other form are they so delicious as served raw; but if inferior, stale or hard, they require cooking to make them palatable and wholesome. Children, especially, should never be allowed to eat such fruit raw.

DELICIOUS PEACH CUSTARD.—Thicken a quart of milk with two tablespoonfuls of cornstarch, when beginning to boil take from fire and stir in a tablespoon of butter, then add the well beaten yolks of three eggs and a half cup of powdered sugar beating briskly till foamy. Into a well buttered pudding dish, put a heaping pint of ripe juicy peaches, pared, stoned and halved; cover them with powdered sugar; now pour over them the custard; bake slowly for thirty minutes. Spread the whites of the three eggs beaten stiff with three tablespoonfuls of powdered sugar over the custard, return to the oven till the meringue is light brown.

The End of Life.

The highest object of man is the attainment of perfect happiness, and the highest happiness is to be had in perfect virtue. Neither perfect virtue nor perfect happiness can be had without perfect health. The end of life, and therefore of education, is the attainment at once of intellectual, moral and physical virtue.—*Aristotle.*

The Innocent Small Boy.

"The Innocence and simplicity of the Sullivan County small boy," said a New York man who city boardered a while in the wilds of Sullivan county this season, "is worth going miles to see. This, a snub nosed, freckle faced urchin of not more than 10, had been commissioned to drive me to the railroad station from the farmhouse where I was stopping. His meekness seemed to be so great that he was apparently incapable of speech beyond an almost whispered yes and no. I was comparing favorably with myself this unsophisticated boy's simple ways with the too often precocious pertness of the city lad, when we overtook a tow headed boy of about the same age with a long fishpole over his shoulder and a tomato can of fish worms in his hand. My meek little companion pulled up his horse and hailed the other boy.

"'Hello, Billy!' he shouted, and I was surprised at the depth of lung he developed. 'Goin' fishin'?'

"'Ya-a-a-s,' replied Billy. 'I be.'

"'To Rensor's Brook?' queried my boy.

"'Ya-a-a-s,'' said the other. 'I be.'

"'In the bend?'' was the further inquiry.

"'Ya-a-a-s,' came the reply. 'I be.'

"'Well, say, Billy,' said the boy in the wagon, shaking his hand significantly, 'let me tell you somethin'. Old Reasor's got a sign up.'

"'No-o-o!' said Billy, plainly surprised and dissapointed. 'He hain't has he?'

"'Ya-a-a-s!' said my young Jehu, seemingly much concerned for Billy. 'An' worse'n that too! Old Reasor an' that dog Snapper o' his'n is layin' for folks if they don't mind the sign right behind the big rock at the sure pop fishin' hole in the creek bend?'

"'Whew-w-w!' whistled Billy, 'Sock take the luck! Guess I better stay to home then!'

"'Ya-a-a-s!' asserted my little friend, with another significant shake of his head. 'Guess you better, Billy!'

Towheaded Billy looked longingly across the field, and by and by he said:

"'Ya-a-a-s. I guess I better.'

"Then he went back the way he had come, I had it on my tongue to compliment and praise the urchin at my side for his kind thoughtfulness, when I noticed that he was watching with twinkling eyes and a peculiar grin that was spreading clear across his freckled face the passing of Billy out of sight down the road. Then he started up the horse with a resounding whack of the whip, gave himself a comical hump, and with a wicked chuckle said:

"'Now if somebody don't go and tell Billy that old Reasor and his dog Snapper went over to the East Branch this mornin' to help dig out a fox it'll be all right. I'm expectin' to go a-fishing to the bend o' Reasor's Brook my ownself when I get back home. Suckers is bitin' like fun jest now.'

"With another wicked chuckle he unhumped himself and fell back into his meekness again, and I couldn't help thinking then as I say now, that the innocence and simplicity of the Sullivan county small boy is worth going miles to see."—N. Y. Sun.

A boy in the parish recently asked to be sent away from his work in London to a farm in the country. When he was pressed for the reason he replied that he longed "to sit on a gate and hear the birds sing."—Soho Parish Notes.

Sparks — I wonder why it is a woman lets out everything you tell her?

Sharks — My dear boy, a woman has only two views of a secret—either it is not worth keeping or it is too good to keep.—London Opinion



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THE MARKETS.

San Francisco, Sept. 8, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

All markets have continued very weak, and local trading has been interrupted to some extent by the holidays. There is very little business moving anyway, and few varieties of California grain are being offered in this market. Growers are still generally holding out for a higher range of prices than dealers are willing to pay, and the current quotations are more or less nominal, with very little agreement as to what values really are.

California Club	$1.65	@1.70
Northern Club		1.65
Northern Bluestem	1.77½	@1.80
Russian Red		1.62½
Turkey Red	1.70	@1.75

BARLEY.

While trading has been somewhat interrupted by the holidays, the movement keeps up on about the usual scale, with another cargo for export. Brewing and shipping grades are a little stronger, but the feed grades still show a tendency to easiness. The quotation has been slightly reduced, though the finest offerings may still be sold at the former price.

Brewing	$1.40	@1.42½
Shipping	1.40	@1.42½
Chevalier		1.47½
Good to Choice Feed, per ctl.	1.35	@1.38¼
Common Feed	1.32½	@1.33¾

OATS.

About the only feature in this market is an inquiry from the government for 10,000 tons for shipment to the Philippines, which tends to stimulate a speculative demand. The local market remains very inactive, though the market is settling down to a definite basis of values. Some weakness has appeared on most varieties, white, feed, red and gray being considerably lower.

White, per ctl.	$1.70	@1.75
New Red, choice	1.70	@1.80
Common	1.57½	@1.67½
Red, seed	1.95	@2.10
Black	2.35	@2.70
Gray	1.67½	@1.72½

CORN.

A little Western grain has arrived this week, but the supply on hand is light, and the market shows no increase of activity. Western grades are a little higher, but the local varieties are unchanged.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk.		1.62
Mixed, in bulk		1.60
White, in bulk		1.66

RYE.

There has been a little movement of this grain lately, but the market remains very dull, with little offering and no strong demand. The top price is for local grain, and the lower figure for Western.

Rye	$1.65	@1.80

BEANS.

The harvest is now going on in several districts, and a few beans are coming forward out of the new crop. The quality of the new stock appears to be very good, according to local dealers. Samples of the new large whites are being shown in greater number, and there is some decline from the top quotation. The market is not yet on a low enough level, however, to bring much business from the East. There is a large inquiry from Eastern brokers for early delivery, but they are not willing to pay the prices asked. Pinks on the spot remain very firm, with a good demand and stocks very small.

Bayos, per ctl.		$5.25
Blackeyes	3.25	@3.50
Cranberry Beans	Nominal	
Garvanos	2.50	@3.50
Horse Beans	1.80	@2.10
Small Whites	Nominal	
Large Whites	3.75	@4.00
Limas	4.20	@4.25
Pea	Nominal	
Pink	3.00	@3.12½
Red	Nominal	
Red Kidneys	3.50	@3.85

SEEDS.

This season's new seed in several descriptions are now coming into the market, and a few changes of prices are noted. So far, however, the market presents no notable feature, trade in general being very quiet. A large demand is expected to set in within the next month. Local dealers quote the following prices:

Alfalfa, per lb.	17½	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb.		3¾c
Canary	4¼	@ 4½c
Flaxseed		4 c
Hemp	3¾	@ 4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

The local market has held steady at unchanged prices since the recent decline, though the mills in other sections, both north and west, have reduced their figures on the new flour. Milling operations in the north are being resumed on a larger scale. Local trade is still quiet, and consumers generally have very little on hand.

Cal. Family Extras	$6.40	@6.80
Bakers' Extras	6.40	@6.80
Superfine	5.30	@5.50
Oregon and Washington	5.30	@6.30

HAY.

The arrivals during August show a heavy increase over the two preceding months. General conditions in the market show very little change, prices being pretty steadily maintained, notwithstanding the complaint of dealers regarding the demoralization of the market. The choicer grades of hay remain very firm, and there is no likelihood of any lower values for them. There is still a large quantity of the lower grades unstored, however, and the market for such offerings is weak, as heavy shipments to this market are looked for in the next few weeks. The government is in the market for 10,000 tons of hay for shipment to Manila, and if the purchase is made here it should add considerable strength to the situation.

Choice Wheat, per ton	$17.00	@19.00
Other Grade Wheat	12.00	@16.50
Wheat and Oats	13.00	@15.50
Tame Oat	13.00	@16.00
Barley	10.00	@12.50
Wild Oat	10.00	@12.50
Alfalfa	10.00	@12.50
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 70c

MILLSTUFFS.

Northern milling interests, which are now generally operating on the new wheat, have made some reduction in prices of the leading millstuffs. So far there has been no corresponding reduction locally, but some easing off of prices is anticipated. The market shows no change since last week, supply and demand remaining about equal.

Alfalfa Meal, or mealfalfa, per ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	25.00	@26.00
Corn Meal	39.00	@40.00
Cracked Corn	40.00	@41.00
Middlings	36.50	@37.50
Mixed Feeds	25.00	@30.00
Oil Cake, per ton	39.50	@41.00
Rolled Barley	30.00	@31.00
Shorts	31.50	@33.00

VEGETABLES.

Trade has been rather irregular this week, owing to the holidays, which interrupted the normal course of the market. Some lines are easier, but as a rule the arrivals have been moderate, and prices are fairly steady. Onions continue plentiful and are weak at lower prices. Green corn, which was firm last week, shows a sharp reduction. Tomatoes are about as before, but the overstock is not so heavy. Peas and beans show little change, though good offerings do a little better. Cucumbers and summer squash are in light supply and considerably higher, but green okra is easier.

Onions—New Yellow, per ctl.	60	@ 70c
Garlic, per lb.	4	@ 5c
Green Peas, per lb	2½	@ 3½c
String Beans, per lb	2	@ 4c
Lima Beans, per lb	4	@ 5c
Tomatoes, per box	40	@ 75c
Green Peppers, per box	35	@ 50c
Green Corn, per sack	75c	@ 1.25
Summer Squash, large box	50	@ 65c
Turnips, per sack	1.00	@ 1.25
Cucumbers, large box	50	@ 60c
Pickle Cucumbers, per box	75c	@ 1.00
Egg Plant, per box	60	@ 75c
Okra, per box	40	@ 50c

POULTRY.

Notwithstanding the expectation of a good demand this week, the arrivals of California stock have shown little increase, but three cars from the East came in early. The strong demand for the various holidays has kept the market well cleaned up, and the market is very firm, though values show little actual advance. Broilers are a little higher, while turkeys are more plentiful and show some reduction.

Broilers	$ 4.00	@ 4.50
Small Broilers	3.25	@ 4.00
Fryers	5.00	@ 6.00
Hens, extra	7.00	@ 9.00
Hens, per doz.	5.50	@ 6.50
Small Hens	4.50	@ 5.00
Old Roosters	4.00	@ 4.50
Young Roosters	6.00	@ 7.00
Young Roosters, full grown	8.00	@ 9.00
Pigeons	1.00	@ 1.25
Squabs	2.00	@ 2.25
Ducks	4.00	@ 8.00
Geese, per pair	1.50	@ 2.00
Spring Turkeys, per lb.	18	@ 25c

BUTTER.

The market has been fairly active all week, and maintains a rather strong position, with very moderate arrivals. On account of the holidays, however, there has been a little pressure to sell on the Exchange, bringing extras down 1 cent from last week's figure. Seconds and packing stock are both higher, and extras are expected to recover their former firmness in a few days.

California (extras), per lb.	30½c
Firsts	29½c
Seconds	28½c
Fresh Packing Stock, No. 1	25 c

EGGS.

The retail demand for the holidays cleaned up the market on the upper grades, and there was little on hand at the beginning of the week. Since then arrivals of extra grade have continued light, and the price has jumped 3 cents since last week. The lower grades are firm, but unchanged.

California (extras), per doz.	41 c
Firsts	34 c
Seconds	30 c
Thirds	24 c

CHEESE.

Cheese has been coming in about as for some time past, while a more limited demand has caused more or less weakness on all grades. The only decline is on fancy local flats, which are ½ cent lower, but there is a downward tendency in other descriptions at the moment. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	16 c
Firsts	15½c
New Young Americas, fancy	16½c
Oregon Flats	16½c
Oregon Young Americas	16½c
N. Y., fancy	18½c

POTATOES.

Some changes are noted in potatoes, as choice Salinas Burbanks are now appearing on the market in considerable quantities. Both river and Salinas stock are in fair demand, with little surplus, and prices are considerably firmer. Sweet potatoes are coming forward freely from Merced and prices are easier.

Potatoes—River Whites	70	@ 85c
Salinas Burbanks	1.50	@ 1.65
Sweet Potatoes, ctl.	1.60	@ 1.75

FRESH FRUITS.

While the market has been fairly active on some days, receipts over the holidays have been far in excess of the demand, and it has been difficult to clean up the market. Prices are accordingly inclined to weakness on most fruits. Watermelons are still fairly steady, but nutmegs and cantaloupes are lower. All kinds of berries are dragging, with reductions on everything but blackberries. Seedless and muscat grapes are also lower, with other varieties plentiful and weak. Fancy apples are higher and in good demand, while first-class Bartlett pears are also a strong feature, with a good demand and moderate arrivals. Figs and plums are a little higher than last week, but are still rather easy. Cling peaches are still low, but good freestones are firm.

Melons, Cantaloupes, crate	75c	@ $1.25
Nutmeg, per box	35	@ 50c
Watermelons, per doz.	1.25	@ 2.00
Raspberries, per chest	4.00	@ 6.00
Blackberries, per chest	2.50	@ 3.00
Strawberries	2.50	@ 3.50
Huckleberries, per lb.	10	@ 12½c
Grapes, Seedless, per crate	40	@ 65c
Muscat	40	@ 65c
Tokays	50	@ 85c
Other varieties	25	@ 50c
Apples—		
Fancy Gravensteins, per box	1.40	@ 1.50
Other varieties, fancy	1.00	@ 1.50
Common	65c	@ 1.00
Figs, per box	40	@ 85c
Peaches	40	@ 75c
Lug boxes	60c	@ 1.25
Plums, per box	50	@ 65c
Crate	30	@ 50c
Pears—Bartletts, No. 1, box	1.25	@ 1.75
other varieties	50	@ 85c
Quinces, per box	60	@ 75c

CITRUS FRUITS.

Prices remain steady at the same quotations as for some time past. The market shows little feature, with demands confined to narrow limits, but the supplies are not excessive.

Choice Lemons	$ 2.00	@ 3.00
Fancy Lemons	4.00	@ 4.50
Standard	1.00	@ 1.50
Limes	5.50	@ 6.00
Oranges, Valencias	1.75	@ 3.00
Grape Fruit	2.50	@ 3.25

DRIED FRUITS.

The general demand for outside markets continues fair, with quite a liberal export movement of prunes. The supply of old prunes has been greatly reduced in the last month, placing the new crop in a stronger position, and it is believed that growers who can hold for a time will realize fair prices. Packers are buying up small lots, but so far are acting with caution, and the prices quoted are not readily obtainable in all quarters at the moment. Apricots have been largely cleaned up, and with the bulk of the crop in strong hands prices show more firmness. Apples are also quite strong. Peaches are quiet, but steadily held, and pears are a little higher. New figs are beginning to move, and the prices in the principal producing districts are lower than was expected. Raisins are in a little more demand East, but buyers still hold off on account of unsettled conditions. Prices are for the most part nominal, but some local packers quote the appearing figures.

Evaporated Apples, per lb.		7½c
Figs, black, new crop		2 c
Figs, white, new crop		2 c
Apricots, new crop	7½	@ 8½c
Peaches, new crop	4	@ 4¼c
Prunes, 4-size basis	2	@ 2½c
Pears	5	@ 7 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2	@ 2½c
Thompson Seedless		2 c
Seedless Sultanas		2 c
London Layers, 3 crown	85	@ 95c

NUTS.

The new almond crop is still meeting with a favorable reception by the local trade, and the appearing figures are quoted locally, though few sales have been reported in the country on so high a basis. The outlook, however, indicates continued firmness. Opening prices on new walnuts are expected shortly. The crop in most districts appears to be a little better than was at first estimated.

Almonds (new crop)—		
Nonpareils	14½	@ 15 c
I X L		14 c
Ne Plus Ultra		13½c
Drakes		11 c
Languedoc		10 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

The crop is gradually being moved off in the country, though many growers are inclined to hold back for better prices than are now obtainable. The local market is by no means active, though the trade is supplying its current requirements at about the prices quoted. Buyers generally regard the prices asked as too high.

Comb	10	@ 14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

Most of the smaller holdings have been sold, and the bulk of the crop is now in strong hands. A few sales have been reported at rather higher prices than have yet prevailed, and a little export business has been done. The market is becoming more active, with a large foreign demand.

Hops, Old, per lb.	11	@ 15c
New crop	18	@ 21c

WOOL.

So far comparatively little of the fall wool has been placed on the market, and as most of the offerings are defective buyers are paying little attention to them. There is no demand in the Eastern market for the class of wool now appearing, and local conditions are dull. A few sales of free wool have been reported at slightly higher figures, but this business is not much in evidence.

Fall Lambs—Northern, per lb.	12	@ 15 c
Southern	8	@ 11 c
Fall Clip, Southern (defective)	7½	@ 9 c

MEAT.

Most descriptions are about as before, dressed mutton and lamb being a little firmer. Hogs continue weak and quiet, but quotations show no further change. Beef is fairly firm, and sales of live cattle in the country at high prices are reported.

Beef: Steers, per lb.	6½	@ 7½c
Cows	5	@ 6½c
Heifers	5	@ 6½c
Veal	7½	@ 9 c
Mutton: Wethers	7½	@ 8½c
Ewes	6½	@ 7½c
Lambs	9½	@ 10 c
Hogs, dressed	9	@ 11½c

LIVESTOCK.

Steers: No. 1	4	@ 4¼c
No. 2		3¾c
Cows and Heifers: No. 1		3¼c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5¼c
Medium		4½c
Heavy	4	@ 4¼c
Sheep: Wethers		4¼c
Ewes		3½c
Lambs	5½	@ 5½c
Hogs: Grain fed, 100 to 150 lbs.	7	@ 7¼c
150 to 250 lbs.		7½c
250 to 325 lbs.		7 c
Common Hogs, lb.	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Sept. 7.—Shipments during the past week have been much lighter than for some time. Prices received on Bartlett pears have been very good, peaches fair, seedless and Tokay grapes good, but Malagas have shown little profit. Shipments for the season up to September 7, amount to 8447 cars, as against 6613 cars same date last year.

In the East Bartlett pears command from $2 to $3 per box; peaches from $1 to $1.50; Malaga grapes from 80c. to $1.50; Tokay grapes from $1.25 to $2.50; Thompson's seedless from 80c. to $1.30.

Fruit that has carried well as a rule has brought good prices, but cars showing decay have brought little over freight and packing charges.

WEEKLY LETTER.

The following gives number of cars of decidious fruit shipped to all points by all members of the California Fruit Distributors for the week ending Monday night, September 6, 1909.

Plums and Prunes, 21 cars: Shipment of this variety has dwindled down to three or four cars per day and even this small shipment cannot continue much longer.

Peaches, 115 cars: Shipment of Salways is not as heavy as it will be at any time during the season. As predicted the crop is very light and previous estimates of 25% of a full crop will have to be materially cut down as a large percentage of the fruit on the trees is not available for shipment owing to various defects. Another week will practically clean up this variety. A few cars of first-class yellow Clings are still obtainable.

Pears, 85 cars: As is the case with the two preceding varieties, the pear shipments continue to decrease. There will be a comparatively small number of cars to be had for future shipment.

Grapes, 406 cars: The shipment of grapes is now as heavy as it will be at any time during the season. The shipments of Black Princes are practically completed and the movement now consists almost entirely of Malagas and Tokays with the latter greatly in preponderence. Late reports from the Lodi district would indicate that previous predictions of an output not exceeding that of last year are likely to be borne out by the facts. Quality of the fruit is satisfactory; size of the berry is good and the color all that can be desired. The auction markets have been taking this variety so far at prices considerably in advance of those prevailing for the past two seasons. Should the supply be no larger than anticipated there seems to be no reason why the market should not be well maintained throughout the season.

Special Citrus Market Report.

Los Angeles, Sept. 7.—There is more interest shown in valencias by the Eastern trade right now than for any time since the season started and prices are higher, particularly in the Boston and New York auction rooms. Why this should be so with all the quantity of peaches and other decidious fruits that are now available at these points is beside the question, the interest is there for they are willing to

pay the price and this condition reflects on the situation here in California and is causing more inquiry than has been the rule for weeks and the shippers are holding their fruit at a notch higher than for some time. The average orchard run grades from the best districts can still be bought at $1.85 to $2.00 f. o. b., but fruit that is not quite up to this mark but the best produced in other sections and that has been quoted down as low as $1.50 a packed box is now being held at $1.85.

The weekly shipments keep about the same, but some shippers are inclined to think that the higher prices will bring out the fruit and that the output will increase for the present. During the past 30 shipping days there has been about 1300 cars shipped, an average of 44 cars a day. Since August 1st the shipments by weeks have been 362, 279, 273, 270 and 232 cars. It is now thought that there are something less than 1200 cars of valencias left to go, the Exchange claiming to have had 750 to 800 cars on the 1st of September, and the guess was made that the outsiders had about 400 cars. It looks like a safe bet that there was more fruit at that time in the State if it is true that the Exchange has even 750 cars. The Exchange has been shipping more freely than the independents and have not the proportion of their original percentage, which at the best is not over 60% and it seems safe to say that there is as much fruit outside of the Exchange as there is in it yet to go.

The lemon demand is weak but the indications for the future are good. The supply out here is rather small, some say not over 300 cars for September shipment. The foreign supply available for sale within 30 days is 85,000 boxes as against 55,000 boxes last year and 48,000 boxes in 1907.

Asking prices at this end run all the way from $1.75 to $4 a box, but as there are so few orders most everything going out is being "rolled" to be sold delivered or in the auctions, which has proven to be a poor outlet for lemons this year.

FROM A HILLSIDE FARM.

To the Editor: I take the liberty of giving my views on the fruit business in short, as I have had 32 years' experience in growing fruit, vegetables and stock. I have still to learn, and your paper comes in handy.

My ranching is mostly done in the hills, as I have pure water and fresh air, and hunt when I have time. Of course in fruit up here it is hard to keep out pests, as I am right in the woods. I have used all sprays known and have a nice outfit, but the best prevention is brush fires in the spring. I have even used poison oak tea for a spray, and I find it will kill most everything, and you don't have to be particular how strong you use it. There are all kinds of apples grown on this place; as many as 72 varieties, and some do finely without any irrigation or cultivation except one plowing; not even harrowing in spring, as the soil is such a mixture—from sand to anything else, mostly rock. I also have grapes and do not have to sulphur them except during heay fogs. Most damage is done by deer, foxes, coons and rats.

Pigs in the orchard are a failure unless you are just raising pigs, and not fruit.

As to Belgian hares, I have them penned up all the year; one female in a 4x4 space, with openings on two sides, covered with wire mesh. I also use a box and a hole and keep her in there while the young ones are three weeks old, and one week after put the buck in again with her for three days and keep plenty of feed in there and fresh water and salt and a few lumps of clay. I clean it out once a month, and I have no trouble.

There are a good many things I may ask you from time to time, and I am willing to give my experience if asked for in regard to fruit, but in the hills and valleys things are as different as day and night. I am 12 miles from the railroad and 1500 feet elevation. There are no other ranches near here. It is an ideal spot if it were not for the diseases, and whenever you have time to take a run up here, let me know.

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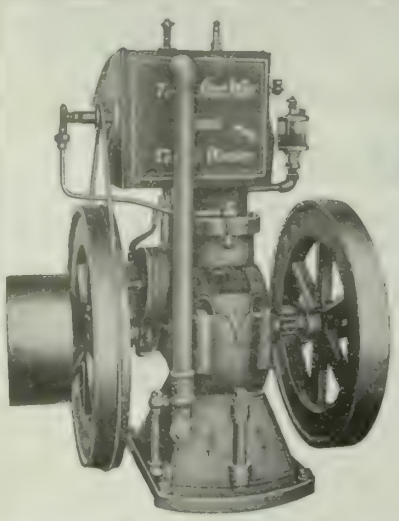
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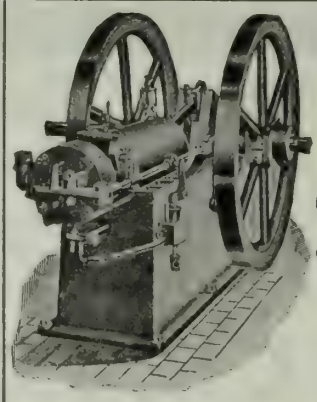
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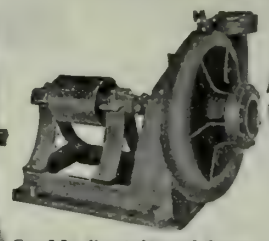


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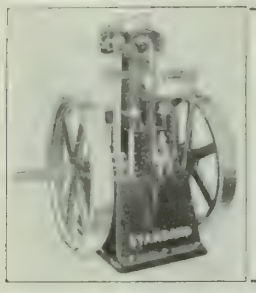
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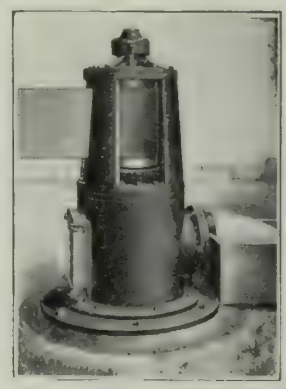
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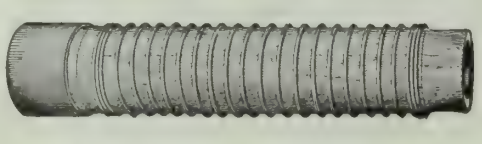
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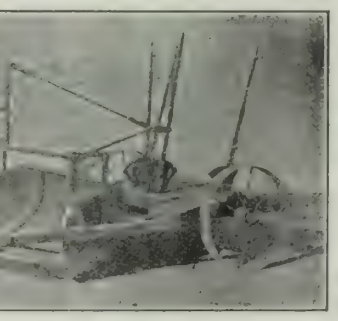


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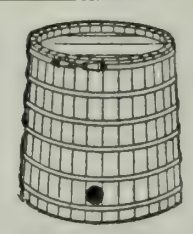
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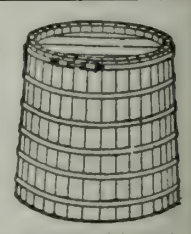
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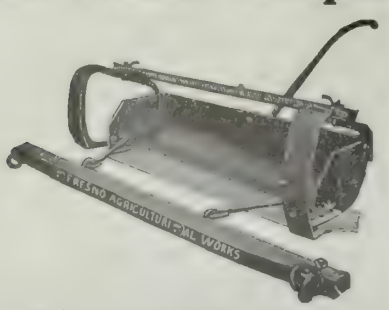
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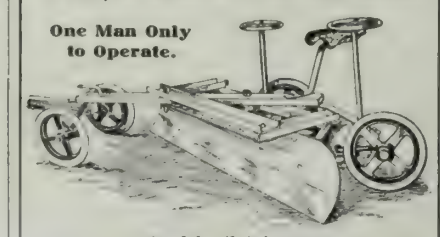
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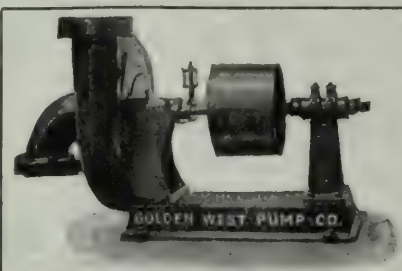
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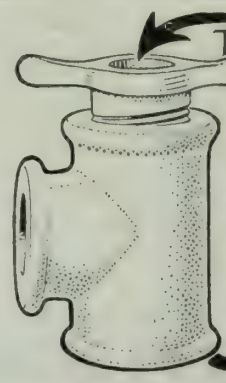
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AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 12. SAN FRANCISCO, SATURDAY, SEPTEMBER 18, 1909. Thirty-ninth Year.

A STONE BRIDGE AND A GREAT ENTERPRISE.

Napa county has many resources and enterprises and earns fame by their possession and promotion, but perhaps the most distinctive is the credit which belongs to the construction of better road structures than any other county of the State. For a number of years Napa county has been building stone bridges, and now has several which are an honor to the State and an exemplar in the line of beautiful and permanent improvements betokening civilization and financial wisdom. The beautiful picture upon this page portrays the bridge over Putah creek, which courses its higher levels in Napa county before plunging through Putah canyon and traversing Yolo county to deliver its waters in the tule region of the Sacramento river. The picture shows not only the graceful design of the bridge, but suggests also the picturesqueness of the northern and smaller valleys of Napa county. It has, however, quite another significance in view of current events in the development of the State. To readers in many parts of the State where economy of water is a virtue and a foundation of development, it would be a thing almost incredible that such a stream of water making its way through the Sacramento valley should have been allowed for the last half century to carry idle waters to a hiding place among the lowland rushes—and yet that is just what Putah creek has done and is doing at the present time. There have been for some time plans made for the use of this water on the southern plains of the west side of the Sacramento valley, but the lack of appreciation of the needs of the land and the opportunity for enterprise has restrained development thus far.



Stone Bridge Over Putah Creek in Napa County.

(*Continued on Page 179.*)

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The Week.

The weeks are running along rapidly into the autumn group and the supremacy of the hot norther, even in regions where ocean winds have ruled so long, marks the progress of the season indelibly upon the sensibilities. Soon all will be looking for the fall rains and the activities they initiate when they come in due measure. It will certainly take quite a downpour to refresh the State, for the later spring rains did not appear this year, and half a year of dry skies has been literally experienced. Springs and streams have fallen unusually low and a good wetting, after the late fruits and other produce are all in, will be deeply appreciated.

The California farmers' leisure time is now at hand. As soon as the first showers have laid the dust the roads will invite to recreation on the highways either by team or automobile, and before deep wetting and plowing there will probably be many days which should be given, as far as possible, to changing the scene, to renewal of old friendships, to the inspiring contemplation of ocean, forest and mountain, or to gaining knowledge of the progress which is being secured in improvements and developments just beyond the home horizon. Many people are forgetful of the advantage which is derived from thus expanding thought and emotion by acquaintance with the suggestive work of others. Now that there is so much being done in development of our agriculture upon a more intensive policy, and new settlements of determined workers are to be found in almost all counties, there is very much to be learned and very much to be enjoyed from circulating around a little in places where such progressive things are being done and among the people who are doing them. We are disposed, therefore, to suggest, and in fact to plead, that such leisure as can be commanded by our readers this autumn be thus employed.

Another very important thing which should be thought of, and as far as possible looked into, this fall is the progress of co-operative efforts in produce marketing. Upon another page of this issue is a very suggestive paper prepared by Mr. J. P. Dargitz of Acampo for the meeting of the American Pomological Society which is being held this week in St. Catherines, Canada. This writing was requested by the society because they had heard so much of California's achievements in this line, and Mr. Dargitz's careful statement is of as great value here as at a distance, because, though Californians have done distinctive things, there is so much still to be done that we need exhortation and demonstration. The most promising thing about the present situation is that there is so much doing, although the great methods of permanent and effective co-operation are not yet demonstrated except in the case of single products like the citrus fruits, etc. There is constant effort being put forth in the Santa Clara valley to clear the way to market for the prune, and Fresno is still working at the raisin selling problem. The present attitude toward the questions may also be considered promising because of the determination to reach something which shall be reasonably permanent and broad and not merely something in the nature of a temporary relief remedy. Success in growers' marketing involves, in many cases at least, something of a commercial revolution in methods and policies, and too great speed in revolution is not productive of lasting rearrangement upon a better basis. Revolution and reconstruction should be accomplished together, even though the process be less spectacular. We have had too much of the spectacular which ended, as it began, in a show. This year, as there are no political campaigns to distract the attention, everyone who enjoys broad thinking should give some attention to these economic questions of agriculture, and a few days in San Jose and in Fresno will give the enquiring mind both recreation and instruction. Both these vigorous young cities are inspiring places to visit.

It is, of course, serious business for the head, but it is a good thing for the heart to go with the head, and every such movement should appeal to the emotions to a certain extent if it is to take a firm hold upon the people. For this reason we are pleased with the report which comes from Lodi that the opening of the new co-operative winery was one of the events of the season, and a large crowd assembled to witness the beginning of the grape crushing. The machinery, after being set in motion, was allowed to run a few minutes before Mrs. G. Kettleman turned a box of grapes into the hopper, while the large assemblage gave a round of cheers for the independent concern, which will pay double the price offered by the California Wine Association. The officers of the independent plant expect to crush at least 10,000 tons of grapes this season. We trust that the community will hold to its enthusiasm and that the co-operative concern will be able to command it. Such undertakings should, however, be entered into for better or for worse, with the firm determination to combine all strength and wisdom to make the worse better.

One item of strength in co-operation is spirit, of course, and another item is financial freedom and independence. Fortunately Lodi as a community may be the better fitted to carry out its co-operation with wine grapes because the other hook of its anchor is holding so strongly in the profit from table grapes. A joyful report is that during the present month Lodi's receipts for table grapes at the present rate of shipment is more than $1,000,000 monthly during the main shipping season. Last week 36 carloads were leaving every 24 hours for the Eastern markets, and not, even at the poorest prices, selling for less than $1000 a car. Last season the greatest shipment for a single day was 33 carloads, but since then some new vineyards have come into bearing, and others are producing heavier crops. It is very gratifying to find something joyful in the grape which is not the product of fermentation.

It is a good thing, too, that California products move in such quantities during the summer and early autumn a little ahead of the great harvest rush in the interior districts. Of course our most valuable products move in specially prepared cars and are not strictly in competition with other products, and yet we have in the past had serious losses by shortage of common cars. Everything that can go should therefore be hurried away. The Chronicle makes the box car an exponent of prosperity in this way: "The number of idle cars is diminishing rapidly, and it is noted that the diminution began several weeks earlier this year than last. The inference is that before the movement of crops is in full swing everything on wheels at the command of the transportation companies will be put to good use, as in the days before the interruption of prosperity a couple of years ago." And so the panic is really over; even the box cars chant it as they roll across the continent.

Speaking of cars, the thought turns at once to the distinguished career and heroic death of Mr. E. H. Harriman, whose financial achievements, enlisted in Western development, proclaim him among the great nation builders. It was very fitting that special services in honor of his memory should be held in San Francisco, and we are glad to know that they were well attended and in the attitude of sincere respect and deep regret at his departure from his distinguished field of activity. For Mr. Harriman certainly did great things for California in the extension and improvement of the great transportation enterprise which he conducted. It has been the common remark that the attitude of the Southern Pacific toward the producers and producing interests of the State has been for years distinctly different from its old policy and behavior. It has seemed to rejoice in the prosperity of the State's industries, rather than envious of them. California has full reason to honor the memory of Mr. Harriman.

The Senate of the United States arises to note the progress of irrigated agriculture. It is certainly another token of the arising of the West. Last week the Senate committee on investigation into irrigation held a session in Cheyenne and decided to make an observation tour, visiting all the irrigation projects in the Western States. On October 31 the Senators will assemble in Denver and begin its travels. On November 1 the Colorado projects will be inspected. Following this the itinerary of the committee will be as follows: Salt Lake, November 3; Nevada, November 4 and 5; California and Sacramento valley projects, November 7 and 8; Klamath, Ore., November 9; San Francisco, November 10; Los Angeles, November 11; Imperial valley, Cal., November 12; Yuma, November 13; Roosevelt Dam project, Ariz., November 15; El Paso, November 16; Santa Fe, N. M., November 18. No doubt our readers in these regions will be pleased to make suitable entries in their note books, for a bunch of United States Senators is not seen every day in the West. We generally have to take them singly or in pairs.

It is a good thing to be officially assured that the soils of the United States are improving, for we are generally told that they are going to the dogs by aeroplane. The assurance is that the soils of the United States are not wearing out and crop yields rather are increasing than decreasing. These facts are demonstrated in a bulletin to be issued soon by the bureau of soils of the Agricultural Department. The bulletin will deal exhaustively with crops from 1867 to 1906. No doubt the main contention in this announcement will be made out. Now the plain suggestion to every man who finds his farm does not yield as it used to is to get busy with water, fertilizers, better tillage and all other recourses which are giving other men land as rich as their grandfathers had. It is really possible that in the next generation the man who claims that his soil is worn out may be laughed at as being the party to blame for it. Perhaps this promised publication may work toward that end.

Queries and Replies.

Apples in Southern California.

To the Editor: I am perplexed with the diversity of opinions from alleged experts. At the present I am deep in your work on "California Fruits." In the orchards, planted exclusively to apples, the setting is very heavy, whereas those planted among the walnuts it is the contrary.

Your general article on thinning deciduous fruits in your "California Fruits" indicates its wisdom. Can you give me some direct advice pertaining to apples? Particularly when the branches show clusters from four to twenty. Will you also advise me regarding plowing close to the trees, and, if so, how deep? Also advise me as to what depth the roots of apple trees go, and if strata of white sand will affect the trees.—Beginner, Los Angeles.

We apprehend the association of varieties in your land which is fully planted to apples results in better bearing than where the trees are separated and isolated by the intervening walnuts. Otherwise we see no reason why the trees should behave differently, if they are equally thrifty. It is ordinary practice to thin apple clusters to a single fruit unless the general set of fruit upon the tree should be scant; in that case one would not thin quite as closely. In the apple chapter of "California Fruits" you will find more on this subject. Working close to trees is only desirable for the purpose of preventing the ground from becoming compact, pinching the tree and permitting rapid evaporation; consequently the culture close up should be shallow—only deep enough to serve the purposes stated, perhaps about four inches. The depth of apple roots will depend upon the soil. In a good, free soil they will run quite deeply, but in soils in which there are strata of coarse sand, or gravel, or hardpan, they will not penetrate these strata to any extent. Whether they will go through white sand will depend upon two things: the thickness of the stratum and whether there was moisture present in it. Where such strata occur it is usually necessary to employ more surface irrigation to maintain the thrift of the plant.

Alfalfa in California.

To the Editor: Any information you can give me regarding alfalfa in the State of California will be very much appreciated. I would like to know the number of cuttings that can be made each year, the number of tons per acre at each cutting and what kind of market can be had for it. —L. R. T., Kansas City.

The number of cuttings in the year depend on the land, the amount of moisture available, and upon the length of the growing season in different localities; say from one to three cuttings on moist land which is not irrigated; from four to five, even to ten, in a year under most favorable conditions of soil, climate and water supply. The amount per cutting depends upon the stand and thrift of plants, and that is various; there ought to be five tons of hay per year with irrigation and as much more as you can get.

For a number of years we used to count alfalfa worth $5 per ton in the field. During the last few years the price is so advanced that $7.50 would be a low price in the field in districts where most is grown, and in more remote parts of the State several dollars higher; in fact, much alfalfa is being sold this year from $12 to $15, and even $18, per ton. These latter figures are, however, at points somewhat remote from the place of large production. Alfalfa is one of our most trustworthy and profitable products.

Pea Mildew and Tomato Drop.

To the Editor: Each year I lose considerable garden peas on account of mildew. Kindly tell me the cause of mildew; how to prevent it, and how to get rid of it, once it appears. I would also like to know why I cannot grow tomatoes. I get a good growth of vines, but as soon as the flower is through blooming, it breaks off. I have tried different varieties of tomatoes, planted them in different soils and location, but without success.—Gardener, Monterey.

Fortunately pea mildew is not very prevalent in California, and plants started early in the rainy season do, for the most part, pull through with full vigor during conditions which either give the plant resistance or do not favor the growth of the fungus parasite which the mildew really is. The fact is most troublesome on plants which have a late start and come into heat and drouth which they do not like, and which gives the parasite its chance also. The fungus is, however, an external grower, and is quite readily checked, either with sulphur or with the Bordeaux mixture applied as soon as the first sign of the trouble appears. At the same time the plant should be given good cultivation and irrigation if needed, because there is no hope of getting good pea plants under hardship.

The failure of tomatoes to set is clearly due to two opposite conditions. First, over-stimulation of plant growth, which results in vegetative energy which is apt to prevent any plant from fruiting. This can sometimes be checked and more pressure turned to development of the fruit by pinching the growing tips of each shoot after the blossoms have formed. There is also a failure of setting due to lack of vigor in the plant, but that is generally shown by other signs which are easily recognizable. Your trouble is probably the first mentioned.

Root Knots and High Water.

To the Editor: I have an apricot orchard that has "root knot" on a lot of the trees. I want to know if I take the affected trees out, and replace them with peach trees, will they become diseased from the old roots? I would have to plant them in the same holes in order to keep the rows straight. I would also like to know if peach trees will do on sub-irrigated land, where the water rises within three or four feet of the surface for a part of the season. If peach trees won't die on that kind of land? Is there any kind of fruit tree that will grow under those conditions?—A Subscriber, Denair.

If you are sure of that depth of free soil and the water does not stand at the point you mention too long, and the water does not bring up alkali, you can count upon thrifty peach trees for some time. If the water rises higher or becomes stagnant and excludes air, or carries alkali, your trees will fail more or less quickly, as these unfavorable sub-soil conditions are realized more or less. If you dig out the knotted roots, throwing out considerable soil, and you refill with fresh ground from between the rows, you can replant in the same holes with the expectation that most of the new trees will have clean roots if they start that way. Plums or prunes on myrobolan roots or pears will, however, do more under adverse soil conditions than peach roots will.

Retrograding Alfalfa.

To the ditor: I have an alfalfa field that has been in six years and this year only produced from one-quarter to one-third of a crop at a cutting. I have sent for some raw bone phosphate and am thinking of mixing it with cow manure to put on the field. How much should I mix with manure per ton and how many tons of the manure (green) should I put to the acre? Have also sent for some lime. How late this winter will it do any good to put the lime on? Would you put on any potash? Should the soil be analyzed to answer these questions?—Farmer, San Diego county.

Are you sure that you use water enough to get a good full growth of alfalfa? If not, no amount of fertilization will accomplish it. If you are sure that you are using water enough then you may add as much stable manure as you like, applying it to the top of the ground at the beginning of the rainy season. It may help you also to apply lime and the other fertilizing materials which you mention. You can use lime to the extent of a thousand pounds to the acre and phosphate 500 pounds to the acre and potash 200 pounds to the acre without danger of excess. These materials can all be applied during the rainy season without danger of loss. We should try different parts of the piece with different applications, and apply to another a mixture of all three, so that you can see which is really the best for your conditions. It is not necessary to analyze the soil; the plant will tell you what it needs if you give it water enough to grow with.

Gypsum for Alfalfa Land.

To the Editor: I have some land five miles east of Stockton, part adobe and part red loam, which has hardpan at four to six feet depth. I wish to put in alfalfa. Will gypsum (or land plaster) help the land, and how is it best to spread it? How many pounds to the acre should be used and should it all be put on at once, or in two or more applications?—Farmer, Stockton.

Gypsum will make your land more friable and therefore better suited to alfalfa. You can use a ton to the acre; half of it just as you begin plowing, when the ground is in the right condition, this fall, and the other half later, when you are doing the surface work for seeding, and there will still be spring showers to set the gypsum to work. This is for the effect on the soil. Applications for the stimulation of the plant afterward are only about one-tenth as much. Application can be made as evenly as possible with a small shovel from a wagon, with a light wind to aid the spreading. In using the smaller amounts on growing plants better mechanical distributors are used, as described in the PACIFIC RURAL PRESS of April 24, 1909.

Apple Refuse for Stock.

To the Editor: Are apples or apple peelings good for milk cows? I have heard the feeding of these or any fruit to cows will decrease the flow of milk. Is that true? Should laying hens be fed apples or any acid fruit?—Subscriber, Sonoma.

Acid fruits of all kinds are of rather less value as stock feed than one would think, and if fed in excess to stock, including chickens in confinement, are apt to do more harm than good. Still a moderate quantity with enough of other foods may yield good results. For cows, apple pomace from the cider mill may be worth about as much as corn silage and not to exceed 20 lbs. per day with dry feed can be assimilated satisfactorily.

A STONE BRIDGE AND A GREAT ENTERPRISE.

(Continued From Page 176.)

It is now publicly announced that Mr. C. M. Wooster and others associated with him have made filings appropriating the water for irrigation and have secured land for the construction of a dam at Hell Gate, which is in Putah canyon about nine miles west of Winters, and it is stated that it is part of the plan to make in Coyote valley, Napa county, a reservoir as a part of this system. Mr. C. M. Wooster, who appears as the leader in this enterprise, has scored many times in development enterprises since 1874, when, according to his own account, he worked at the plow and header wagon in Solano county, and later helped to plant the first orchard at Winters, for George Briggs. He has had in mind the utilization of the waters of Putah creek for irrigation for some time, and several months ago made an inspection of the lands in Solano and Yolo within the contour of Putah creek, also inspected the dam site at Hell Gate, and, finding conditions favorable as to the physical condition, had water rights filed at Hell Gate, where there is a natural site for a dam which will impound water sufficient to amply irrigate 50,000 acres. Mr. Wooster says that he and his associates will make a canvass of the land, and if they can secure 40,000 acres in water rights or options, will, within 12 months after securing them, construct the first dam and complete an up-to-date system of irrigation.

Horticulture.

NOTES ON CALIFORNIA FRUIT PROGRESS.

Report of Prof. E. J. Wickson, Chairman of California State Fruit Committee of the American Pomological Society for the meeting thereof held in St. Catherines, Ontario, September 14 and 15, 1909.

In reporting a few facts which seem to me significant in the development of the fruit industries of California, I follow the order of your "Instructions to Chairmen of State Fruit Committees," as follows:

1. Improvements in methods of gathering, grading, handling and shipping fruit.

2. Associations or organizations of fruit growers and shippers for the purpose of marketing fruit or purchasing supplies.

3. Opening of new markets or other changes in fruit trade.

4. Varieties worthy of special mention, either new ones which are proving valuable or old ones which are being superseded by something better. State the particular faults or the points of excellence which are determining the course of the variety.

5. Name your leading commercial varieties, indicating the regions where chiefly cultivated.

6. Noteworthy information concerning injurious insects or plant diseases.

7. Progress and present status of orchard and nursery inspection.

8. Development of cold storage and transportation of fruit under refrigeration.

1. The most notable improvements in handling fruits for long distance shipment are those definitely described or suggested by the results of investigations of Mr. G. Harold Powell and his associates of the Bureau of Plant Industry of the United States Department of Agriculture. Full data of this work in its earlier stages are given in Bulletin 123, of the Bureau on "The Decay of Oranges While in Transit from California." Mr. Powell has also given attention to local cold storage of all kinds of fruits and to the handling of deciduous fruits for shipment, especially the picking, packing, and shipment of table grapes. In all these activities several requirements have been demonstrated to be essential to success, viz: 1. Gathering and packing the fruit without mechanical injury by hand, cutting tools or packing house machinery. 2. The quick removal of heat from fruit and car before starting on the long haul and not trusting to icing in transit to accomplish this, as formerly. To meet the first requirement sharp points of clippers have been rounded, finger nails have been pared or picking gloves furnished, springs have been put under trucks, packing house machinery has been brought as nearly to a level as possible to prevent high drops and regular inspection of fruit undertaken in orchard and packing house to ensure freedom from even minute cuts or bruises. To meet the second requirement, pre-cooling establishments are already provided at several shipping points so that cars and contents are brought to a low temperature before moving. Although Mr. Powell's conclusions were foreknown by a few of our most careful fruit handlers, the recognition of their importance and the resulting modification of methods of handling and improved appliances therefor, are clearly due to his invaluable efforts.

2. Progress is continually being made in organization to overcome difficulties in large scale fruit shipments. The California Fruit Distributors, an organization of growers, growers' associations and dealers, now controls distribution so that large excess of shipments to any point is prevented and the result has been an increased average selling price. The California Fruit Growers' Exchange is a central organization comprised of about 50 local exchanges whose membership is composed of citrus fruit growers in as many districts. The manager of this exchange regulates shipments, determines what amount each of the local exchanges shall ship at any time and holds sales of the fruit by its agents at all leading Eastern points. The exchange now handles about 60% of the citrus fruit, the balance being handled by independent growers and by dealers. The result has been a constant effort for wider and more intelligent distribution of the fruit and better sales. A tribute to the success of the organization is found in the visit to California of a representative body of Florida orange growers last winter and the undertaking of organization in Florida under the management of a man who held an important position with the California exchange. No attempt is made to fix prices except in filling direct orders. In the deciduous fruit trade the California Fruit Exchange, a growers' organization, is each year handling a larger amount, but the weight of the trade is conducted by individuals and companies, subject only to the destination work of the Fruit Distributors. Organizations of large dried fruit specialties like the prune and the raisin, operate for a time, but no enduring organization has yet been achieved. The almond growers have a spasmodic way of getting together, but the English walnut growers in southern California have a price-fixing organization which has managed to hold together and to accomplish much good in spite of occasional mistakes in fixing prices too high.

3. A measure of the development of distant markets for California fruits and fruit products can be had from the records of shipment beyond State lines during the last decade, viz:

	1898, Tons.	1908, Tons.
Fresh deciduous fruits	69,732	161,224
Dried deciduous fruits	76,667	133,846
Oranges and lemons	180,658	399,094
Nuts	5,815	10,887
Raisins	47,796	29,601
Canned fruits	52,219	85,135
Totals	432,887	819,787

The raisin product has not experienced the reduction indicated: in 1908 some of the raisin shipments are included in the "dried fruit" entry and the figures are not accurate. In the intervening years between 1898 and 1908 some of the entries were larger and others less. The contrasting years fairly show the increase in a decade which is a little more than 87%.

4. During 1907 and 1908 I had the pleasure of thoroughly revising my records of the standing of fruit varieties in the Pacific States, and furnished the results to Professor W. H. Ragan for use in preparing Bulletin 151 of the Bureau of Plant Industry, "Fruits Recommended by the American Pomological Society for Cultivation in the Various Sections of the United States and Canada." This publication by Professor Ragan, together with his monumental monographs on the nomenclature of the apple and the pear, entitle him to the special thanks of the society whose name he honors by his devoted pomological work.

5. In my work the commercial point of view was continually occupied as we have very small amateur interests and very few fruits are distinctively grown for home use. New varieties have to meet commercial tests and are hardly spoken of with respect until they do. Professor Ragan's lists, so far as my districts are included in them, are those varieties found to be commercially best in the regions where chiefly cultivated.

6. The fumigation treatment with hydrocyanic acid gas has come to be practically the only approved method with scale insects of all kinds on citrus trees. The latest information concerning its use in California is to be found in Bulletin 79, of the Bureau of Entomology, entitled, "Fumigation Investigations in California," by R. S. Woglum, just published. For scale insects on deciduous trees the factory-made lime-sulphur preparations have largely displaced the home-boiled product. For the codlin moth and leaf-eating insects generally lead arsenate has largely displaced Paris green. The pear thrips seems to be this year our most baffling insect pest, especially upon prunes, though other fruits are also injured. This insect is being specially studied in California by experts of the United States Department of Agriculture, while a new introduction, the Argentine ant, has occupied the chief attention of the entomologists of the California Experiment Station. Fortunately, this insect does not promise to be as great a fruit pest as its characterization in Louisiana led us to apprehend. Of plant diseases the pear blight, both upon pears and apples, is our most formidable menace to the trees it attacks. During the last two years it has shown less virulence and more amenability to cutting-out methods and our Bartlett pear industry promises to endure longer than was indicated by experts when the blight was under full headway four years ago. This year's Eastern shipments were large and profitable.

7. The legislature of 1909 made important modifications in the county horticultural law, providing that county commissioners could only be selected from those pronounced eligible and qualified by a State Board of Examiners. Operations are just beginning under this system, which is expected to increase the efficiency of the service by exclusion of those who can show only political qualifications. The horticultural service in some counties is now as faithful and expert as could be desired. It is hoped that the new law may secure all counties which desire to provide for it as good service as the few now enjoy.

8. The great advance in transportation under refrigeration through pre-cooling practices has been noted under topic No. 1, above. Cold storage in centers of population and at central shipping points is each year commanding more attention and constant effort is made to reduce difficulties. Mr. Powell and his staff are giving due attention to this matter. Experiments are in progress by large handlers of oranges in the hope of always having supplies of well matured fruit to escape from the pressure of furnishing partly ripened fruit plucked too soon to meet the demand for extra early shipments. There is much promise in this line of effort.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR A. WRIGHT, of Los Angeles.

I took the opportunity to visit one of the oldest orange groves in the South this week, that of A. B. Chapman, of El Nodel, in the San Gabriel valley. It seems to run in the name of Chapman to be famous for orange culture, and the Mission Bells seedling from this ranch are justly famous all over the country. Mr. Chapman is now an old man, 80 years he claims, though he does not look it, and he still takes an active interest in and does much of the overseeing on his 400 acre ranch, not all in oranges by the way, part of it being devoted to a dairy, from which he gets his fertilizer. Mr. Chapman thinks that to run his irrigation water through the barnyard and thus give liquid fertilizer to the trees, is the finest kind of treatment, and it certainly looks as though it should be.

Mr. Chapman tells an interesting story of the introduction of the valencia orange tree to this country, claiming to have planted and raised the first tree grown here, and that all of the valencia stock in this country came from this original tree. He cannot exactly fix the date, but says that it was about 1873 that he sent to Sir Thomas Rivers, a noted English horticulturist, for a number of different varieties of citrus trees, among them some Australian navels, and this one tree came with the lot and was probably sent as a navel by mistake. In fact Mr. Chapman thought it was a navel and did not know different until it began to bear and a Spaniard identified it as an orange that was raised extensively in and around Valencia, Spain, therefore it was voted to call it the valencia. Before this tree came into bearing, and became identified, Mr. Chapman sold a number of buds to his neighbors, one in particular that he mentioned being John Dobbins, of San Gabriel, since deceased, and who was quite indignant when it afterwards proved that he did not get what he expected, but who was greatly appeased when, upon shipping some of the fruit it brought more money in the New York market than did any other kind of an orange. Judge Ross, one of our Supreme Court judges, who owns an extensive orchard at Glendale, was another who bought some of the buds and who was dissatisfied with the outcome. Mr. Champan says, "if we had only known at that time just what value the valencia had, we could have all made our fortunes. It remained for another Champan, Charles C., of Fullerton, to realize the worth of the valencia and Mr. A. B. Chapman states that his Fullerton namesake was the first man to ship this variety of the orange in car lots, getting his original buds from the mother tree.

Mr. Chapman also states that a Florida man, a Mr. Hart, also got some of this stock from Sir Thomas Rivers at a later date, but instead of call-

ing it the valencia, it is today known as Hart's Tardiff, being exactly the same as our California valencia.

Mr. Chapman also has on his place a peculiar looking fruit which he calls the "Oonshiu." It is a species of tangerine from Japan, but is larger and higher colored. The fruit is rather warty on the outside, but is said to be of fine flavor and to color earlier than any other orange. Its rich color sells it even before it has become fully ripe. [This variety is, of course, well-known. Its American name is Satsuma.—Editor].

He also imported some Tahiti limes, and, finding the fruit worthless, he experimented in budding other varieties to their roots, and now claims that they are the very finest in existence for that purpose, stating that trees raised from their roots bear more fruit, better fruit and that it matures earlier than on any other root. He does make one reservation in making this statement, saying that he thinks, possibly, the Chinese lemon root is equally as good.

To be the daddy of the wonderful valencia is a distinction that one might well be proud of, but Mr. Chapman says that he never cared to boast of the fact, and that so far as he knew, the matter had never appeared in print. Up to this year valencia oranges have sold for wonderful prices, and the record they have made in the last ten years has attracted the attention of all our orange growers to such an extent that thousands of acres of this variety have been set out, with the result that this year we will probably ship between 6000 and 7000 cars from southern California alone, and there are men who say that in two years more the output will amount to 10,000 carloads.

SUPERIORITY OF THE CALIFORNIA LEMON.

Mr. E. Andrews, Jr., whom the New York Fruit Trade Journal characterizes as "the well-known fruit broker," says: "At present, California lemons have practically a monopoly of all the markets west of Pittsburg. While there were upward of 100,000 more boxes of lemons imported this year than a corresponding period in 1908, the consumptive demand for the foreigners was mostly confined to the seaboard cities of the south and the Eastern markets, and the reason is not far to seek. Sicily lemons of late have shown quality of the very poorest order; they have shown up decayed and handicapped by various serious drawbacks in direct contrast to the California product which is of superior color to the Sicily fruit and of better pack and more attractive appearance, and is giving consumers better satisfaction. Hence the inroads it is making upon the Sicily article."

Fruit Marketing.

CO-OPERATION IN MARKETING FRUIT PRODUCTS.

By Mr. J. P. Dargitz of Acampo at the meeting of the American Pomological Society at St. Catherines, Ontario, Sept. 14-15, 1909.

The subject of marketing the fruit crops is of immense importance to the fruit grower. The marketing of any kind of a crop is of importance but the marketing of perishable crops is of such supreme importance that it calls for special treatment. Given the best possible fruit that can be produced and unless we can get it to market in the proper shape and time and place, and under the proper selling conditions we may make a dismal failure from a commercial standpoint.

The production of the best possible fruit is a work of art and the man who succeeds in this direction has his compensation when he sees the product of his thought and toil. He works with Nature. The commercial grower on the other hand begins the propagating of this fine fruit for the market and even if he can succeed in keeping up the quality in a vast output he then has to turn the produce of his thought and labor into dollars and cents in order to get his compensation. He works with men and it is a cold business proposition. What of the necessity of co-operation in his work? To answer this question we must take a look at existing conditions.

Who shall fix the price? Shall the buyer or the seller fix the price on the product of the seller's labor? When a manufacturer makes a piece of machinery he carefully computes the cost and adds to that enough to cover all incidental expenses plus a fair profit for the use of the capital and thought involved and upon this computation fixes the selling price of his product. The merchant works in a similar way. The laboring man who is reasonable works in a similar way and we have the labor union as a result. If the principle upon which they act is a good one why will it not fit in the marketing of fruits? We believe it will and that the time is very near when the fruit-grower will wake up and take his stand along with his neighbors for fair play in the markets of the world.

As at present handled the marketing of fruit products is carried on in a manner exactly the reverse of all other business. The producer has nothing whatever to do in setting the price which he should receive for his product. On the contrary the commercial buyer or packer or agent looks the field over and tries to figure out about what the crop is and what the market will stand and then he rushes around and tries to buy from the producer at just as much below what he thinks the market will be as he possibly can in order that his competitor cannot buy for less and so undersell him in the open market. The success of this kind of work depends entirely upon this agent being able to buy a little lower than his competitor and tends always to depress prices. If the fruit is to be sent to a large market on consignment the commission man depends for his success upon catering to the consumer or at least making friends with him. This again tends to depress prices and work to the disadvantage of the producer. The only solution to the difficulty is the idea of fruit growers co-operating in the marketing of their fruits.

There are a great many advantages to be gained in the matter of co-operation which might be discussed under the head of control of packing and distribution.

Packing.—There are abundant instances of the great benefit to growers or producers of fruit in getting a fancy, well-graded and uniform pack of fruit. As nearly a standard package as possible should be used. The trade come to know a standard package and govern their bidding accordingly and will view with doubt any departure from even the shape of the package. It should not be too large and should be attractive and convenient to handle. Only the choicest fruit should be sent to market if you care anything about your brand. Let the other fellow send the poor fruit and take the low prices. As an illustration, on July 25, the writer had a car of sugar prunes sell in the Philadelphia auction market at an average of $1.56 per crate, while another car from the same large orchard shipped by another party under a different brand and pack sold for an average of $1.20 per crate. The one meant a net price for the fruit on the tree of $45.00 per ton, and the other meant $25.00 per ton. One week later in the same market the same thing was repeated, the writer's car averaging $1.21 per crate and the other party 79 cents. The one meant a net price for the fruit on the tree of $20.00 per ton while the other would have been ten dollars per ton better off to have left his fruit on the trees. It is becoming pretty widely known what organization and co-operation have done in the Hood River Valley, in Oregon, for the apple growers. I am sure that they would not take kindly to any proposition looking to the breaking up of their organization. It has doubled and trebled their profits or has brought them good profits where they had losses before and has made their orchards famous the world over. Another matter to be attended to is the matter of proper distribution. Without this there will be certain markets glutted and unsatisfactory prices while other markets will be bare and crying for fruit at high prices. But how can this be avoided?

Distribution.—Proper distribution is the answer. But how can one grower or one small community select a market and keep other growers or producers or shippers out of it? Of course only approximate results can be secured until enough growers can be aligned to put practically the entire distribution of our fruit products under one control. This takes time and hard work but nothing ever yet attained has come about without time and hard work. If it has it is not worth much. Usually the growers will look askance at any proposition which is a departure from established methods. It is morally certain that the commercial agent will oppose it and yet I am confident that the new method will prove to be the best thing for the real honest agent. Any new thing should be looked into and carefully examined and tested before discarding. Everything was new once and we would be in a sad plight, indeed, if we would not try anything new because it was new. In this State we have an organization known as the California Fruit Distributors which has accomplished a great deal for the fruit industry of the State by undertaking the proper distribution of fruits to the different markets. It has been in operation several years and has done much to change debit balances on fruit shipped under its care to credit balances for the growers. We believe, however, that as its stock is practically all held by commercial agents instead of growers, it is not yet the ideal institution for the growers. We believe most thoroughly that the control should be vested in bona fide growers to put the business of marketing fruit products on a rational and fair basis with other lines of business and to this end we will ever work.

Lessons from Citrus Fruit Handling.—As an example of what co-operation in marketing fruit products will do I would like to cite the California Fruit Growers' Exchange, of Los Angeles, which handles at present fully 65% of all the citrus output of this State. From a condition of exceeding precariousness they have brought the citrus growing business to a remarkable state of success. Competitive selling has been changed to competitive buying and while a few years ago it looked like an appalling thing to try to market 2000 cars of citrus fruit annually, it is now possible to market more than 30,000 cars of citrus fruit and 10,000 cars of deciduous fruit in one season, and with a good reasonable profit to the grower. That exchange has the finest selling machinery, I believe, in the world today. They gather their own market reports and crop conditions from their own salaried agents who can have no cause for anything but a fair report to give. They have so perfected the system of packing that their name on a box of oranges or lemons means money to the grower. Buyers are anxious to get their fruit and know what it will be before they open a box.

Progress with Deciduous Fruits.—The writer has the honor to be secretary of the California Fruit Exchange, which is aiming to handle a controlling amount of the deciduous fruit shipped fresh out of this State. We have a contract with the citrus organization which gives us the services of their agents in gathering market and crop conditions and selling our fruit, so that we are in a position to supply our growers with daily sales bulletins and crop reports from all over the United States and foreign countries competing. The value of this can hardly be estimated in dollars and cents. It means an educating of the growers to feel that they are a part of a great organization for supplying the world's needs in the fresh fruit line. Our exchange is purely a marketing organization and no one but a bona fide grower can become a member. Local associations pack and prepare the fruit for market and load it into the cars and then it is turned over to the exchange to distribute. The grower gives himself no concern further about it until it is sold and he gets the money returned to him. He is not left in ignorance all this time, about 20 to 25 days, but he receives daily telegraphic bulletins showing the sales of his fruit in the various markets and also the sales of his neighbors' fruit. This develops a kindly spirit of rivalry for each grower will want to be the one who gets the top price in each car sold, and if his neighbor gets a better price then more care is used in growing, picking and packing, and this leads to much better fruit and better prices. The buyers soon find out when we go into a new market that the trade mark of California Fruit Exchange on deciduous fruit packages means something as well as the brand California Fruit Growers' Exchange on a box of oranges or lemons. It will mean money to those who grow and prepare fruits for market if they will form similar organizations in every State. It will not only aid the growers in each State, but when thus thoroughly organized, these various State exchanges can co-operate with each other in the eradication of fruit pests, developing of new features in the business and perfect distribution of our fruit products so that every family in the world can have our best fruit in

plenty and at a reasonable price, and thus increase our business by leaps and bounds.

The greatest advancement among fruit growers is to be found only in co-operation in the marketing of their products, and I verily believe that no good thing can be secured for them better or more quickly in any other way than through co-operation.

AGRICULTURAL REVIEW.

Northern States Grain Crop.

Sixty-five million bushels of wheat, 35,000,000 bushels of oats and 15,000,000 bushels of barley is the extent of the grain crop predicted for Washigton, Idaho and Oregon this season by millers and bankers who have made a close study of the situation in the three States. The wheat acreage in Washington is 2,112,000 acres this year, as against 1,728,748 in 1908, when 23,500,000 bushels were harvested. The yield this year is estimated at from 39,000,000 to 40,000,000 bushels, as against 38,000,000 bushels in 1907. Oregon has 862,000 acres in wheat this year, as against 818,585 in 1908, and it is expected the crop will be not less than 16,500,000 bushels.

If conditions had been favorable throughout the State the yield would be 21,000,000 bushels. Idaho will cut between 9,500,000 and 10,000,000 bushels this year, as compared with less than 9,000,000 bushels in 198. Its acreage is 474,000, as against 414,412 a year ago.

Farmers are holding their oats for $25 a ton, which means from $29 to $29.50 at tidewater.

Grapes as Hog Food.

Owing to the low price being paid for sweet wine grapes, many growers are discussing the value of dried grapes as hog feed. A news item from Lodi states that the method of drying grapes and feeding them to different kinds of stock has been thoroughly tested in that vicinity by several of the vineyardists. Last year Henry Mettler dried his grapes by simply spreading them upon the ground. They were then hauled to the granery and stored the same as grain. His experiment of feeding them to hogs proved that they were not only more profitable than feeding grain, but that the hogs took on fat much more rapidly than they would had they been fed a like amount of grain.

Mettler estimates that at least $10 a ton can be realized in this manner, and bases his estimate on the fact that at the present time barley is worth $31 a ton. John Emde, another prominent vineyardist, claims he has tried the dried grapes for hogs and says they also make an excellent cow and horse feed.

Horticultural Notes.

Grape Day at Escondido, last Wednesday, was a great success. Over 12,000 visitors from southern California participated in the occasion.

W. T. Clarke, who owns a five acre apple orchard near Wenatchee, Wash., with no improvements, refused an offer of $4000 per acre for his orchard recently.

A fruit evaporator, with a capacity of 10 tons daily, is being built at Surprise valley, Modoc county, to handle all the fruit that is not shipped to market.

The walnut packing house at Santa Ana will begin packing nuts about the 20th of September. The crop is reported to be about an average, being from 60 to 70 per cent of a full crop.

The F. O. B. orders for Tokay grapes at Lodi have been cut to 55 cents per crate; Muscats, 50 cents, and Black Prince, 40 cents. Prices are considered fair when the large amount shipped is considered.

According to the Crop Reporting Board of the United States, the apple crop of the country this year will be lighter than usual. The 10 year average is given at 55.5 per cent, while this year it is estimated at 44.5 of a possible 100 per cent.

The apple crop of Missouri and Illinois is reported to be a very light one. Johnathan apples in Grand Junction, Colorado, will be a small yield, later varieties will make a full crop; 1000 cars are predicted from that section.

The orange crop of Tulare county will be much better than thought for earlier in the season. If the season proves favorable from now on, the crop will go fully 70 per cent, and the first oranges will be shipped the last week in October.

Most of the almond crop of the Copay valley, Yolo county, has been sold at prices from 10½ to 12¾ cents per pound. The crop in that district was much heavier this season than last, amounting to nearly 150 tons as against 80 tons last year.

Fruit, melon and vegetable growers of the Coachella valley, in southern California, are dissatisfied with the marketing facilities of the past season and are endeavoring to form a co-operative association to be in readiness to handle next season's crops.

Picking and packing the apple crop of the Yucaipa valley, in San Bernardino county, has commenced. The crop is reported good and will amount to 40 cars, all of which have been bought by a Los Angeles firm which contracted to pay $40,000 for the output.

The apple shipping season is now on in full blast at Watsonville, there being from 40 to 50 cars per day now going out. The crop is of good quality and it is thought will make about 3500 car loads. Prices are holding firm and fruit of many orchards has been purchased by shippers.

The apple crop of the Rogue River valley, Oregon, will be a good one this season. From Medford, 225 cars will be shipped, from Grants Pass, 25 cars, and from Ashland, 25 cars, making a total of nearly 300 cars from the valley. Besides apples good crops of pears and peaches have been harvested.

A buyer for the California Fruit Canners' Association, at Hanford, thinks there will be no hold-over peach crop this season, as the crop is now practically all sold by the growers, and the packers believe they can sell all of the stock before next season. Peaches have been selling from 3½ to 4½ cents, averaging 4 cents.

A conference of fruit growers to discuss the control of orchard pests and better fruit and orchard inspection in Placer county has been called for September 28, 10 a. m., at Newcastle. The meeting has been called by State Commissioner of Horticulture J. W. Jeffrey and will be of interest to fruit men of the upper Sacramento valley.

Grape shipments from Lodi were heavier last week than ever before in its history. Last season the shipments were as high as 33 cars in a single day, but this season the shipments have been 36 cars a day for several days in succession. Even at the low prices the grapes have sold for in the East, the volume of business has been such that a great sum of money is now coming back to Lodi.

At the annual meeting of the Indian Hill Citrus Association, held at Pomona recently, the annual reports read showed that $281,904 had been paid to growers for 667 cars of oranges, besides $15,000 paid out for them for picking, vetch seeds and fumigating, supplies. An average of $1.57 per 100 was paid for navels, including drops and all. The Association shipped 266 cars more than during the previous year.

In a recent interview Col. A. K. Whitton, of San Jose, states that the wine grape men of Santa Clara county will have a good season. He says the growers in the lower part of that county will receive, under contract, from $16 to $18.50 per ton for grapes, and that he has just sold his white grapes for $18.50, f. o. b., at San Martin. The big $50,000 winery at the latter place will be completed in time to handle the crop this fall.

The Sutter County Farmer tells of a novel way of harvesting almonds, which may be useful to others as well: "R. C. Kells, who is at present gathering a large crop of almonds from a big orchard he has under lease near Chico, is using a novel system in gathering his almonds. He usese large canvas sheets which are attached to a frame on wheels and arranged so that the sheets close around and under the tree in the shape of a big funnel. The almonds are shaken or knocked off the tree into the funnel and pass into boxes at the lower end of the sheets. The men stand on an elevated platform around the funnel instead of on

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The Rhubarb and Berry Specialist. Dept. I.

the ground and with short poles knock the almonds from the tree much quicker than using long poles and standing on the ground, as is the usual custom where the sheets are spread flat under the tree. The outfit is hauled from one tree to another and the crop gathered rapidly."

The announcement is made that beginning with November 1st, the transcontinental lines of railway will increase the freight on lemons from California to Eastern points from $1 to $1.15 per hundred pounds. It is also reported that at the same time the rate on oranges will be raised from $1.15 to $1.25 per hundred. This raise of freight rates will doubtless be resisted by the citrus growers, who through their associates will probably take the matter before the Interstate Commerce Commission. If the advance in rates stands, the growers will lose nearly all that was gained through the new tariff measure.

General Agriculture.

A big crop of grain is reported from Surprise valley, Modoc county, this season. Some fields yielding as high as 70 bushels to the acre.

The bean crop around Biggs, Butte county, which was being damaged by "red mites" has been saved by killing the pest with sulphur.

Hop picking at Bohemia, near Tehama, has been completed. The crop was heavy and the high prices secured made a profit of nearly $1000 per acre.

Celery growers of the peat lands in Orange county are spraying with Bordeaux mixture to stop the blight which has appeared there. The celery is in fine shape, the stand assuring a crop estimated at 2000 carloads this winter.

Sweet potatoes are being shipped from the Turlock district at the rate of four to six cars daily, for which the growers are receiving a little better than $1 per 100 pounds, f. o. b. The crop of sweets is not as large as last year.

Alfalfa seed growers of Sutter county are now cutting and threshing the last crop of the season. Alfalfa seed from that county is considered choice and as the demand for seed to planting new tracts is good, the price will be above the average.

The Crop Reporting Bureau of the United States Department of Agriculture, places the condition of grain crops, September 1, as follows: Spring wheat, 115 per cent; oats, 105; flaxseed, 103; rye and potatoes, 101; hops, 100; hay, 99; barley, 96; rice and sweet potatoes, 95; buckwheat, 94; corn, 93; sorghum, 90; cotton, 87. Winter wheat, preliminary estimate of production, 432,920,000 bushels, against 437,908,000 last year; rye, 31,066,000 bushels against 31,851,000 last year; hay, 64,166,000 tons against 70,798,900 tons last year; acreage of clover for seed, 26.9 per cent less than last year. Number of stock hogs on September 1st, 11.1 per cent less than a year ago.

Stock and Dairy Notes.

More than $30,000 worth of hogs have been shipped to market from Porterville, during the past 30 days. Most of the porkers brought $7 per hundred, but the market was down to $6.25 last week.

Though established but a year, the State Game Farm, located near Haywards, has this season raised 4000 rare game birds which are now being distributed through various parts of California for propagation purposes.

Practically all of the cattle raised on the range around Fort Bidwell, Modoc county, have been sold to buyers who will drive them to central parts of the State for winter feeding. Nearly 2000 head have changed owners.

A. L. Thresher, a grape grower near Gridley, Butte county, has announced that owing to the low price being offered for wine grapes, that he will dig up his vineyard and plant the ground to alfalfa. He will stock his place with dairy cattle.

It is stated that Joseph Rumsey, of Woodland, who has a 20 acre vineyard in fine condition has turned in a lot of hogs to fatten off the grapes, rather than sell at the price offered of $5 per ton. Growers in Sutter county are also preparing to feed their grapes to hogs.

The 1909 wool clip of Oregon is larger than any previous year, amounting to 20,450,000 pounds, and valued at $4,000,000. Besides having a big clip and receiving good prices, mutton, sheep and lambs have been high, so that sheep farmers of that State have had a very prosperous year.

While at the State fair recently F. A. Mecham, of Petaluma, purchased 50 head of the finest blooded thoroughbred sheep that have been brought to the State. The lot includes 20 head of Shropshires and 30 head of French Rambouillets. Mr. Mecham made some good sales of stock while at the fair.

According to the Salinas Index the Angora goat industry will be worked on a large scale at Arroyo Seco, by A. Sans, who now has 2000 goats on his ranch and proposes to increase the number to 6000. He shears the goats twice a year and their fleece averages five pounds each, which commands 35 cents per pound in the market.

J. W. McCord, the cattle man of Hanford, while visiting at Salinas recently, stated that Monterey county presented splendid openings for raising mules. As California is credited with having only 5000 mules and as the market could easily take care of several times that number, Mr. McCord thinks stockmen are missing a great opportunity in not going into the mule raising business more extensively.

Miscellaneous.

Stone Bros. are making plans for the erection of a precooling plant at Imperial, to be ready to handle the grape crop next season.

A grape packing house is projected for Modesto next season. The large increase in the bearing acreage of grapes in that district makes a packing house a necessity.

The cannery at Gridley is putting up a big pack of Phillips cling peaches, which with a good crop of Levi clings, to be handled later, will keep the cannery busy to the first of October.

A syndicate of San Francisco buyers last week purchased 2200 acres of land six miles south of Madera, at $40 per acre. The land is to be divided into 40 acre tracts, a well drilled on each piece, and sold to homeseekers.

The winery at Roseville, Placer county, which is largely owned by grape growers, is paying $15 per ton for wine grapes this year. New cooperage was added to the winery amounting to 100,000 gallons. There are about 1500 acres of vineyards near Roseville.

A hearing of the petition of land owners of Oakdale was held by the Stanislaus county supervisors Monday, and the project of forming an irrigation district was granted. An election will soon be held to incorporate the irrigation district and vote bonds to build the system.

Under the direction of Congressman Needham the work of surveying the west side of the San Joaquin valley in Stanislaus county is now going on. It is proposed to establish a great irrigation system there which will be under the Wright law the same as those at Modesto and Turlock.

The plant of the Turlock Fruit Juice company is now at work crushing grapes making unfermented grape juice. Since last year, when 40,000 gallons of grape juice was made, the plant has been added to and this year it will make 150,000 gallons. The price being paid for grapes ranges from $6 to $10 per ton, according to variety.

Upon the request of the Farmers' Union of Fresno, the State Board of Health is to hold a meeting at Sacramento soon, to discuss the proposition of appointing a commission to inspect fruit canneries and packing establishments. The Union believes by establishing State inspection the products of these institutions would give the public assurance of quality.

At the Farmers' Institute held at Capitola, Santa Cruz county, last week, Prof. F. T. Bioletti made the statement that the production of grape juice has grown from 5000 gallons, ten years ago to 375,000 gallons in 1908. The demand for grape juice is growing steadily, owing partly to the wave of prohibition sentiment that has swept over the country.

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Fruit Marketing.

THE ADVANTAGES OF ORGANIZATION.

Even if the California fruit interests are not as fully organized for trade purposes as they ought to be, it is interesting to know that we have credit for such achievement. In a recent issue of the Deseret Farmer, Mr. C. A. Hickenlooper makes an address to the fruit growers of Utah in which he says: "Utah today is passing through the experience that California, Oregon, Colorado and Washington have passed through. We have reached a period where the fruit industry demands a concert of action, or, in other words, that they get together by forming fruit growers' associations and thereby insuring a uniform pack and better prices. The writer is personally acquainted with the managers and some of the most prominent growers of the associations in the States mentioned, and it is the universal verdict that the only way to secure uniformity in picking, packing and marketing fruit is through organization, for the reason that where associations are formed all fruit must be picked and packed under inspection. Statistics will show that in each of the States mentioned land values have increased many fold. In conversation last week with a man from California, largely interested in the fruit deal for a great many years in that State, I was told that prior to the fruit growers' organization nearly every fruit farm in California was under mortgage, and that in a very few years after organization prices advanced so materially in both product of the orchard and also land values that a great many of those growers are today automobile farmers."

What Mr. Powell Says About Hood River.—At a recent meeting of grape growers in San Joaquin county, Mr. G. Harold Powell of the Department of Agriculture cited the co-operative organization of apple growers of Hood river, Oregon. There, he said, the association controls the picking and packing of every member's product. When a grower enters the association and signs the contract, he relinquishes control of his crop—except, of course, the money for it—and the organization takes complete charge.

The foreman of the picking department must answer for the condition of the apples; the packing department must be responsible for all fruit packed; the car loaders are liable for any damage in loading.

Each foreman is provided with blanks which he fills in and forwards to the main office, and in this way a check is maintained on the fruit from the time it leaves the trees until it is ready for shipment.

The grower is eliminated from this work and has no chance to put up poor fruit in a poor pack.

The apples are then pooled for deliveries and all growers must stay with the association in its decisions or suffer a heavy penalty.

All this tends to give the grower a good price for his product, for commission men know the goods are absolutely first class and can afford to take the chance of paying a higher price for it.

Hood River apples now sell on an average $2.50 a crate f. o. b., and before the growers organized any old price was the rule—and $2.50 a crate was the exception.

In fact, Hood River apples have a good reputation throughout the North American continent, and the organization's rigid rules regarding picking and packing can be traced directly to this good reputation. The brand sells the apples.

The total expenses to growers—a perfect checking system from picking to marketing—has added 15 per cent to the orchardist's expense account, but the apples sell for over 100 per cent more than when slip-shod methods as are generally practiced here among local growers were in force in Oregon.

Where disinterested pickers and packers are in charge they only do their duty when all under-sized, green or otherwise unfit fruit is thrown in the cull basket.

EXAMINATIONS FOR HORTICULTURAL COMMISSIONER.

To the Editor: I notice by one of our local papers that Examinations for Horticultural Inspector will be held in the near future. I would like to take examination, and am taking the liberty to write to you regarding information regarding the subjects and the time and place.—Subscriber, Merced.

Examinations in different counties will be held at different dates. On page 166 of the Pacific Rural Press, of September 11, the dates and places for points in southern are given in detail. Other appointments will be made later. The following are the general instructions issued by the Board of Examiners:

CONDITIONS OF EXAMINATION.

1. All candidates must be resident citizens of the county.

2. All applicants for examination must register before the hour of beginning the examination and pay the fee of $5 to the person designated in accordance with the law.

3. The list of questions for each examination will be submitted to each candidate in writing, and all answers must be written.

4. Every examination shall be held in the presence continually, of at least one member of the Board, or the person delegated by the Board; no examination shall otherwise be approved by the Board.

5. Every candidate must depend entirely upon himself and any information received during examination shall disqualify the candidate.

6. Each of the subjects designated in this examination shall be considered and finished by the candidate before another is taken up.

7. When all applicants for examination are properly seated in the examination room, a member of the Board or the person holding the examination, shall place in a hat, blank sheets of paper, folded, and numbered consecutively, from one (1) to such a number that will indicate ten (10) additional numbers above the number of applicants.

From these numbers each applicant shall draw one and place upon it his signature and address. He shall then fold the sheet and place same in a plain white envelope which shall be furnished him by the examiner, and seal the same; no marks of any kind shall be placed upon the envelope.

The applicant shall use the number he draws for his papers, and no further marks or indentification shall be used by him. The examiner shall collect the sealed envelopes from applicants and place them in a large envelope, seal same, and keep it intact until after all examination papers have been corrected and percentages determined.

8. The Board will not recommend persons for appointment engaged in, or connected with the nursery business.

9. The Board will require at least 80% of the questions answered in a satisfactory manner to entitle a candidate to a certificate.

10. "As far as pssible the Board of Horticultural Examiners shall consult the resident fruit growers of the county in determining the responsibility and moral qualifications of candidates for appointment as commissioners and whose names they certify to the boards of supervisors of the several counties." Lines 60 to 64, Sec. 2322, Political Code.

SUBJECTS FOR EXAMINATION.

1. Practical knowledge of insect pests and diseases in the county.

2. Best methods of controlling insect pests and diseases.

3. Orchard practice and general horticultural conditions in the county.

4. Technical knowledge of life, history and habits of destructive and beneficial insects.

5. Quarantine work in county and State.

6. Administration of the office of County Horticultural Commissioner and knowledge of horticultural laws of the county and State.

A. T. Garey,
E. B. Collier,
Edwd. K. Carnes.

State Board of Horticultural Examiners.

OREGON VETCH SEED.

Concerning the popularity of winter grown vetches in California both for dairy feeding and for plowing-under as a manure crop the following statement from Woodburn, Oregon, is of interest: "Fred Dose, commission merchant of this city, who controls the vetch market of Oregon and California, reports that Linn county men are gleeful over the profits made by them in raising vetch. The prices paid for vetch seed this year were $3.50 and $3.75 per hundred, the highest for years. Last season the market was $2 to $2.50 per hundred weight. Even with short crops farmers are getting good returns. One grower with 100 acres of vetch averaged $25 per acre net. The farmers, especially in Linn county, will enter into the growing of vetch more extensively, and elsewhere throughout the Willamette valley farmers are becoming more interested in this industry and there will be a larger acreage next year.

OTHER WAYS WITH SKUNKS.

To the Editor: Referring to the recent items in regard to the extermination of skunks in the tray house, I will say it is quite safe to catch them in a common steel trap, baited with an egg or a piece of fresh chicken or meat. There will be no "bad effects" if the skunk is not badly hurt in catching, or is not worried by dog or cat after caught. The jaws of the trap may be wrapped in strips of cloth to prevent cutting, and will still hold the animal. The brave man is to go quietly to the trap, pick it up by the chain and immerse skunk and all in water. This is the way they are trapped for their skins—sans odor.

If your correspondent is afraid to risk this method, why not sink an iron or tin tube, or other deep tin vessel in the ground, half fill with water, sprinkle top of water with bran, put bait in center, and make it easy of access for the animal. It will drown "pleasantly."

Mrs. N. Frank Morse

Fullerton, Cal.

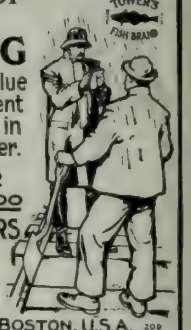
TRAPPING SKUNKS.

To the Editor: I would like to say a word about catching skunks as I have caught six this summer, and have not been bothered with much odor, either.

I catch them in a common steel trap, using either a blue jay (my preferred enemy), or a ground squirrel for bait, and I kill them by shooting them at near range with a shotgun, and if I make a good shot and succeed in breaking the back, there is never any odor as they never make any from being caught in the trap. C. A. Hughes.

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Live Stock and Dairy.

SPAYING CATTLE.

Written for the PACIFIC RURAL PRESS
By Mr. PAUL P. PARKER.

Spaying of cows has been known and practiced among stock raisers since earliest times, but it was not until recent years that it has been carried on extensively. This has been due mainly to two reasons—the abundance of feed on the large ranges, and the high death rate in spayed cows. But these conditions have changed, however; the ranges are being divided up into smaller tracts, necessitating the economizing of feed, and spaying has become practically a harmless operation.

In previous years only those cows which were poor breeders or were suffering from some ailment were operated upon. The cattlemen worked on the hypothesis that the cows could never fatten in their present condition, and if they survived the operation they were that much ahead. When cows were turned over to the veterinary the owner was not sure whether he would lose 10 or 50 per cent of the herd, as mortality was large, due to infection from unclean instruments. Fortunately there has been a wonderful improvement in this branch of science; better instruments have been made, and unclean, infected instruments are no longer used. Everything about the operation is now as clean and antiseptic as it is possible to make it. The veterinary no longer places his bloody instruments on the ground or on a dirty sack when he is through using them; instead they are washed in scalding water and then placed in antiseptic solutions. As a result of these precautions the death rate from blood poisoning or infection is very small.

The shock to the cows has been greatly lessened by the use of improved instruments and more scientific methods of operating. The death rate at the present time from spaying is only 1 per cent. Those cows which do die are usually in very poor condition, being run down from calving or milking. This last spring Miller & Lux had 1750 cows spayed on their ranch in Monterey county, and not a cow died from the operation. Another cattleman in the same county had over 300 spayed, a half of which were in calf, and no deaths resulted.

It frequently happens when cows have been running with the bulls on the range that they come into calf, and if they are not very far gone the veterinary does not discover it until he has made the incision. A cow in this condition will not thrive until she drops the calf; sometimes they go the regular period and have the calf, but most frequently the cow drops the calf very shortly after the operation, and then proceeds to improve and take on fat.

A cow spayed in a high altitude commences to make steady advancement immediately after the operation, but cows in the lowlands take from seven to ten days before they show any improvement.

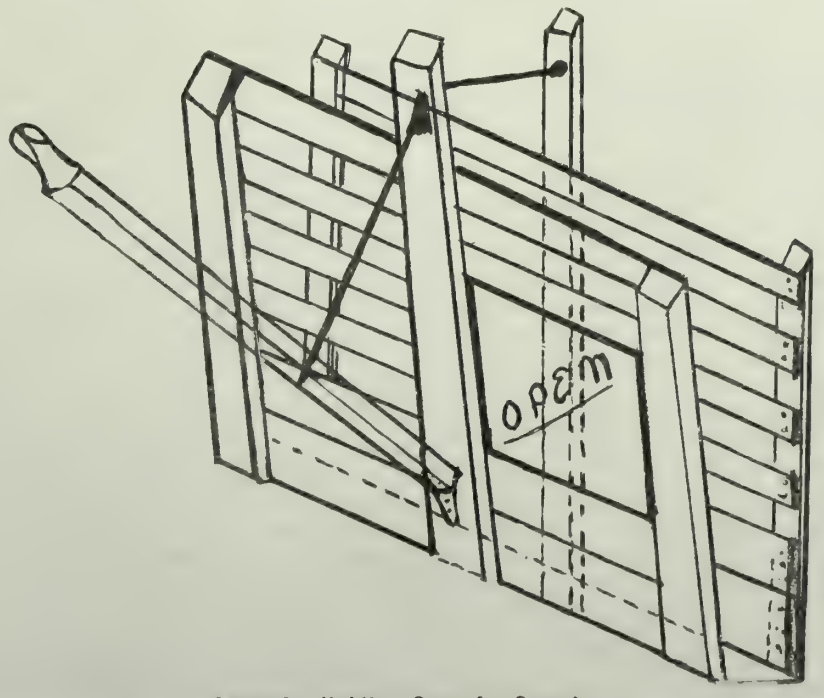
Spaying, to be successful, must be done quickly, because the longer the time it takes to perform the operation the greater the shock. Only experienced and capable veterinary surgeons should perform this operation, as the slightest mistake will cause the death of the cow. An experienced man will spay a cow in two minutes or better; the veterinary who spayed the 1750 cows for Miller & Lux averaged 40 cows an hour.

The operation is performed through the left flank of the cow, but before the incision is made the hair and skin are washed with strong antiseptics to prevent infection. The cows are held in position for the operation by a chute or stall. This chute has sides which work on a hinge, so that any sized cow can be firmly held. When there are many cows to be spayed, the veterinary does only the actual spaying, the cleaning and sewing of the cut being done by assistants. In this way several hundred cows can be spayed in a day. The animals can be turned out on the range to fatten immediately after the operation, but it is a good plan to watch them for a few days to see if any complications should set in.

Cows when spayed will gain about 150 pounds more than they would if "open," but this small gain in weight is not the best feature of spaying, the advantages of spaying being the speed with which they fatten and the small amount of feed they eat in comparison to an "open" cow. Spayed cows are readily bought by the cattle buyer, and they pay one-half cent more for a spayed heifer than they will for an open one. A spayed cow has better health, since she is not getting in heat every three weeks. Also they can stand more adversities and do better on less feed. The average cow on the range will eat twice the amount of feed that a steer does, and yet remain in poor condition.

During drouths and dry years it has been customary for the cattlemen to kill their cows in order to preserve the feed for the steers. For this reason spaying is a great help to those stock raisers whose ranges are in sections subject to drouths, because they are able to get rid of their cows as beef without having so much grass eaten.

Many cattlemen in these districts make it a practice never to keep cows over seven years, because after a cow reaches that age they are too tough to put on the beef market even when spayed. But if spayed in time, returns can be obtained from cows which would otherwise be a loss.



Chute for Holding Cows for Spraying.

Spaying is one of the most profitable methods which can be used to keep up a herd. The small, off-color cows which otherwise would be sold at a low price can be made an asset by this operation, and at the same time the standard of the herd maintained. Small unspayed cows grazing with the other cattle will destroy the value of a herd which has taken years to build up. When these scrub cows are unspayed it is necessary to keep them away from the other stock, but this is usually an expensive proceeding. On the other hand, when these undersized cows

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are spayed they can be turned out on the range with the other cattle.

In this way only the large healthy cows need be used for breeding purposes, so that there never will be any danger of the herd retrograding. Many of the cattlemen are making these cows serve a dual purpose; after the third calf the cows are spayed. So that good returns are made from the calves and the cows are still young enough to sell for good beef.

After a cow is spayed she continues giving milk a long time. Some cows have been known to give milk for three years after spaying. But this is too heavy a drain on a cow; in fact it gets them in such a condition that it takes more than the profits derived from the extended milking to get them in shape to sell.

The best season of the year for spaying is in the early spring. Cows spayed at this time get the benefit of the green grass, so that by fall they can be put on the market, while those cows spayed later in the season must be carried over for a longer period.

When cows are to be spayed they should be placed in corrals away from the bulls, after they have calved. When the number is large enough to warrant getting a veterinary, he should be called in and the cattle spayed. Farmers not having enough cows to get a veterinary on their own account should club in with their neighbors and have their cows spayed together.

CAREER OF A CALIFORNIA PIONEER GOAT MAN.

An early acquaintance of ours on arrival in California, about 35 years ago, was Mr. W. M. Landrum, who recently died at his new home in Texas, and we are much interested in the sketch of his life which is given in the American Sheep Breeder, as follows: Mr. Landrum was not only the oldest breeder of Angoras in the country at the time of his death, but for the last quarter century the most picturesque figure in America Angora circles. Mr. Landrum was the pioneer Angora breeder of California, having gone overland to that State with an ox team as far back as 1860, trailing a pair of Angora bucks from the famous Colonel Peters' importation at Atlanta, Ga. Later on he secured some does from the same flock and successfully planted in that State an industry destined to distinguish it in later years as one of the strongholds of the beautiful silver fleeces in America. In later years, after his return to Texas, Mr. Landrum took a collection of his notably fine flock to Oregon, where they were finally blended with the best of the local flocks, aiding materially in the upbuilding of the world famous Angora colony of the Willamette valley, which is doubtless today the best exemplar of successful, systematic and progressive goat farming in America, if not in the world. William Landrum was an ambitious breeder and an enthusiastic promoter of the much prized Angora, and few men, living or dead, have done more for the founding and advancement of the goat and mohair industry in this country than himself. He must be away up at the head of the procession. He bought imported Angoras, imported them himself and made no mistakes in selection. His Angora ideals were as high as the best of them, and in form or fleece he led his flock up to the highest levels of excellence in the worldwide industry, and when years ago he was stricken with a paralytic attack and his eye and brain dimmed by the stroke, his returning glimpses of conscious thought and sight seemed like torn leaves from the book of a singularly eventful and interesting life. He was a man of heart, deep feeling and generous impulse, a clear thinker and a good all-round man, whom we regret to think of as lost to the great heart of the Angora world.

ANOTHER BLACK HOG.

In a State where black hogs are supreme, as they are in California, notes about other black breeds than Poland-China and Berkshire should be interesting. Mr. E. J. Iddings of the Colorado Agricultural College tells the Breeder's Gazette of results with the "Large Black Hogs," which are practically unknown outside of England, but have been bred for many years in the south and east of that island. Little is known of the foundation stock or of the method of breeding pursued in developing this distinct breed of swine. However, judging from the uniformity of type of those brought to America and the power shown in transmitting outstanding characters, it is evident that no admixture of outside blood has been used for many years. The Colorado importation was made in September of 1907 by Prof. W. L. Carlyle and consisted of three sows and a boar. The object of this importation was to introduce a hardy prolific hog that could be produced profitably on Colorado grown feeds. The only experiments so far attempted have been a series of crosses between the new breed and the Duroc-Jersey, the Poland-China and other corn-belt hogs now bred in Colorado, with the object of giving to the native breeds the prolificacy, vigor and rustling qualities of the Large Blacks. These points are ones that directly concern the breeder's pocketbook and in addition are main points of controversy in the rivalry of the different breeds for public favor.

During the last two years the Large Black boar has been bred to Tamworth, Poland-China and Duroc-Jersey sows. In each case the black color of the sire has prevailed in all the pigs. This was to be expected in the Poland-China cross, probably in the Duroc-Jersey cross, but remarkable when an old and prepotent breed like Tamworth furnished one-half the blood of the cross. The single litter of Large Black-Tamworts was farrowed in May. It consisted of 18 pigs uniformly black, with the exception that five of the pigs had a brownish-red tinge toward the outer ends of the hairs. This disappeared in a few days, leaving the liter solidly black. In this case the useful limits of fecundity were passed. The pigs were small and weak and more than half of them were lost within a few days. These pigs are now sufficiently developed to show the large pendulous ear of the sire and to give promise of the bacon conformation with a heavier head and lighter shoulder than the Tamworth.

The pigs from the Duroc-Jersey cross were not uniform. The skins of all were black, but a few had at farrowing time, and retained for a few days afterward, a reddish cast to their hair. Some had the large drooping ear, others a small semi-erect ear. All were more rangy and higher off the ground than the typical Duroc-Jersey.

The Poland-China cross proved the most desirable in several particulars. The ears were uniform and of medium size, the form departed somewhat from the broadness and compactness of the typical Poland-China, but not so much so as to sacrifice maturing and fleshing qualities; the bone was medium and the quality throughout was very fair.

Like results have been obtained by crossing boars of other breeds on the Large Black sows. None of these cross-breeding experiments have as yet been checked by duplication and no feeding experiments for testing the cross-bred progeny have yet been attempted. For Western conditions it is probable that an infusion of Large Black blood would be of more benefit to the Poland-China than to any other breed. Results so far attained indicate that the early maturing qualities of the corn-belt favorite can be retained in a great measure and his vigor, prolificacy and rustling qualities much improved by the cross.

DAIRYING BY IRRIGATION.

Mr. P. C. Pratt of Stanislaus county writes to Hoard's Dairyman concerning a statement by another contributor to the effect that California "has no irrigation laws, no State control, nothing but chaos and uncertainty," claiming that a wrong impression of conditions is conveyed. There may have been no special legislation regulating the methods of private irrigation enterprises, but our Wright irrigation law is one of the best laws of that nature ever framed. It provides that the residents of any territory suitable for irrigation may, by a certain majority vote, organize an irrigation district on a plan similar to that of school districts. They can issue bonds and construct their own works for conveying water to their lands. The business of the district is in the hands of a board of directors elected by the people, and the funds for operating and maintaining the system are obtained by assessment and taxation of the real estate in the district the same as in county or municipal affairs. Under this plan no monopoly can exist and we get our water supply at actual cost.

All land in the district is taxed whether water is used upon it or not, as no enterprise of this nature could be established or financed on the mere promises of such individuals as would agree to use the water when available. The user of water pays more tax, however, that the "dry farmer." Though all pay the same rate, the basis of taxation is the assessed valuation of the lands and the value is increased under the use of water. The land owns the water, no water rights having to be purchased by property owners.

The Modesto irrigation district, lying along the north side of the Tuolumne river, Stanislaus county, and the Turlock

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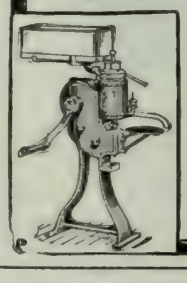
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irrigation district on the south side of the river are established and maintained under this Wright law. These districts unite in the construction of a $550,000 diverting dam across the Tuolumne river in the foothills of the Sierra range, and from the waters of this dam each district draws its water supply. Water is available to irrigate approximately 250,000 acres of fertile lands. We raise alfalfa in abundance. The acreage of this valuable product is rapidly increasing. Our dairy business keeps pace with the development of the lands, however, and we keep most of our hay at home and ship butter instead. We feed our cows little but alfalfa, both green and cured, supplemented at certain seasons by corn fodder, pumpkins, etc. This feed the dairyman raises. The producing value of Eastern cows as reported in the Dairyman, often looks small to us here. Perhaps we get better prices for our product. My small herd of average grade Jerseys, for example, usually returns $10 per month for each milking cow from the sale of cream in the winter, and during the past year the average has not at any time fallen below $8.

MR. SULLIVAN AT THE STATE FAIR.

To the Editor: I presume that reports from the State Fair will be of interest to readers of the live stock department, and having had the pleasure of a few days' visit at Sacramento during the fair, I will tell you that any lover of animals was well repaid for the time spent in visiting the new fair grounds. Everything pertaining to the fair was this year on the same ground, which made it a "one admission" feature, and while it was a matter of carfare to get to the display, I think all appreciated the fact that it was better all in one place.

I have been a constant visitor at the fair for seven years, and surely there is improvement in all classes of animal breeding. The parade of live stock would be a revelation to any one who raised cattle a few years ago and did not know the possibilities of hoofs and horns and horses, as well as the lesser swine, sheep, etc.

The poultry pavilion naturally attracted the writer most. Over 1200 fowls competed for honors with ostriches in the pavilion (I do not know how to class ostriches, as I never ate any), turkeys, geese, pigeons almost without number, chickens, lots of them, guineas, ducks, all sent from all over the State, and from other States beside, which shows the importance that is attached to the California State Fair.

W. S. SULLIVAN.

Agnews, Cal.

ALFALFA FOR BREEDING EWES.

Prof. W. L. Carlyle, in answer to a question in the Breeder's Gazette, gives these observations: Breeding ewes will winter in first-class shape on 3½ pounds per head daily of good alfalfa hay until about three weeks prior to lambing, when a light grain ration should be added to give better results. After being fed all winter on one kind of hay sheep or any other class of stock become somewhat stale, especially if they are pregnant animals, and a small ration of grain will make a wonderful difference in their thrift and in their supply of milk for the lambs at birth.

One-fourth of a pound of corn fed to each ewe daily for three weeks before and for two or three weeks after lambing, unless grass is coming on well, is one of the best investments I know of for breeding sheep. This is particularly true of fine-wooled sheep that are not particularly noted for their milk at lambing time.

The average percentage of lambs from range ewes under open range lambing is not far from 75 to 80 per cent of the ewes bred, whereas with ewes well fed and cared for and the lambing done in sheds with proper care 100 per cent of lambs should be secured from fine-wooled ewes.

EXTENSION WORK BY THE AUDUBON SOCIETY.

To the Editor: The Audubon Society of California has just entered its fourth year of existence, and the amount of good which it has accomplished in so short a time is surprising when it is considered how little of the "sinews of war" it has had to do with. But the officers of this society have given their time and their energies without money and without hire. The cause for which they struggle—the protection of useful bird life—is of vital interest to the agricultural communities of the State, and it is dear to every heart everywhere that responds to the touch of music and beauty.

At the annual meeting of the Audubon Society of California, held at Los Angeles June 19, it was voted to create an educational fund for the purpose of employing a school secretary and field agent to travel throughout the state and deliver addresses or illustrated bird talks before schools, teachers' institutes and civic organizations, for the purpose of arousing a more general interest in the value of the wild birds and their protection.

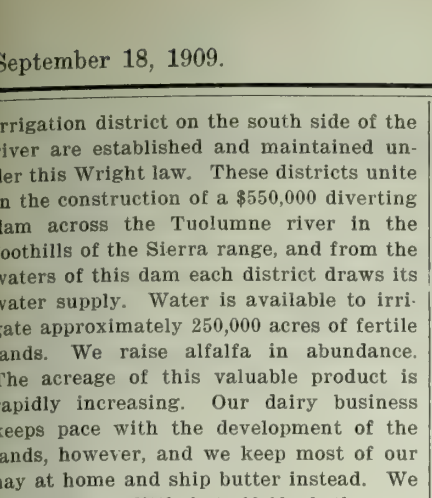
In order to make this much needed work possible we are asking those interested in the preservation of the birds to help us raise the funds necessary for this purpose, either by obtaining contributions, life members, patrons or sustaining members.

It was the unanimous opinion of the meeting that this purposed movement would greatly help to advance the Audubon work throughout the State, for the present welfare of our birds depends largely upon a wider understanding of their value, and their future welfare much upon the present education of our boys and girls.

More than $100 was contributed at the annual meeting, and the National Association of Audubon Societies has promised to help us to the extent of their ability. Trusting that we may have your co-operation in this most important branch of our work.

MRS. H. W. MYERS,
Secretary.

306 Avenue 66, Los Angeles, Cal.



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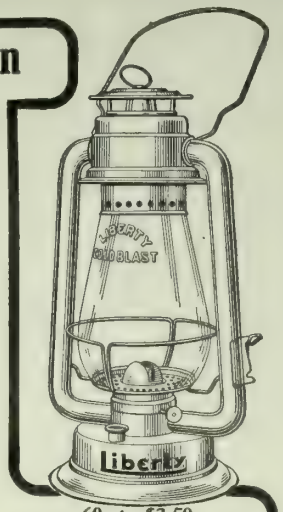
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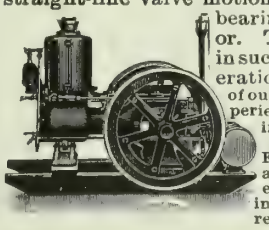
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The Poultry Yard.

THE CARE OF SHOW BIRDS.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

GROOMING THE BIRDS. Young fowls not long in their adult plumage and old fowls that have lately completed their molt, should not require washing if cared for as suggested in the RURAL PRESS of last week. To prevent the necessity of washing fowls is worth a good deal of care. In the first place it is an unnatural process to this order of birds. A thorough wetting to the skin is always injurious to a fowl and seriously so if not done under proper conditions. True, it is an enjoyment and an advantage to a healthy hen to rustle about the entire day in mists and gentle showers, but she puts on her rain coat; in other words, she doffs her tail and wraps her clothes tightly about her and the water runs off her oily coat, simply wetting the outside; her feathers beneath are dry and her body warm.

Secondly, the expert laundrying of fowls is considerable of an art. It requires a natural handiness as well as experience. An amateurish job ruins the fowl's beauty, giving its plumage a matted, smoky, dull appearance, and it were far better had it never been attempted. Experienced fanciers advise the amateur to practice upon a common white fowl before trying his hand upon a bird of points.

And, lastly, it is an exceedingly unhandy job both for the washer and the washee.

THE PREPARATIONS.—The first requirement is a sunny room clear of all furniture and warmed by a brisk fire, and a good assistant comes next, as it is almost impossible for one person to do the work. Now have plenty of warm water; if the water is hard put in some borax or soda, at least in the first two waters, which will be soapy. Place three tubs near the fire; fill the first half full of quite warm water; the second half full of luke-warm water, and the third of cold water; have the fowls and everything ready and handy, with plenty of fuel to keep up a brisk fire without opening and shutting doors upon the wet birds; have a large new sponge, plenty of soft clean towels, a cake of white castile soap or of good shaving soap, and a large palm-leaf fan will be needed to dry and fluff the feathers.

THE WASHING.—Now take the fowl, and before bringing it into the washroom, shake and fan out all the dry dust possible from its feathers and clean the feet; then place it in the first tub with the warmest water, with both hands held tightly over the wings. Naturally the bird will be surprised and shocked if this is her first bath and will "do things" if she has a chance that will test the quality of the laundry artist's patience. Hold her firmly but gently in the water till she is somewhat used to the novelty; then, if necessary, let the assistant hold her feet, and, seating yourself in front of her, begin to wet the feathers with the sponge, stroking toward the tail and always with the lay of the feathers. When the feathers are wet make a fine lather in the sponge and apply to the feathers until they are full of lather, but never rub the soap directly on the feathers. Care in this respect will make much easier the task of freeing the feathers from soap. This can be no hurry job, and plenty of time must be taken to lather and sponge and rinse and work the dirt out till every feather is wet to the skin and perfectly clean.

Now squeeze and drain the water off the fowl and place it in the tub of luke-warm water; rinse and work out the suds with the sponge and by gently parting the feathers with the fingers and having the assistant pour water over the fowl with a dipper.

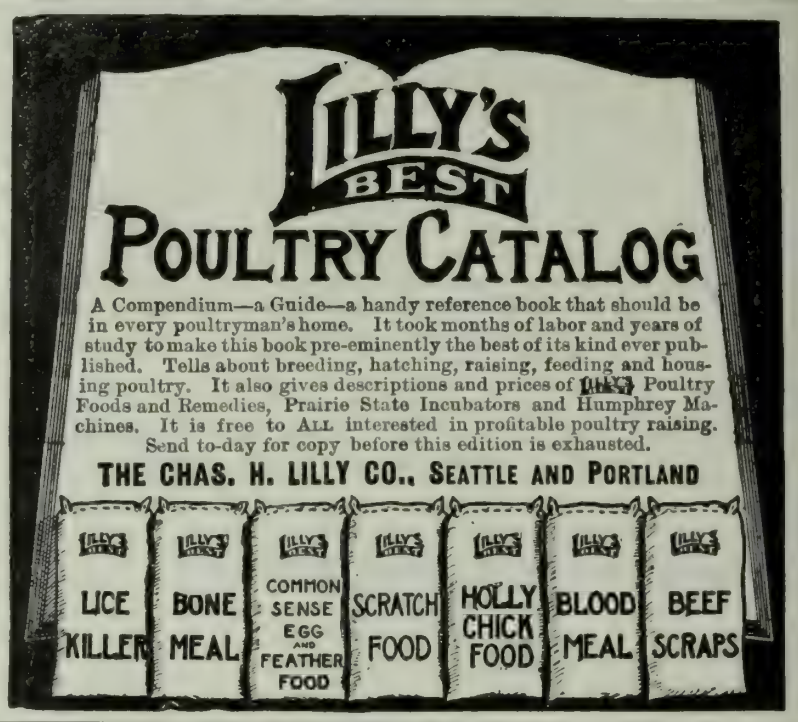
It will now be ready for the cold plunge which is to tone up its relaxed cuticle. Before putting the fowl into the cold tub, the madam of the house must be called upon to blue it as if for sheer white muslin. To get the plumage too blue or streaky is something of a tragedy at this stage. The very best grade of bluing should be used, and this should be put into a tight bag of thick muslin. Rinse the fowl quickly through the cold water, squeeze out all the water possible, then place the bird on a box near the fire, and throw a soft warm towel around it and wipe by absorbing the water with gentle pressure.

DRYING AND FLUFFING.—Keep the fire brisk and don't open doors. Place the bird near the fire on a dry box, but be careful not to get it too near, as the feathers are very sensitive to heat, and when curled by the heat their appearance is ruined. Have the assistant keep up a steady fanning while you turn the bird around and spread out the wings. When the plumage looks dry and fluffy, put the bird into a clean coop with plenty of clean cut straw on the bottom, and place the coop near the fire or in a part of the room where the sun will shine into it, that the bird may shake and preen itself. Be careful that no drafts strike the washed fowls. The washing should be done two or three days before sending the birds to the show; and, of course, they must be kept in the meantime in a clean warm place upon clean cut straw and fed and watered with great care as to soiling.

SHIPPING COOPS AND SHIPPING.—The coop should be high enough for the fowl to stand up straight without touching the top with its comb, and with some 18 inches square of floor space, that its tail feathers may not be worn or broken. The top and bottom should be solid, also three of the sides, while the front should be wired or slatted and as open as maybe. The top and sides, excepting the front, should be lined with thin white cheesecloth, a couple of inches of cut straw should be kept on the bottom. The watering and feeding in transit should be done from the outside, the space between the slats in front being wide enough to allow of the fowl putting its head through without rubbing the feathers of the neck. Never ship more than one bird in a single coop. If possible, go with your birds, and thus make sure that they are set in comfortable places at the end of their journey; also it is well to take a bottle of the renned carbolic acid and rinse out the drinking and feed cups with a solution of it, and wipe the inside of the cage with a cloth dampened with the same. Valuable birds often fall victims to chicken pox and other contagious diseases at poultry shows, which such simple precautions might prevent.

FINISHING TOUCHES.—Of course the feet and shanks were well manicured at the time the fowls were washed. This required a stiff tooth brush to work out the dirt and discoloration from under the scales. Before placing into the exhibition coops the birds should be dusted off with a clean silk handkerchief and a very little vaseline rubbed into the shanks and feet and then wiped off. A tiny bit of the vaseline may be placed on the corner of the silk handkerchief and the comb, wattles, face and beak lightly touched up with it, then wiped with the dry part of the handkerchief. Some exhibitors use alcohol or vinegar for this purpose, but more experienced ones say that the extra brightness these impart soon wears off and the parts become more dull and pale than before their use. The careful exhibitor will notice whether his birds are supplied with the necessary grit and protected from drafts in the exhibition quarters. To partly cover the cages at night protects the fowls from the chill that is apt to set in at this time, and it also relieves the birds from the restlessness caused by the electric lights.

AFTER THE SHOW.—The birds will naturally be less vigorous after all this "fuss and feathers" and confinement, and the owner should put them by themselves in cozy quarters and be watchful in their care for several days after their return home, and thus make sure that they have not developed or contracted any disease.



Poultry Notes.

A CORRECTION.—In our article on the Black Langshan we said that this breed came in next to the winning breed in the Australian laying competition. While this is incorrect as to the single pen, it is entirely correct as a whole. The single pen which produced the greatest number of eggs next to the Leghorns was one of Black Orpingtons; but in the total averages the Langshans stood second: The 114 White Leghorns made an average of a little over 199 each; 36 Black Langshans averaged 184 eggs each.

Speaker Cannon's favorite bit, says the New York Sun, is from an old primer in vogue years and years ago:

If you wish to get up with the lark
You must turn in with the goose at dark;
You can't sit up with the midnight owl
And then turn out with the barnyard fowl.

THE OKLAHOMA EGG IS FITTED TO ITS LOCALITY.—The tornado that struck in the country near Chickasha a week or so ago, says the Kansas City Star, performed some peculiar pranks at the farm of Charles Steinmetz, who found a number of eggs scattered over the ground near where the barn had stood, not one of which was as much as cracked, although the barn in which they had been laid was reduced to kindling.

KEEP THE FOWLS SUPPLIED WITH PURE WATER.—One of the most fruitful cases of cholera, worms and the like diseases among fowls is stale, filthy water. Just notice the average poultry quarters with slimy vessels containing dregs of water festering in the sun. A laying fowl requires plenty of water; 70 per cent of the egg is made up of this fluid. Consider what the real inwardness of such eggs must be where the hen drinks from such filthy vessels and cesspools. You who keep poultry owe not only to your own interests and the hen, but to your customers who must eat the eggs, to keep the drinking water in fresh and abundant supply and free from all contamination. Never use wooden troughs for poultry. Even with much care they become unwholesome. Open granite pans set up some 10 inches on blocks, make the best drinking fountains for all fowls except young chicks, which require a closed fountain until they learn to keep out of the water.

HEN'S GOOD MEMORY.

If the average man were asked if hens had any memory he would probably say "No," but he would be wrong, according to the experiments of two German scientists. The plan they adopted was to gum 20 grains of rice on a piece of cardboard and between them to place 10 grains of loose corn. At first the hens, of course, pecked at both rice and corn, but very soon they learned to leave the rice alone, thus very clearly showing that they remembered that the rice was stuck down.

A very remarkable point about the experiment was that the longer the time between the trials the better was the hen's memory. When the experiments were made consecutively it took them six times to learn that the rice was not worth touching, but when the experiments were made at intervals of an hour they learned at the third try, thus showing not only that they had memories, but that they thought the matter over in the intervals.—Chicago Journal.

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That can pierce the sky
With the strength of an eagle's vision,
And a steady brain,
That can bear the strain
And shock of the world's collision!

A well-knit frame,
With a ruddy flame
Aglow, and the pulses leaping
With the measured time
Of a dulcet rhyme,
Their beautiful record keeping.

A rounded cheek,
Where the roses speak
Of a soil that is rich and thriving,
And a chest so grand
That the lungs expand
Exultant, without the striving.

A breath like morn
With the crimson dawn,
As fresh in its dewy sweetness;
A manner bright,
And a spirit light,
With joy at its full completeness.

Oh, give me these,
Nature's harmonies,
And keep all your golden treasures;
For what is wealth
To the boon of health
And its sweet attendant pleasures!

—*Old Poems.*

Sheep Driving Contest.

Canine intelligence was seen at its highest level at the sheepdog trials held here today in connection with the Tring Agricultural Society's seventieth annual show. It was a day of triumph for mongrels. Never were nondescript dogs so mightily applauded.

Looking across a green valley to a spot under high woods half a mile away one saw three sheep—springy little Welsh sheep, as wild as could be found—let out of a cart. It was the dog's duty to drive the sheep through two sets of false fences, across the valley, through narrow openings in two more false fences and then, the "commander" being allowed to join his dog at this stage, to put the sheep each way through a Maltese cross and finally pen them. Twelve minutes were allowed for this heavy task, and a dog was called off if he did not get his sheep through the first false fence in five minutes.

The sheep were uncarted at a flag signal by a steward, and when they were seen to be free, like three white dots on the faraway green, the first dog was sent to his business with a shrill whistle. By a series of short and long whistles the dog was directed at a distance, and as he came nearer he was shouted at in language only understood by sheepdogs. But the first and several succeeding animals lost no time.

Then came a Yorkshire shepherd with a large crook, a loud voice and a nine-year-old black and white dog called Laddie. In his shirt sleeves, with his crook akimbo, he amused the crowd greatly with his vehemence. The dog was doing well until another dog broke loose and tried to help him. This caused confusion, and the "commander's" pathetic shouts of "Laddie" were stayed by the judge, who promised him another chance.

When the second chance came Laddie penned his sheep amid loud applause and rushed with a proudly flauting plume to receive a pat from his master.

The shepherd with a crook had a later turn with another dog, a ten-year-old winner of several hundreds of pounds worth of prizes, named Lady. At the second false fence this dog brought her sheep to a standstill just past the outside of the obstacle. She lay down at once till they began to browse, then slyly steered them round again and through the opening amid immense cheering. She penned her sheep in a little over nine minutes.

Lady did not win the first prize, however. That honor went to Smart, a dog from Corwen belonging to W. Jones, which finished its task in 9 minutes 25 seconds, in astonishingly skillful manner.

But the titbit of the trials was seen when the dogs worked in pairs with half a dozen sheep, one working to the right and the other to the left of the wayward Welsh animals. These brace competitions proceeded in the same manner as the singles until the final penning, when three sheep were put into one pen with one of the dogs crouching "on guard" at the opening, while the remaining dog penned the three others.

The two dogs did not interfere with each other unless commanded, and each obeyed the orders meant expressly for him, understanding to a nicety the difference in the two codes his master was using.—London Daily Mail.

Clippings From the Fashions.

The flat casque coiffure is becoming more general, says the Queen, and is very noticeable, for a small tightly dressed head among so many that are generously aided by extraneous curls and braids stands out with distinction.

For outing wear when the autumn days come, the lingerie blouse even of the so-called tailored type seems out of place and there is a demand for the heavier tailored shirt waists of madras, cheviot and linen.

The general tendency of these shirt waists during the last year has been to ward fewer and plainer effects, but this is not becoming to all figures and individual requirements must be considered. Even the plainest shirt waist usually has at least one plait on the shoulder, hiding the line of breaking in front of the arm. A severe one-plait model with narrow box plait in the middle front and small patch or buttoned flap pockets, is very well liked for the heavy wash materials, flannels, and the like. The sleeve is a plain shirt sleeve with wristband, and a separate collar or tailored stock is worn, unless in a linen waist a turn down collar of the linen is made with the waist.

This matter of neckwear with severe tailored waists seems to need comment, though it should not be necessary to tell any woman of taste that fussy elaborate neckwear is out of place on the tailored blouse. The stiff linen collar in some form, the plainly tailored stock, and the silk or ribbon stock with turn down collar, are the effective and appropriate neckwear for the severe tailored waist.

With the woolen shirt waist some chic cravat or stock of black Liberty or silk is usually more effective than anything else, and a touch of black introduced in one way or another adds to the smartness of almost any woolen blouse.

After the first bloom of youth is past all women should dress in white as much as possible. There is no skin so drawn, so haggard, that is not improved by the white below the face and above it in the facing of the hat brim. Gray is charming against a smooth skin that still holds a bit of color, whether the hair is dark or gray, but a faded blonde with graying hair should leave gray out of her wardrobe. White is her refuge. A woman still young with quite white hair, made a sensation one evening gowned all in filmy white. Meeting her the next day she was not recognized dressed in dull black and behind a black dotted veil. All youth and freshness had been drawn out of her face by the black of her costume. A fashionable woman of noted taste, no longer young, always wears gray or white. When gray, it is the cool pure tone with no hint of pink or blue in it, so her hair, eyes and gown seem all the same color, varying in shade. To this gray is always added a touch of pink or blue in enchanting contrast.

White, much trimmed with black, is among the fads of the demi-season.

The Rural Press Household.

Tomato Paste.—We have had a number of inquiries about making this paste, which is one of the most convenient and excellent forms of keeping tomatoes for seasoning, soups, stews, etc. The following recipe is from a Spanish housewife, and is not found in the cook books:

It requires a good many tomatoes, and they may be washed, trimmed, then stewed soft and put through a colander, or they may be peeled and prepared the same as for canning. In either case a perfectly smooth granite kettle with no chipped places in the enamel must be used for the stewing down. It is well to have a new kettle for this purpose. Put the prepared tomatoes in such a kettle and add one red pepper pod chopped fine to each gallon of prepared tomatoes (more or less pepper may be used as liked). Place the kettle over a steady neat and stir often, taking care that it does not scorch in the slightest. When boiled down as thick as mush and entirely free from juice, spread it out about a quarter of an inch or less thick on plates or granite pie tins and dry in a warm oven. When thoroughly dried, wrap each sheet of paste separately in waxed paper, then lay them in a thick new paper bag and tie tight and put away in a dry box in a cool dry place.

Instead of drying the paste in sheets it may be put in glasses and sealed the same as jelly.

Waxed Paper and Paper Bags.—These may be bought from your grocer at a trifling cost and are a great convenience and economy in the preservation and handling of food, putting up lunches, etc. The bags may be had in different sizes. To cover a plate of cake, sandwiches, bread or the like with a sheet of the waxed paper, then slip it into a large paper bag, turn over the edge and set in a cool place, is the very best method to keep such things fresh, moist and intact.

Salt Rising Bread.—Such a "boom" has the governor of Kansas given this kind of homemade bread that the agricultural college of that State is endeavoring to find a salt-rising "germ" that is less elusive than the one the housewife tries to invoke from her "risings." It is estimated that the latter fails her about four times out of five.

Salt rising bread, when it is good, is very good, being sweeter, whiter and less tough than other light bread. It is wholesome and excellent for a change but cannot take the place of yeast bread as a regular thing, and does not keep so well, drying out quickly. When making this kind of bread frequently, years ago, the writer thought the secret of success was in setting the rising just before or at sunrise. This may have been a mere youthful fancy, but the early settings were always the successful ones, and the bakings were finished in good shape by the time the sun reached the meridian. The real secret of success lies in the temperature which should be about 90 degrees throughout. Even a bit too warm makes failure as certain as too cold.

The Rising.—Into a perfectly clean freshly scalded bowl put a pint of warm water and add one level teaspoon of salt; see that the water is just milk warm and beat in enough flour to make a thick batter, and continue to beat it till it is light and foamy. Whole wheat or Graham flour is more sure for this purpose than white flour. Cover the bowl tightly and set it in a kettle or pan of water at blood heat and keep it steadily at this temperature. In about two hours if all is well it will begin to rise and when fairly started it rises fast. As soon as well started shift about as much flour as needed into a mixing pan; make a hole in the centre of the flour and stir in a quart of boiling water, or a pint each of boiling milk and water, and it is well to add a tablespoon of lime water or a mere pinch of soda. When the batter in the bread pan is cooled to milk warmness, stir in the rising and mix smooth; then work into loaves and place at once into well greased and warmed baking pans; cover close and keep warm. When sufficiently raised bake in an oven with a steady even heat, which will require from 40 minutes to an hour according to the size of the loaves. Some object to the peculiar odor of the rising. The odor is caused by the acetous fermentation, and the more odor you have the sweeter will be the bread when finished.

Wild Flowers the Fashion.—The tendency this year, says a New York paper, has been to use wild plants for decorations for both formal and informal events, even at the most fashionable resorts. "Because they are so durned hard to get," was the reason given by an indignant florist.

A Symphony for Living.

To live content with small means; to seek elegance rather than luxury, and refinement rather than fashion; to be wealthy not rich; to study hard, think quietly, talk gently, act frankly; to listen to stars and birds, to babes and sages, with open heart; to bear all cheerfully, do all bravely; await occasions, hurry never—in short to let the spiritual, unbidden and unconscious, grow up through the common. This is to be my symphony. —*William Ellery Channing.*

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1105-6 Merchants Exchange Bldg., San Francisco. Established 1860.

THE MARKETS.

San Francisco, Sept. 14, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Values are settling down to a little more definite basis in the local market, and a better demand has appeared during the past week, though transactions are still of limited volume. White Australian is again moving, and local club stands the same as before. Northern wheat generally is weak. Considerable quantities of the new grain are now coming down from the north. Growers in the Northern States are holding back a large part of their crop, in anticipation of an advance later on.

California Club	$1.65	@1.70
White Australian	1.90	@2.00
Northern Club	1.62½	@1.65
Northern Bluestem	1.75	@1.80
Russian Red		1.62½
Turkey Red	1.65	@1.75

BARLEY.

Arrivals have been rather large, but the local market for feed and brewing grain is quiet. The movement of shipping barley in the interior, however, contines fairly active. While the spot market has been somewhat inclined to easiness, all quotations have been maintained at the figures previously quoted.

Brewing	$1.40	@1.42½
Shipping	1.40	@1.42½
Chevalier		1.47½
Good to Choice Feed, per ctl.	1.35	@1.38¼
Common Feed	1.32½	@1.33¾

OATS.

This market remains almost entirely lifeless, with local demands extremely small. About the only feature is the fact that this grain is again being shipped in from the north in considerable quantities. Prices on all local grades remain unchanged, but Texas red oats, which have been offering liberally on this market, are quoted at higher figures.

White, per ctl.	$1.70	@1.75
New Red, choice	1.70	@1.80
Common	1.57½	@1.67½
Red, seed	1.95	@2.10
Black	2.35	@2.70
Gray	1.67½	@1.72½

CORN.

Continued arrivals of corn from the Orient, both here and at northern ports, are attracting considerable interest. The imported grain is said to be of inferior quality. The market remains quiet and featureless, with light arrivals from any quarter during the past week. A considerable advance is quoted on Western grades in bulk.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk.		1.68
Mixed, in bulk		1.66
White, in bulk		1.70

RYE.

There has been scarcely any demand for rye of late, and there have been no transactions of any volume recently. In the absence of trading, prices are quoted nominally as before.

Rye	$1.65	@1.80

BEANS.

Harvesting of the new crop is now well under way in most growing districts, and offerings in the local market show some increase, though it will be several weeks before large shipments begin to come forward. Pinks show some advance, and small whites, which are scarce on the spot, are held at high prices. The market, however, is irregular, prices showing considerable variation on account of the uncertain supply at the moment. Large whites have declined sharply, with liberal offerings of new stock. Limas and bayos are also lower, and new bayos are expected on the market at any time. Blackeyes, which dropped a few days ago, are again higher.

Bayos, per ctl.	$4.75	@5.00
Blackeyes	3.50	@3.60
Cranberry Beans	3.50	@3.75
Garvanos	2.50	@3.50
Horse Beans	1.75	@2.10
Small Whites		3.00
Large Whites	3.00	@3.50
Limas	4.10	@4.25
Pea	Nominal	
Pink	3.10	@3.25
Red	Nominal	
Red Kidneys	3.50	@3.85

SEEDS.

Local dealers are getting in considerable new stock in preparation for the fall demand, but report no further changes in prices. So far there has been little inquiry from the interior, and the market is likely to remain inactive for several weeks.

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb		3¾c
Canary	4¼	@4½c
Flaxseed		4 c
Hemp	3¾	@4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

The local millmen have announced a reduction of 20 cents per barrel on all California brands and a similar reduction has been made in the south. Outside brands offered in this market, however, are held at former figures. Flour from the old crop is still firmly held in the north, where supplies of old wheat are very small, but the new flour is easy.

Cal. Family Extras	$6.20	@6.60
Bakers' Extras	6.20	@6.00
Superfine	5.10	@5.30
Oregon and Washington	5.30	@5.50

HAY.

Arrivals have again increased, with a general pressure to market the large quantities still unhoused in the country. Most of the better grades, however, is now in storage. Such stock is arriving in small quantities, and sells readily at firm prices. Conditions are still unsatisfactory on low grade stock, which sells very slowly. Prices are nominally the same as before, but sales are frequently made at concessions. Present conditions are expected to continue for about a month more, but after that dealers look for some improvement.

Choice Wheat, per ton	$17.00@19.00
Other Grade Wheat	12.00@16.50
Wheat and Oats	13.00@15.50
Tame Oat	13.00@16.00
Barley	10.00@12.50
Wild Oat	10.00@12.50
Alfalfa	10.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

Bran, shorts and middlings, while easier in some quarters, are still steadily held at former quotations in this market. Supplies of all descriptions are quite ample for all current demands, and the movement shows little variation.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
	39.00@40.00
Corn Meal	40.00@41.00
Cracked Corn	36.50@37.50
Middlings	25.00@30.00
Mixed Feeds	39.50@41.00
Oil Cake, per ton	30.00@31.00
Rolled Barley	31.50@33.00
Shorts	

VEGETABLES.

The movement has been somewhat steadier this week, and arrivals in some lines have been a little lighter. Supplies have been quite sufficient, however, and few articles show much advance. Onions are in about the same condition as before, though choice stock is a little firmer. Green peas are a little higher. Arrivals of tomatoes are somewhat smaller, with higher prices, but heavy supplies will probably come in during the next few days. Green corn is also stronger, with little choice stock offered. Green peppers are also firm. Summer squash, cucumbers and okra are lower, with heavy supplies which are rather hard to move.

Onions—New Yellow, per ctl.	60@	75c
Garlic, per lb.	4@	5c
Green Peas, per lb.	3@	4c
String Beans, per lb.	2@	4c
Lima Beans, per lb.	3@	4c
Tomatoes, per box	50@	75c
Green Peppers, per box	40@	60c
Green Corn, per sack	1.00@	1.50
Summer Squash, large box	50@	60c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	35@	50c
Pickle Cucumbers, per box	75c@	1.00
Egg Plant, per box	60@	75c
Okra, per box	30@	50c

POULTRY.

As was expected, the market has been very strong for the last two weeks, and prices show considerable advance on nearly all descriptions. Continued firmness is expected for several days. With a Jewish holiday on September 25, a heavy demand for fat stock is expected up to Thursday. The novelty of turkeys has worn off, and the market is less active, though prices show little change.

Broilers	$ 4.00@	5.00
Small Broilers	3.25@	4.00
Fryers	5.50@	6.50
Hens, extra	9.00@	12.00
Hens, per doz	6.00@	8.00
Small Hens	5.00@	5.50
Old Roosters	4.00@	5.00
Young Roosters	6.50@	7.50
Young Roosters, full grown	8.00@	10.00
Pigeons	1.00@	1.25
Squabs	2.00@	2.50
Ducks	4.00@	8.00
Geese, per pair	2.00@	2.50
Spring Turkeys, per lb	19@	20c

BUTTER.

Arrivals of butter continue light, especially for the last few days, and supplies of extras are very small. With about average demand, all offerings are quickly cleaned up, and the top grade is 2 cents higher. Lower grades are also in good demand, but supplies have been sufficient to prevent any further advance.

California (extras), per lb	32½c
Firsts	29½c
Seconds	28½c
Fresh Packing Stock, No. 1	25 c

EGGS.

All grades of eggs are quoted exactly as last week, though there has been some fluctuation on the upper grades. Extras stood a cent higher most of the week, but with a little pressure to sell the market has developed an easier tone. Firsts are moving freely. Offerings of low grade stock are rather large, but the market remains steady.

California (extras), per doz	41 c
Firsts	34 c
Seconds	30 c
Thirds	24 c

CHEESE.

Continued weakness is noted on all local descriptions, as the demand most of the time is rather slack, while the arrivals continue about as before. Fancy flats have been fluctuating more or less, standing ½ cent higher for a few days, while flat firsts and fancy Y. A.'s are lower. Oregon stock is quoted as before, but is weak, while New York cheese is firm at the previous quotation. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	16 c
Firsts	15 c
New Young Americas, fancy	16 c
Oregon Flats	16½c
Oregon Young Americas	16½c
N. Y., fancy	18½c

POTATOES.

Both river stock and Salinas Burbanks show a decline of about 10 cents per ctl., and the local market is weak, with heavy supplies. The interior market is also weak, with large sales by leading interests. Heavy shipments have been moving to Texas for some time, but the Colorado shippers are now getting into that market, shutting out much of the California product.

Potatoes—River Whites	60@	75c
Salinas Burbanks	1.40@	1.65
Sweet Potatoes, ctl.	1.60@	1.75

FRESH FRUITS.

The unusually warm weather this week has caused a marked increase in the local demand for all descriptions of fresh fruits, particularly for melons, for all varieties of which higher prices are quoted. There has also been a very large movement of grapes, but the arrivals have been so large that prices show no improvement. Berries are very plentiful, and while strawberries are a little stronger, other varieties are weak. Apples remain firm, with no surplus of fancy stock. Choice Bartlett pears are a little higher, but other descriptions are unchanged. Figs are lower, and plums and prunes, while a little higher, are hard to move. A good many pomegranates have been coming into the market, and sell at the prices quoted. Zinfandel wine grapes are plentiful and cheap, but in good demand.

Melons, Cantaloupes, crate	$ 1.00@	1.50
Nutmeg, per box	50@	75c
Watermelons, per doz	1.25@	2.50
Raspberries, per chest	4.00@	5.00
Blackberries, per chest	2.00@	3.00
Strawberries	2.50@	4.00
Huckleberries, per lb	10@	12½c
Grapes, Seedless, per crate	40@	65c
Muscat	40@	65c
Tokays	50@	75c
Other varieties	35c@	1.00
Wine Grapes, per ton	10.00@	15.00
Apples—		
Fancy, per box	1.00@	1.50
Common	65c@	1.00
Figs, per box	40@	75c
Peaches	40@	75c
Lug boxes	60c@	1.00
Plums, per box	50c@	1.00
Crate	50@	65c
Pears—Bartletts, No. 1, box	1.25@	1.85
other varieties	50@	85c
Quinces, per box	60@	75c
Pomegranates, small box	75c@	1.00

CITRUS FRUITS.

Citrus goods are in rather better demand than for the last few weeks, and lemons are moving quite freely. Grape fruit is easier, but Valencia oranges are a little stronger. Choice lemons show an advance.

Choice Lemons	$ 2.50@	3.50
Fancy Lemons	4.00@	4.50
Standard	1.00@	1.50
Limes	5.50@	6.00
Oranges, Valencias	2.25@	3.00
Grape Fruit	2.50@	3.00

DRIED FRUITS.

Shipments of dried fruits by sea last month amounted to over 1875 tons, of which the greater part went to Germany. The movement a year ago amounted to only about 460 tons. Shipments are still keeping up on a large scale, especially to Europe. It is reported that a large proportion of the apricot crop has already been sold in that quarter, leaving little for the domestic trade. The local market is very firm, with little left in growers' hands, though prices show no further advance. Sales of prunes to Europe have also been very heavy, and domestic orders are now coming in more rapidly. Some sizes are reported quite short. The packers are generally out for stock out of the new crop, and state that they are making purchases all over the State at the prices quoted. The crop is rapidly being cured, and will soon be moving in large quantities. Peaches are still quiet, with most of the crop available for shipment. Raisins remain dull and weak, but more movement is expected as the curing of the crop progresses.

Evaporated Apples, per lb		7½c
Figs, black, new crop		2 c
Figs, white, new crop		2 c
Apricots, new crop	7½@	8½c
Peaches, new crop	4 @	4¼c
Prunes, 4-size basis	2¼ @	2½c
Pears	5 @	7 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2 @	2½c
Thompson Seedless		2 c
Seedless Sultanas		2 c
London Layers, 3 crown	85@	95c

NUTS.

A few walnuts have been sold in the south at prices not named, but association prices are expected at any time. Almonds are beginning to move more freely, with a strong demand in all quarters, and all available stock is likely to be cleaned up rapidly. Local packers quote the following prices.

Almonds (new crop)—		
Nonpareils	14½@	15 c
I X L		14 c
Ne Plus Ultra		13½c
Drakes		11 c
Languedoc		10 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7 c

HONEY.

A considerable amount of the crop still remains on hand in producing districts, but the movement is a little more active. The demand in the local market is still very moderate, but a fair movement is going on. Local dealers quote the following prices, but reports from some of the outside districts are to the effect that 4½ to 5 cents on extracted and 8 to 9 cents on comb are the ruling prices to growers.

Comb	10	@14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

Hops are rather quiet at present, with holders asking extremely high prices, though there is a strong demand in all quarters. There is little old stock offered, and most of the smaller crops have been sold. A further advance is reported on both old and new hops.

Hops, Old, per lb	12½	@15 c
New crop	18	@22 c

WOOL.

The buyers made a few purchases at the opening of the fall season, but most of them are holding off at present, being dissatisfied with the prices asked. They state that there is very little free wool in the fall clips so far offered, and the grades available here are not wanted in the East.

Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 9 c

MEAT.

All dressed meats except hogs are higher, and live cattle are quite strong, with a slight advance on steers and cows. Live hogs are lower, and dressed pork, while unchanged, is weak. Arrivals are large, and with a very moderate demand the market is in a poor position.

Beef: Steers, per lb	6¾	@ 7½c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal	7½	@ 10½c
Mutton: Wethers	8	@ 9 c
Ewes	7½	@ 8½c
Lambs	9½	@ 10½c
Hogs, dressed	9	@11½c

LIVESTOCK.

Steers: No. 1	4	@ 4¾c
No. 2		3¾c
Cows and Heifers: No. 1	3¼	@ 3¾c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5¼c
Medium		4½c
Heavy	4	@ 4¼c
Sheep: Wethers		4¼c
Ewes		3¾c
Lambs	5¼	@ 5½c
Hogs: Grain fed, 100 to 150 lbs.		7 c
150 to 250 lbs		7¼c
250 to 325 lbs		6¾c
Common Hogs, lb	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per ent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Cal., Sept. 14, 1909.—The California Fruit Distributors have received word of sales of fruit in the East as follows: 10 in Chicago, 6 by Distributors; 4 in Philadelphia, by Distributors; 1 in Pittsburg, by Distributors; 7 in Boston, 5 by Distributors; 29 in New York, 19 by Distributors; 3 in St. Paul, by Distributors; 3 in Minneapolis, by Distributors.

Fruit prices averaged as follows:

Boston—Tokays, $1.30; Malagas, $1.10; Bartletts, $2; Germans, $1.12; Strawberry Clings, 85c.; Colorado Elbertas, $1.10; Oregon Italians, $1.25.

Chicago—Tokays, $1; Malagas, 95c.; Italians, 80c.; Silvers, $1.15.

New York—Tokays, 90c. to $1.20; Bartletts, $3; white clings, 60c; Crawfords, 70c. Market was strong on grapes, but weak on peaches.

Shipments of peaches are getting smaller, pears about gone. Apples are going out in large numbers and grapes show heavier shipments than last season.

Total shipments to date 9364 cars, as against 7207 to same time last year.

Special Citrus Market Report.

Los Angeles, Cal., Sept. 15, 1909.—There is a better tone to the market and a stronger feeling out here. In the auctions of Monday the prices were more uniform than they have been, and while those received in New York were slightly lower, those in the middle west were a lot hegher. The New York avarage was only low by comparison with former sales and this was so largely because there were a few cars of poor stock offered in the Monday sale. This fruit sold for less than $2.00 a box, while the Old Mission brand sold at $5.50 and the IXL brand, both from Fullerton, at $5.00 a box. The average for the sale was $2.78, while the average for all sales on this date was $2.64.

The dealers report a livelier interest in Valencias, and while the prices on the best stock has not gone up any, there has been advances in the poorer grades. The average orchard run grades from Orange county are being offered at from $1.85 to $1.95 a box, while the poorer fruit that was offered a week ago at $1.50 is now being held at $1.65 to $1.75 a box. A car of Pomona stock that had been slightly frosted was sold last Saturday at $1.75 to a very close buyer, who inspected the car himself.

There is not much movement in lemons and very little demand. The shipments are very light and as a matter of fact there is not much stock here to move, a shipper stating this week that he doubted if there was over 100 cars of old stock lemons in store that were fit to move. This old stock is not in very good condition and is mostly what would be termed a very ordinary choice grade. The new cut stock is, of course, all right, and some of it is being sweated to bring it to

proper shipping condition in case of a sudden demand. The Sicily stock available amounts to 55,000 boxes, as against 48,000 boxes at this time last season, and 60,000 boxes in 1907.

The citrus fruit shipments to this date have been 30,547 cars of oranges and 5935 cars of lemons. To same time last season, 24,087 cars of oranges and 4455 cars of lemons. For the past week the daily average of shipment has been 40 cars of oranges and eight cars of lemons.

LIVE STOCK AT SEATTLE.

Universal regret is expressed at the loss which live stock interests have sustained in the death of Mr. M. D. Wisdom, superintendent of live stock at the Alaska-Yukon-Pacific Exposition, and widely known as the editor of the North Pacific Rural Spirit. Fortunately for affairs at Seattle, says the Breeder's Gazette, Prof. W. L. Carlyle has been induced to take up Mr. Wisdom's work, for which he is peculiarly fitted. His executive ability was long since proved of a superior order, and the experience he has acquired in his official connection with the management of the Western Live Stock Show at Denver qualifies him thoroughly for the task.

MUZZLING ROOSTERS.

The recent municipal edict which may spell the banishment of the sleep-destroying rooster within Washington's limits, has aroused the inventive genius of a man who has devised a rooster muzzle. His idea is to kill the crow, but save the rooster. This advocate of a noiseless chanticleer believes that if the authorities will sanction the use of the device, which consists of a simple collar of leather with a small cotton pad fastened around the rooster's neck sufficiently tight to throttle the vocal organ, both the community and the rooster can live in peace and quiet. The corporation counsel has been asked to determine whether to muzzle roosters is legal.

The crop of alfalfa seed in Kings county is reported to be light this season, though the district around Alpaugh will have a good crop.

PUBLISHER'S DEPARTMENT.

As a commercial proposition, the pinless clothes line, manufactured at Portland, is a live wire for agents. It is certainly a commendable feature, as a point of utility and commercial profit. Note the advertisement in the PACIFIC RURAL PRESS today.

W. E. Hampton, of San Francisco, a well known machinery salesman and mechanical engineer, has purchased the Standard Iron Works, on Mission street, near Tenth, and has a large supply of second-hand machinery and pipe on hand. He is offering bargains.

The Routledge Seed Co., of Portland, Oregon, is certainly an up-to-date proposition. Mr. Ralph Routledge, the manager and founder, knows the seed and nursery business from the ground up. He has, within one year, launched a business in Portland that is the equal of any. You will note the advertisement of this company in the PACIFIC RURAL PRESS. They are doing a mail order business.

The new Imperial Hotel, at Portland, Oregon, is soon to be opened for business. With the completion of the new plant, Messrs. Metschan & Lane, have a great hostelry. They will have 300 rooms furnished in modern shape, and will maintain a very unique, as well as modern hotel. Mr. Philip Metschan, the senior proprietor, is giving the new extension much of his personal attention and counsel.

The West Coast Mill, of Los Angeles, is advertising in this issue its preparation "Scalefoe." This is a spray for trees that was well tried before the West Coast people added it to their list of products. They recommend it for spraying for San Jose, black, red, purple and brown scale, also for red spider, aphis, canker worm, moss, caterpillars, lice, worms, codling moth, and other insects. Write them for prices and testimonials.

WINNINGS AT THE STATE FAIR.

W. Sullivan won the highest honors with Single Comb Buff Orpingtons of any exhibitor of poultry. Winning all sweepstakes prizes in the English class, Best Display, Best Pen, Best Male, Best Female. All first prizes but one, taking 11 of a possible 15 class awards. With this Sullivan's Orpingtons have eight specials from the American Orpingtons Club and the National Single Comb Buff Orpingtons Club, of which latter Mr. Sullivan is vice-president for California.

BULLETIN ON PEAR THRIPS.

The California State Board of Trade, through members of our Congressional delegation, has secured a supply of Bulletin No. 80, "The Pear Thrips and Its Control," and will furnish the same on application.

The bulletin gives full information as to the life and work of the thrips and instructions for fighting it on the lines that the experts of the department used successfully during the past season.

The fruit growers of the State are now in a position to reap the benefit of the work of the department in finding the means of destroying the pest and averting great loss to the industry.

It is now the part of the growers to make use of the knowledge.

The State Board of Trade was active in bringing the serious nature of the matter to the attention of the department and in securing adequate appropriation for the work of the experts, and now feels impelled to urge upon the fruit growers, individually, to prepare for a campaign of extermination for the coming season.

The first blows must be struck in October and November.

The bulletin will tell you how.

Send for a copy at once.

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FARM BOOKS.

The following list of books are kept in stock and are for sale at the Pacific Rural Press office:

	Price.
Farmers Encyclopedia of Agriculture, by Wilcox & Smith	$3.50
Shepherd's Manual, by Stewart	1.00
The Hop, by Myrick	1.50
Farm Grasses of the U. S., by Spillman	1.00
Animal Breeding, by Shaw	1.50
New Rhubarb Culture, by Morse	.50
New Onion Culture, by Greiner	.50
Home Pork Making, by Fulton	.50
Profitable Dairying, by Peck	.75
The Potato, by Fraser	.75
Asparagus Growing, by Hexamer	.50
Cider Makers' Hand Book, by Trowbridge	.50
Chemistry of the Farm, by Warrington	1.00
Cereals in America, by Hunt	1.75
American Grape Growing and Wine Making, by Hussmann	1.50
Broom Corn and Brooms	.50
Soiling Crops, by Shaw	1.50
Book of Corn, by Myrick	1.50
New Egg Farm, by Stoddard	1.00
Dairyman's Manual, by Stewart	1.50
American Cattle Doctor, by Dodd	1.00
Greenhouse Management, by Taft	1.50
Greenhouse Construction, by Taft	1.50
Mushrooms, by Falconer	1.00
Plant Life on the Farm, by Masters	1.00

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By E. J. WICKSON, A.M.

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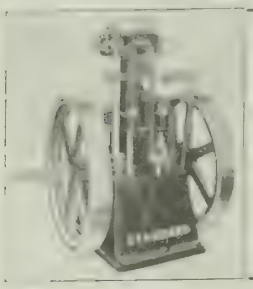
State Horticultural Commissioner J. W Jeffrey in The Los Angeles Times:

"I received a valuable birthday present last week, in the form of a beautiful book entitled 'California Fruits and How to Grow Them.' This is the fourth edition. It is the fourth revision, rather, as most of the text has either been rewritten or added to the contents of the first publications. The author of this valuable work is Professor Edward J. Wickson, Dean of the College of Agriculture of the University of California. Never before has such a complete compendium of California fruit-growing been offered. Its size is commensurate with the subject, containing 434 pages of pure-strained information upon every phase of orcharding and presenting the topics in a most convenient and comprehensive way. It is Wickson from title page to index, and upon it all is the impress of the Kruckeberg art in printing. It is illustrated with the most numerous and illuminating engravings I have ever seen in a work of this character; the text is plain and the general make-up worthy the author, the publisher and the great subject treated in its pages. Just take my advice without further investigation and secure a copy. You will get full value in the first 150 pages."

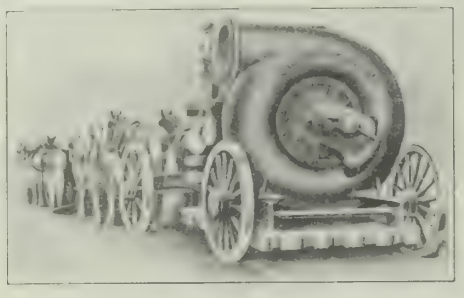
"I have had occasion to consult Prof. Wickson's 'California Fruits' on many subjects and have found what I wanted in every case. The book might well be styled an Encyclopedia of California Horticulture."—L. Lathwesen, San Jose.

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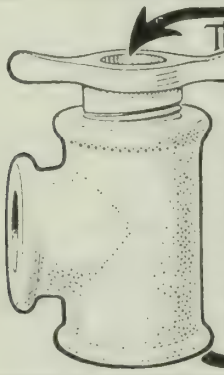
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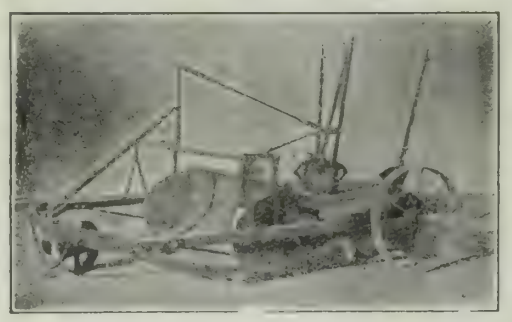
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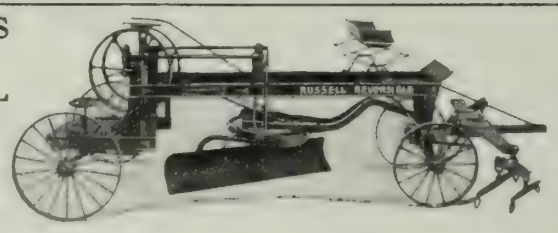


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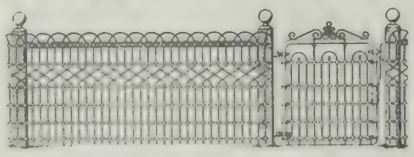
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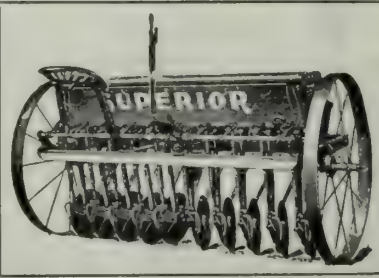
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Vol. LXXVIII. No. 13. SAN FRANCISCO, SATURDAY, SEPTEMBER 25, 1909. Thirty-ninth Year.

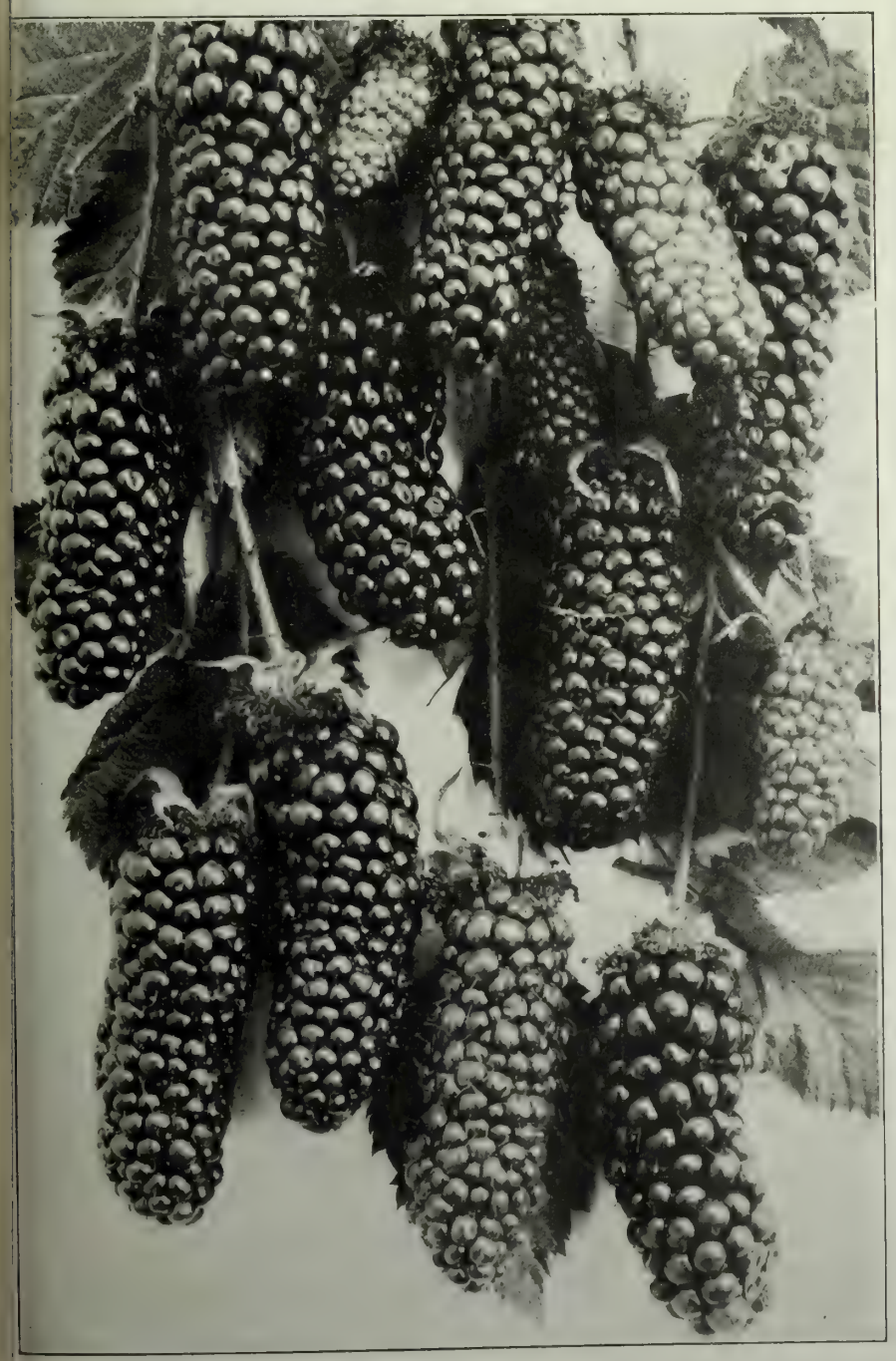
CALIFORNIA STATE

Loganberry, Logan Blackberry and Mammoth Blackberry.

Written for the PACIFIC RURAL PRESS by the Originator, Judge J. H. LOGAN, of Santa Cruz.

In 1880 I started a fruit and vegetable garden on the Heights in Santa Cruz, Cal. I planted every variety of blackberry and raspberry I could obtain. These were generally planted without any reference to association of varieties. There was one exception. I planted the Texas Early (a variety of the Rubus Villosus, or High Bush) and the California dewberry (Rubus Ursinus, a sub-variety of the Rubus Canadensis) side by side. I had in mind a cross between those two berries.

I think it is generally conceded that the California wild blackberry for its flavor of fruit is without a peer, but it has so many adverse characteristics that its cultivation is limited. The Texas Early, while not as desirable as the Ursinus for fruit, has qualities for the purpose of crossing not possessed by any other blackberry, viz: early flowering and being unisexual or staminate. The Ursinus is one of the earliest of all berries, and the Texas Early flowers over a greater period of time than any other



The Mammoth Blackberry.



The Loganberry.

berry, being practically an evergreen.

The Ursinus generally begins to grow in February, and flowers in March and April, consequently a cross between the California Ursinus and Texas Early was possible; hence, seeing the opportunity for a cross that might make an improvement on both varieties, they were planted side by side. By the merest accident, not deeming a cross between the blackberry and the raspberry possible, I planted a variety of the Red Antwerp (Rubus Idaeus), which was one of the best raspberries growing in Santa Cruz at that time, and for an all round berry I think has no equal.

In 1881 the plants bore. In pursuance of my original intentions the Ursinus seed was taken and planted in August, 1881. About three hundred seedling plants were produced, all, as far as I noticed, were closely alike in appearance. They did not resemble in cane or foliage any blackberry I had ever before seen. In the spring of 1883 I noticed one of the seedlings unlike the others. It happened to be the very first one in the row, and its similarity and appearance to the raspberry was most striking. This was the Loganberry. In May of that year the berries all began to ripen, and the result of the planting became apparent. In addition to

(Continued on Page 196.)

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Sept. 21, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	00	.55	.83	74	44
Red Bluff	00	00	.37	100	60
Sacramento	00	00	.18	98	56
San Francisco	00	T	.08	94	50
San Jose	00	00	.18	96	44
Fresno	00	00	.04	102	58
Independence	00	.25	.02	88	50
San Luis Obispo	00	00	.23	102	48
Los Angeles	00	T	00	104	54
San Diego	00	.02	00	100	58

The Week.

We are becoming quite glad that we had that struggle last summer with the five billion dollar scheme of the irrigation boomers, because in the vain effort to comprehend what billions of dollars mean we did learn to think in millions. We count this fortunate, because California products are running into millions of value so fast that no smaller unit of measurement will longer serve in the discussion of plans for their wide distribution and profitable sale. For this reason it is necessary to become familiar with the millionization of California agriculture; not necessarily of the individual, but of all classes of individuals who contribute to the splendid aggregations of special products which we are offering to the world.

It is becoming very clear that small plans of self-financed associations of growers cannot cope with situations which our leading products are either now facing or into the midst of which they were plunged some time ago by the rapidity of their development. If certain plans for organization and co-operative marketing which were clearly set forth twenty-five years ago had been earnestly taken up and strongly pushed forward, undoubtedly the troubles which are now serious would have been prevented from arising. Growers could have promoted adequate distribution and at the same time have accumulated, in their own organizations, capital enough to carry their products or to push them rapidly into sale, as circumstances might require. Besides the growers would have realized vastly more money than they have from the hap-hazard marketing which has been carried on for the last two decades—except in the case of citrus fruits and a few minor products. But it is no use to bemoan the past. What could have been done then, growers did not do, because they could not agree among themselves, because they were drawn apart, from whatever union they could have agreed upon, by the force and favor of other interests, and because of other things too numerous to mention. It is probably too late now to proceed by the elementary methods of co-operation which would then have drawn together the growers into effective organization. It is not sure that they would succeed better now than they did then, though it is sure that they ought to do it, and it is fortunate that national farmers' organizations are still working toward that end. They probably cannot organize and evolve commercial wisdom, action and patronage fast enough to handle successfully products worth millions which must be profitably sold within a few months to save many from loss and hardship.

This view of the case oppresses us as we think of the necessity of selling at once particular products like prunes and raisins through organizations which are still largely to be built up by exhortation and conviction on the basis of everlasting truths like the value of education and co-operation. It is a splendid foundation, but how can it be made possible to build upon it any organization which shall have the commercial and financial wisdom and wealth to command and compensate the grower and reach and satisfy the consumer, while the ink is drying upon the signatures to its constitution? Though we fully believe in the ultimate success of organizations squarely built upon principles of education and co-operation, and though we believe their success will be of great importance in making every other sound recourse for the immediate marketing of pressing products permanently valuable, we cannot see how the situation can be adequately met by any fiat method, no matter how sound in principle or fervent in spirit. We apprehend that the work that needs to be done with the prune and the raisin is to combine three factors immediately, viz: production, capital and commercial experience for the immediate accomplishment of three other things, viz: money for the producer, profit for the capital and a fixed minimum price for the trade. These things can neither be combined nor accomplished soon enough by any scheme of co-operative organization or agreement. We can see only one possible way of reaching the desired ends quickly, and that is by incorporation based upon the co-operative interests in desired results by all involved in the present unfortunate situation, and they are the producer, the capitalist and the trade.

Cherishing these convictions as the result of much observation and thought we are deeply interested in propositions which come to us in published form this week from Fresno, where the marketing of this year's raisins is naturally plunging the whole community into serious concern. As we have long known the men advancing these propositions, we are prone to indulge in comments upon them and their plans. Mr. T. C. White pioneered in raisin making in the '70's, and from the experience gained upon his vineyard in the old California Colony drew a clear account of the then new art of California raisin making which still stands as a guide to beginners. Since then he has been a banker, and we wot not what other kind of a sound, enterprising and loyal citizen of Fresno, ever keenly awake to the wellbeing of the great community which he helped to create. In the Fresno Republican of September 18 Mr. White gives his plan of immediate action with some detail. Briefly, we may say that he proposes a corporation with a capital of a million dollars. He proposes that "25 per cent of the stock be subscribed by the leading financial men of the raisin districts and the other 75 per cent be subscribed by as many growers as see fit to subscribe, not to exceed one share of stock for each ton of raisins delivered.

"The corporation is to purchase the entire crop of California, guaranteeing 2 cents per pound in the sweat box, to be paid as follows: One cent upon delivery, and to non-stockholders the other cent within 60 days from the time of delivery.

"It is to make arrangements with the packers and seeders to market the entire crop of raisins delivered to the corporation at the usual prices for packing, commissions for selling and the customary price paid for Eastern brokerage, etc.

"The corporation is to fix the selling price, and should practically all of the raisins be delivered to the corporation a selling price could be fixed at a figure that would net to the grower at least 3 cents per pound in the sweat box. In that event the subscriber to the stock would get 3 cens per pound net, and the non-subscriber would get 2 cents. This would be an incentive to the grower to take stock in view of his participation in the profits of the corporation, and a business proposition for the corporation for the capitalists to subscribe the 25 per cent for the same reason.

"Under this plan no outside buyer would dare offer more than 2 cents for raisins, knowing that the corporation would be in position to cut the price to the 2-cent basis if necessary to meet competition, and besides there would be no object in outside packers (if such there might be) in buying on the outside when he could get his full supply from the corporation.

"A corporation having a capital of $1,000,000, $250,000 of which is subscribed by the leading bankers and capitalists, would at once assure the business success of the business end of it, and would inspire the confidence of the growers in the stability and success of the enterprise. And last, though not least, the packers would no doubt keep their hands off the buyers."

Such is Mr. White's plan. It seems to us very plain, and anyone can read between the lines antidotes and preventives for the difficulties which have arisen in the path of earlier efforts at organization. The statement suggests its own arguments to one who has had experience in this line, and by easy modification, meets the causes of failure in other similar lines.

In parallel columns with the foregoing in the journal already cited is another million dollar proposition by Mr. W. R. Nutting, also of Fresno. Mr. Nutting's plan is in harmony with Mr. White's, and the reasons cited in its support are essentially the same as those given above. Of Mr. Nutting and his work we desire to say that he it was who wrote an article in the PACIFIC RURAL PRESS which opened the way to the organization of the California Fruit Union in 1885, the pioneer effort of fruit-selling organizations, for the success of which the times were not ripe. Mr. Nutting did, however, soon proceed to engage in California fruit growing for the express purpose of placing his own product at the East, and has scored most creditable achievement in that line, having established brands and connections of much value. Mr. Nutting's contribution to this proposition is a very clear analysis of the situation and an argument in favor of a capable incorporation to lift the raisin industry immediately from its present difficulties. We can only give what seem to us a few very forcible paragraphs:

"If only a practical plan can be presented to the public for subscriptions by a number of gentlemen of sufficiently high standing to command respect and confidence in the enterprise, it seems to myself and many others that the thing can be done and done quickly. Anyone can see that such action would start the whole trade all over the United States into buying raisins at 2 cents and upward, whereas I have been told today that certain packers have this week refused to pay 2 cents, and expect to buy much lower than that before January.

"If the business only had 'a Napoleon of finance' able and willing to stand up and say, 'I have $1,000,000 cash to buy raisins with and I will buy all I can get at 2 cents a pound for one year from this date,' what would happen? Would he be overloaded with goods, or would a large ma-

jority wait for higher prices later? If he should fail to get goods enough to invest his money at 2 cents, and should, after a little, raise his price to 2⅛ cents, and then to 2¼, 2½, 2¾ and 3 cents, is it at all likely that he would be overstocked with raisins, if during all this time he was pushing the goods out at the East through all the packers and customary trade channels and with the help of advertising like other products?

"If either such an individual or such a corporation could be established with capital in the bank tomorrow, Associated Press dispatches could be sent out which would within 24 hours advise 2500 wholesale grocery jobbers and 150,000 retail grocers of the fact, and every man along the line would immediately 'sit up and take notice' and begin to figure how many raisins he wanted for the season and when he could buy them cheapest. Such dispatches, I think, could be so worded as to put the idea in the minds of the Eastern trade that now was the time to buy them cheapest, and thereby bring those large orders immediately which all the packers have been waiting many months for without success."

By thus drawing briefly from each of the gentlemen we have named and endorsed, we hope we have briefly given the method and the anticipated immediate effect upon the raisin trade of the United States of the powerful corporation which those who are patriotically and otherwise deeply interested in fixing a copper bottom to this year's raisin product, might create for their own and for State-wide purposes. We are convinced that this or something like this has to be done. Apparently the distant trade must have a price below which there will not be anything doing, or it will simply wait for a slump with open mouths for cut-rate raisins. There is nothing new or Californian about this experience with dried grapes. It is old as the currants of Zante. In Greece the government gets below the currant growers, makes advances, fixes prices, grades goods, regulates amount offered for sale, and does for its citizens just as a parent does for a child and his candy money. Do American citizens desire paternalism to that extent? Those who adhere to the nationalist's beliefs probably do. Perhaps that is the only way for those who cannot finance and regulate themselves. But before we enroll ourselves in that category, it seems to us that broader, more intelligent and more self-denying efforts should be made to handle our own affairs so that California products should be no longer killed in the marketing.

We have no sympathy with efforts toward extraction of high prices by withholding from consumers that which they need. No one who reads the prices mentioned in the foregoing discussion, or who knows the correspondingly low prices which would satisfy our home producers, could have even a suspicion that such movements are trusts for purposes of exaction. To fix a minimum price is a service to the trade and to the consumer; to fix such a price firmly and to proclaim it loudly, so that consumers as well as dealers shall know, is the best thing that could happen for all concerned. We really wonder whether Fresno will be the place where several things of wide value to the State will be worked out.

Queries and Replies.

Sisal Fiber in California.

To the Editor: Will you kindly tell we whether, in your judgment, the cultivation of any of the fibre plants, "Agave Americana" in particular, can be profitably undertaken on the Yuma Mesa? I have seen some very extravagant claims made as to the profit derived from the cultivation of the fibre plants, the profits being derived from the fibre and from alcohol extracted from the pulp. Any data that you may be able to give me on this, both as to the requirements of the plants in regard to the care and water required and as to the machinery required in working up the crop, will be greatly appreciated.—Enquirer, Redlands.

No one can give a perfectly satisfactory answer to your question about the growth of the Agave Americana. There is no question about the growth of the plant, but whether it can with our labor supply be properly handled for fiber or other products must be determined by experience. You can get suggestions concerning machinery, etc., by addressing the Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C., asking for their publication on sisal fiber and its extraction. The United States Department of Agriculture can also furnish you detailed publications on denatured alcohol, on the basis of which perhaps you can make computations which will be interesting to you. The whole matter remains in the category of agricultural speculation at present.

Planting on a Cover Crop.

To the Editor: The more I experiment, the more I see that first and foremost the thing to do is to fill our soil with humus, without which I do not think we can ever have much success. After plowing in a cover crop, how much time would you consider necessary to lapse before planting on top? The people here say they have had the very best results by planting immediately on top of cover crop, after plowing in. This is contrary to my notions of proper practice, but I should very much like to have your opinion on it, as I have never personally been able to verify the truth of such statements.—H. L., Imperial valley.

It may be all right to plant immediately on a plowed under cover crop, providing the crop is quite succulent and there is moisture enough to cause its speedy decay, but it depends upon what you plant, as some plants are destroyed by the fermentation which will follow or by drouth caused by leaving the soil too open and loose. Your own proposition of allowing three or four weeks for the decay of the succulent plant is a safer one. This, like many other things in California, depends very much on conditions, and cannot be determined by general rule.

A Subsoil Stirring Attachment.

To the Editor: I have read that a man in California has invented a subsoiler in the form of a hook or point which is fastened to the point of the plowshare. I believe this attachment is just what I need for a gasoline plow. If you know anything of it, what firms handle it and whether it is practical, please let me know.—Farmer, Oregon.

We have never heard of a subsoiling attachment made to the point of a plow, and doubt if strength enough could be had at that place to hold it in operation. There are, however, various forms of hooks, sometimes attached to the beam of the plow by a special standard or to the heel of the landside, so that they run just below the landside, and in that way accomplish a stirring of the subsoil. California experience with subsoilers, however, indicates that a subsoiling arrangement attached to a proper beam and plow handles can be better operated than any subsoiler attached to the plow itself. In this case the subsoiler follows the plow in the furrow, with a different team. You will get information concerning all these things by corresponding with those who advertise agricultural implements in our columns.

Pruning Hungarians.

To the Editor: Will Hungarian prunes produce a better crop if trees are pruned in the fall, and how much better? How many crates per tree would be a good crop for a 12-year-old orchard?—Grower, Fair Oaks.

Pruning in the fall is no different in effects than pruning in the winter. Of course you will get larger fruit and keep your trees from lying all over you ranch if you prune properly. It is not certain that you will get more fruit because there are many other things than pruning which go to make thrift and bearing in a tree. Quality of soil, adequate moisture supply and pruning are three factors which work toward the same end, and all need looking after. If you have all of these forces co-operating you might get 150 pounds of fruit per tree on the average.

Growing Vetches.

To the Editor: I wish to know as to the value of vetch, the European forage plant. Will it grow itself from year to year from the roots or seeds? Is there more than one variety? Where can the seed be obtained, and will it grow in the winter time in this part of California?—Farmer, Paso Robles.

The vetches which are now becoming quite common for winter growth in parts of California where the winter temperature does not fall too low are annuals and have to be freshly sown each year. The seed is largely grown in Oregon and is handled by California seedsmen. The seed should be sown as soon as the ground is moist enough by the earlier rains; in fact, as early in the fall as this condition arises, and the plant is good for winter forage, or for hay, or for plowing in when green to increase the humus and the richness of the soil. The vetches which are most widely grown at present are the common vetch and the hairy vetch; the former is leading.

Treatment of Uncovered Subsoil.

To the Editor: In grading my alfalfa land I was obliged to cut down a number of large knolls to a depth of from three to five feet. This land is consequently unproductive, and I wish to know if there is any fertilizer which will remedy this defect. The land in question is of a clayey nature.—Planter, San Bernardino.

Nothing will be so effective to overcome the undesirable characters of the subsoil which you have exposed in your grading than to make a liberal application of stable manure, plowing in whenever the ground gets moisture enough either from rainfall or irrigation. If you have not stable manure, rotten straw or other material of that sort, in connection with the liberal application of lime, would tend to overcome the hardness of the soil and help alfalfa to get a start. After such treatment we doubt if you will notice any particular difference in different parts of the fields. One of the peculiarities of California soils is that the subsoils are generally fertile whenever they can be rendered more friable.

Not a Thistle.

To the Editor: I am sending you a thistle that I wish you would name and tell me if there is any State law against them. If there is not, there surely ought to be.—Reader, Meridian.

The plant is not a thistle, although it has frightful spines. It is the "spiny clot bur"—Xanthium spinosum. There is no law against it. It is common on wild dry land, but does not persist generally after cultivation. Cut it before seeding and you will see less and less of it.

Red-Humped Caterpillars.

To the Editor: I am sending you some worms that I found on a Bellefleur apple tree. Kindly tell me what they are and what harm or good they do.—Orchardist, Santa Rosa.

They are red-humped caterpillars and are often abundant enough to destroy considerable foliage, which is bad for the tree, although it matters less as late as this than earlier. They can be killed by spraying with lead arsenate, just as spraying is done for the codlin moth.

Horticulture.

LOGANBERRY, LOGAN BLACKBERRY AND MAMMOTH BLACKBERRY.

(*Continued From Page 193.*)

the Loganberry, there were two kinds of blackberries, differing but slightly in appearance of cane, but were distinctly different in the form of fruit. The peculiarity of the vines of both blackberries was as striking as that of the Loganberry. They were neither High Bush nor dewberry, but a medium between the two.

They start growing in the spring, with large, vigorous, erect canes, and when they reach the height of six or seven feet they take on the running habit and fall down to the ground and make prodigious growth of cane. The spines are frequent, in that respect resembling the Ursinus, but larger and much more stout. The general appearance of these vines are unmistakably blackberry, but they can easily be distinguished from the old varieties.

The result of this planting, as I before said, was the Loganberry, a cross between the Ursinus and the raspberry, and a blackberry, a cross between the Ursinus and Texas Early. The blackberry has been separated into two sub-varieties under the name of the Mammoth, and a variety called for want of a better name, the Logan blackberry. In their early years these blackberries were not different enough in appearance to be easily distinguished, but later cultivation developed characteristics that separated them into distinct sub-varieties. While the difference in the general appearance of the two vines was apparent only to an expert, their fruiting qualities were conspicuously different. The Mammoth in style of growth, differs not only in its larger leaves, and somewhat larger canes, but its distinguished feature is the enoromous size of its berry. It can be safely said that in size no other berry approaches it. Berries are frequently found two and one-half inches long. Large fruit generally is preferable to small, as it has more pulp or meat and less seed or core.

The Mammoth and the Logan blackberry, when cooked may be indistinguishable, but eaten fresh for size of the Mammoth, for the reason stated, renders it far preferable. The Logan blackberry, however, has its good qualities, some of which make it a more profitable vine to grow for the market than any other berry. The amount of its fruit producing cane is enormous, although in that respect it has not much advantage over the Mammoth, but its bearing qualities ars simply marvelous. When the crop is at its height, the leaves of the plant are literally hidden from view by the enormous mass of berries. Many plants when well cultivated will cover the side of an average sized dwelling, measuring sometimes as much as 140 feet of bearing cane. I measured one cane of a Mammoth plant that had 146 feet of bearing cane, and the plant had other small canes that would have increased the amount to about 175 feet.

There was, in April of this year, in the garden of Supervisor Miller, of Santa Cruz, a Mammoth blackberry plant that had seven canes standing at a height of about seven feet, with no tendency yet to fall to the ground. What such an enormous growth of bearing cane will produce is beyond belief. A dozen plants of the Lawton, or Kittatiny, would not equal it in aggregation of bearing wood and fruit producing capacity.

It is claimed by those who have taken account of the fruit of one vine, that one hundred of the small fruit baskets in which all small fruits are generally marketed, have been taken from one vine of the Logan blackberry.

The Loganberry posses merits of the highest order for pies, shortcake, jam and jelly. It stands alone as a fresh fruit. When gathered at maturity and kept for about 24 hours in sugar, and eaten raw, it is delicious. But as it is usually gathered for the market, some ripe and some half ripe, it is not at its best.

As a producer it lacks the vigor and producing qualities of the black varieties. As a permanent plant it is not showing the stability that could be desired and requires frequent replacing of old vines with new plantings.

The Loganberry, in California Coast counties, usually begins to ripen about May 15th, and the principal crop is gone by July 15th, to be continued by lesser harvests to about August 15th. In the States of Oregon and Washington, however, it fruits at least a month later, and it is there showing a vigor and permanency, size of fruit and bearing qualities not found in California.

Mammoth and Logan blackberries have about the same ripening season, beginning about May 15th. In this respect it has supplied a long felt want, as blackberries prior to their introduction did not come in earlier than the first of July. They are now supplying the markets of this State with berries at least six weeks earlier than before their introduction.

As before stated, in planting the seed from which these berries were produced, the sole purpose was to produce an improved wild blackberry from a cross between the Texas Early and the Ursinus. The natural characteristics of the two berries mentioned rendered a new variety extremely probable. The Ursinus is a dewberry and is the prevailing, and apparently only, wild blackberry on the Pacific slope, excepting one in Alaska. The Ursinus existing in two forms and of separate sexes, one bearing the seed carp without fructifying pollen, and the other the pollen without the seed carp. The two must exist in near contact but in separate units. This has rendered a cross of the Ursinus and the highbush Lawton, or Kittatiny, impossible because not flowering together.

The fact that the Texas Early and the Ursinus flower together, caused their selection for the experiment. It was not deemed possible that a cross could be made between the raspberry and the blackberry, although both belong to the Rubus family. Repeated efforts had been made prior to that time to make such a cross, always resulting in a failure for some reason or other. Many such crosses were produced by the late E. S. Carman, of the Rural New Yorker, in former times. The cross was measurably successful and hybrid fruit was produced, but it was all, for some reason, defective and useless. Apparently the production of the Loganberry was the first successful cross ever made between these two different forms of the Rubus family. This occurred, as stated, in 1881. The result of uniting the forms and characteristics of the raspberry and blackberry was the production of a form of fruit and cane that had no existence before, at any rate nothing of the kind was in successful cultivation.

In fact it is an entirely new fruit, belonging, of course, to the Rubus family, but it is as distinct from any fruit heretofore in existence as is the blackberry or the raspberry. This is further borne out by the fact that the seeds of the Loganberry grow readily and produce fruit, but the fruits, like all other seedlings, are worthless except in rare instances, perhaps one in a thousand is equal to the parent. The Loganberry apparently has all the characteristics of the Ursinus, excepting in color and appearance which are raspberry, with a divided blackberry and raspberry flavor.

The roots have no adventitious buds, but plants are principally propagated from the tips or stolons which form in the fall at the end of the canes. The character of the running and dropping plant, which bends over in the fall, thereby reaching the ground, renders the multiplication of this vine by tips exceedingly easy. Unless the tips are allowed to reach soil their propagation by that method is impossible. This characteristic of the Ursinus not only controls the raspberry-blackberry cross, but also the Mammoth and Logan blackberry. So far as known no single plant has ever originated from these combinations, except by tips, cane buds or seeds. The multiplication of plants from the buds on the cane by layering is feasible. Canes buried only so deep in the ground as not to smother the buds, will strike roots on the underside down into the ground, and cane buds up in the air.

Another strange peculiarity is that the seedlings of the Loganberry have uniformly resulted in a berry similar to the Loganberry parent, but like most seedling fruits are, as a rule, worthless. They are always red, mostly small, utterly useless for cultivation, and the blossoms are—unlike the Ursinus parent—uniformly perfect, requiring no pollen from any other plant for fructification.

The characteristics of the forms of the three hundred plants of the cross between the Ursinus and Texas Early, as before described, were, as to many of them, different. It is not certain that many of these plants were of any value, many of the plants being like the Ursinus, fruit bearing but with no pollen. All such were, like the Ursinus, barren unless growing near pollen bearing plants. These have been scattered around all over the country, resulting in some cases in large gardens being filled with these worthless plants deficient in any power of fertilization and barren of fruit unless pollenized by stray staminate plants.

I have seen gardens with acres of such vines, with the result that they were barren and resulting in the production of no fruit. Persons having such vines can easily determine them by an examination of the flower. It will show that they are entirely without stamens, consequently must be pollenized from some chance contact with other berry plants. Another very singular peculiarity of not only the raspberry-blackberry cross, but of the blackberry crosses, was the planting of seeds of these several varieties cross pollenized. Out of hundreds of plants put out by the originator, as an experiment, in his garden at Santa Cruz—including Ursinus pollenized with the Loganberry, and Ursinus cross pollenized with the Mammoth and with the Logan blackberry, the flowers were uniformly perfect, but they were utterly barren of fruit, indicating that nature would tolerate no further crosses, the plants clearly bearing the characteristic of the Texas Early cross, and from which not a single perfect berry was found from the hundred plants.

The observer has not failed to notice that in the field of horticulture but little has been accomplished by our boasted advancements in science. While it is claimed by some people that they have secret methods of producing new fruits, and it is done under the operations of some magic or mystery, such claims are entirely without foundation.

Notwithstanding the great advancements in other fields, horticulture can claim no conspicuous results from the experiments of men supposed to be skilled in that field.

The fruit of the modern world that is now in general use and furnishes the choicest and best fruits in our markets, are almost uniformly not of recent origin. The two apples which stand at the head and front of the market the Newton Pippin and the Bellefleur—originated more than one hundred years ago. The two pears which are unapproached by any other in existence; the Bartlett, originated one hundred and fifty years ago in England, and the Seckel originated nearly one hundred years ago.

The same can be said of the Black Tartarian and Royal Ann cherries, the French prune, and almost every variety of grape remarkable for their excellence. In fact there is scarcely an apple, pear, plum, prune or grape now a public favorite that is not described in "Downing's Fruits and Fruit Trees of America," in the edition of 1845. The fruits I have mentioned are in a class by themselves.

It is, I think, an established fact that fruits under the manipulation of the hand of man are barren of results. All great productions in horticulture have been accidental seedlings, and were but the growth of nature assisted by intelligent selection and association. All that man can do, and he had done much, by his mechanical work is to create opportunities for their origination and caring for the best.

From the millions of wild seedlings that are grown every year from nature's planting, only furnish increased opportunities for the production of new fruits. Man's duty then begins to care for and cultivate these accidental seedlings when found growing wild.

Of the thousands of new fruits and flowers yearly launched upon an unsuspecting public, there may not be in a good many years a single plant that will survive intelligent criticism, or that will be of any value whatever to the public, when tried in the orchard.

A look at the catalogues issued every spring by nurserymen discloses plates of the most gorgeously colored flowers and fruits, to be followed by bitter disappointment when planted in our gardens and fully developed.

[Judge Logan's generalization as to the antiquity of fruit varieties now popular is a little too broad. The list of chiefly grown commercial peaches and shipping plums includes a large proportion of new varieties. The same is true, to a

less extent, however, of cherries. We certainly need the old, but we cannot safely disregard the new. It is enterprising to try them. Where would Judge Logan's berries be if the policy he advocates had been strictly followed? Would they have ever gone beyond the borders of his garden in Santa Cruz? His evident advice, not to expect from the new all that their introducers may claim, is good; but if you expect too little there would be no progress.—EDITOR].

MILDEW IN WINE TANKS.

To the Editor: In wetting down and getting in condition some storage wine tanks I have a great deal of trouble with mildew. If any water is left in them over night mildew will show in them on the following morning. Will you or some of your readers kindly tell me how I can wet down these tanks, which have become very dry, and keep the mildey out of them?—Reader, Morganhill.

The fumes of burning sulphur are the standard preventative of molds and mildews of all kinds in empty casks. If "Reader" will burn about six inches of the ordinary cellarman's sulphur tape to every 200 gallons of capacity in each cask, he will have no trouble in soaking up his casks without molding.

Casks which have been kept in good condition, however, should not become moldy in one night, as indicated by the letter. Casks which do this must be thoroughly impregnated with molds and spores. Such casks should be thoroughly sterilized by steaming or other of the disinfecting remedies used by good cellarmen before filling with wine.

Berkeley. F. T. BIOLETTI.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

What makes the Valencia turn green after it has become fully colored? I have asked this question of several growers and none of them have answered to my satisfaction. One of them said that it was the second growth of the orange, whatever that means, and that the only way to prevent it was to pick the fruit when it attained proper size and color. I have never heard of this condition existing in the navel or other varieties of the orange, but every year there is much trouble caused by the Valencia turning green about the stem end. So far as I know or can learn, there is no preventative, but it is generally conceded that the color can be brought back again to some extent, and that at times it comes back naturally. A grower said to me recently, "I have just paid a visit to the orchard of C. C. Chapman, at Placentia, and asked Mr. Chapman what he did to assist the Valencia orange in regaining its proper color, and he told me that he withheld the irrigation water until the leaves began to curl and that this was generally effective.

From the solution given above it would appear that the cause was to be traced to the fact that the tree was in too healthy a condition and that it was necessary to make it sick in order to color the fruit. Everyone knows that a sick tree or one that has been gophered will produce fruit that will be rich in color, and that the fruit will color earlier than that on a healthy tree. This idea must be along the same lines. I remember that Mr. Hemphill, manager of the Chapman ranch, in speaking about the time for irrigation said that he turned the water on when the trees needed it, not before, nor after. I told him of the theory one grower had to the effect that it was best to wait until the trees showed signs of wanting water before giving it to them, this with the idea of producing more normal sizes and richer fruit. Mr. Hemphill stated that to wait until the tree plainly showed that it needed the water was to wait too long, and if this is the case, it is hard to reconcile it with the above statement credited to Mr. Chapman, for it would hardly pay to severly injure the trees even for the sake of getting a better color on the fruit.

I ran across an orange grove recently, between Azusa and Glendora, where the trees nearly all showed the varigated or motley leaf. I asked the grower who was with me the reason for this appearance, and he said it was either because of a hard-pan sub-soil too close to the surface, or that it was on account of the lack of nitrogen in the soil. By the way, this grower did not own the orchard we were passing through, and he was very freely spoken on the subject of what ought to happen to a man who would let an orchard get into such a condition, it being, in his mind, a very easy matter to remedy. However, I find this disease very common in nearly every part of the citrus country, and am beginning to doubt the statement that it is easy to remedy, else why should it be so common? I am willing to admit that it appears generally in orchards that do not appear to be too well kept, and the idea comes to me that it is caused by lack of fertilizer in general, more than by lack of any particular ingredient, in other words, the tree is hungry and starving. Somebody has been trying to feed it on sawdust. I think that I have told the story once about the man who fitted his horse with green goggles and then fed it on sawdust. The horse liked it all right, but just as he got used to it, he died. So with a tree, and the poor tree has not even the protection afforded by the society with the long name, and the owner cannot be haled into court for cruelty. He can, and is, fined for his conduct in the loss he sustains through the non-productiveness of his trees, and it is right that this should be so. Any theory looking to the less liberal use of fertilizers is immediately embraced by some growers, but it is needless to say that they are not leaders among horticulturists, and the only way they ever get their names in the papers is through the foreclosure notices.

What do you do with the leaves and the limbs left from pruning? Burn them up. Many do that, having wagons with an iron body and doing the burning as the wagon is moved from place to place, while the men pick up the dead wood. Can you think of a better use to put this debris to? Someone has, and here it is. Instead of the portable furnace, get a portable hay cutter or knife with a small engine, mount the whole arrangement on wheels and drive it through the orchard, cutting up the small limbs, twigs and leaves as you go, scattering the cuttings along between the rows of trees. Next time you plow they all go under the soil, serving to make it more friable and adding elements that the soil needs. I know of several growers who are trying this method, and you would do the same if you could once see it in use.

Meteorological.

ORIGIN AND BEHAVIOR OF "NORTHERS."

By Mr. T. A. BLAIR, Assistant Observer U. S. Weather Bureau, Sacramento.

[As many parts of California were reached last week by a typical "norther," it is interesting to follow Mr. Blair in his analysis of such a wind as published in the last received copy of the Monthly Weather Review of the department, with which he is connected.—EDITOR].

The northers of the Sacramento valley form one of the well-marked characteristics of its climate, as distinctive as the foehn winds of the Alpine valleys, or the chinooks of the eastern slope of the Rocky Mountains, to which winds, indeed, these northers are closely related. They occur at intervals throughout the year, attain an average velocity of from 20 to 30 miles an hour, and blow steadily from the north or northwest, accompanied by a very low humidity and, except in the winter months, by a marked rise in temperature. They result from the development of areas of high barometer over the north Pacific Coast, and owe their warmth and dryness to the adiabatic cooling and heating which they undergo in their passage over the Siskiyou mountains. For, in ascending the northern slope of these mountains, which rise to elevations of from 5000 to 7000 feet, the air loses much of its moisture; and precipitation occurs with northerly winds on the northern slopes of the Siskiyous, while south of the mountains are the cloudless skies and the dry heat of the California norther.

The exceeding dryness of these northers is their most noteworthy characteristic. On June 17, 1907, at the regular evening observation a relative humidity of 9% was observed at this station, and percentages below 20 are not at all uncommon. In general also, these winds, though northerly, are noticeably warm; but during the winter months their temperature is slightly below the normal, for, coming from regions whose winter temperatures are much below those of the Sacramento valley, though losing much of their vapor, they are still insufficiently warmed to raise our temperatures. In October, 1906, there were ten consecutive days of prevailing northerly winds, during which there was an unbroken period of 147 hours of north or northwest winds. Three of these days showed in a marked degree the characteristics of the norther. On these days the maximum wind velocities were 31, 33, and 28 miles per hour, respectively; the relative humidities at the afternoon observations, 21, 17, and 20 per cent; and the departures from the normal temperature,—4°, —5°, and —3°. A typical summer norther occurred on June 27 and 28, 1908, on which days the maximum winds were 22 and 15 miles per hour, respectively; the relative humidities, 15 and 19%; and the temperature departures +7° and +10°.

The following conditions were taken as defining a norther: A maximum velocity of 15 miles per hour or more, accompanied by a relative humidity of 40% or lower, during the period from October to March, inclusive, or of 30% or lower, from April to September, inclusive. The records which cover the period from 1902 to 1908, inclusive, show the number of northers and the duration of each, e. g., March, 1902, had one norther of two days' duration and one of four days. There were 305 days of northers in the seven years, making an average of 43.6 days a year, or 3.6 days a month. The accompanying table indicates the number of northers and their distribution throughout the year. It is evident that they occur with greatest frequency during the spring and fall months, and are rare in December, January, and February, and in July and August. A considerable variation in the yearly number is also apparent, the extremes being 14 in 1902 and 21 in 1908. Dividing the total duration, 305 days, by the total number, 118, gives the average duration 2.6 days. It is the popular impression that these winds always last three days; but, though the average length just found might tend to confirm this belief, the records in detail show its inaccuracy. For instance, we find 25 northers lasting only one day, 40 of two days' duration, 27 of three days', 17 of four days', and nine of more than four days'. The maximum wind velocity occurring during the prevalence of a norther was 45 miles from the northwest in May, 1902. Though known as "northers" these winds are more frequently and characteristically from the northwest.

Number and season of northers.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
1902..	1	0	2	3	1	3	0	1	3	1	1	0	14
1903..	0	2	1	2	3	3	2	1	3	1	0	0	18
1904..	1	0	1	3	3	3	1	1	1	1	0	0	16
1905..	0	1	2	3	3	0	1	0	2	4	3	2	19
1906..	1	0	1	1	1	2	0	0	2	3	4	0	15
1907..	0	1	1	2	3	1	0	1	1	1	1	0	13
1908..	0	1	3	5	4	3	0	1	1	3	0	0	21
Sums.	3	5	11	17	20	13	4	5	13	14	11	2	118

The desiccating effect of these winds on soil and vegetation is marked; the soil quickly bakes and cracks, vegetation refuses to grow, lawns and alfalfa fields droop and wilt. Disagreeable and depressing effects are felt by man also; the skin becomes dry, sensitive persons have headaches, and all are cross and irritable. It is said that in the early days of rough and ready justice in California, if murder or violence resulted from a quarrel occurring during a norther, the fact that the north wind was blowing was taken into consideration as an extenuating circumstance! The air at these times is always said to be "full of electricity," and, as was suggested by the investigations made in connection with the foehn, the excess of positive electrons in the lower air may account for some of the disagreeable physical effects of these northers.

In connection with Mr. Blair's statement, Prof. Abbe says:

"These dry and descending winds, cool at night and hot by day, were observed in 1871 and 1872, and in fact occurring as predicted in the early California forecasts. The explanation then given agreed with that of Mr. Thomas A. Blair, adding

only that the high area did not always appear first over the north Pacific Coast, but more often formed over the mountains of Oregon and Canada and moved southward, spreading westerly a little but mostly to the eastward. Several of the great areas of high pressure studied by Prof. Thomas Russell showed this overflow westward down into the valleys of the San Joaquin and Sacramento."

AGRICULTURAL REVIEW.

BIG GRAPE YIELDS.

The crop of Thompson seedless grapes grown this season around Yuba City is reported as being very large and the work of harvesting them is now in progress. Some difficulty is being experienced in getting them to cure properly on account of the large size of the bunches. The price of the raisins has not yet been fixed.

From the Hanford Journal we get the following story of a big crop: W. W. Bloyd, Jr., who has a ranch just west of that town, reports that on his vineyard of a little more than four acres he has picked 3014 picking boxes full. The crop was hauled to the drying ground which covers a good acre, and there spread upon trays. The trays cover the acre, and there are 1598 trays, size 24x36 inches, and 2148 trays, size 30x36 inches, all filled. This would make 4283 trays commonly known among grape growers as 2x3 trays, all full. This same vineyard bore 2400 trays last season.

TO FIGHT INCREASE IN FREIGHT.

A meeting of the Citrus Protective League was held at Los Angeles last Friday, to discuss the raise in freight charges on lemons and oranges, which the railroads have announced. The meeting, after thoroughly discussing the subject, adopted the following resolution:

"Resolved, that the officers of the Citrus Protective League of California be authorized and instructed to take such legal measures as may be deemed advisable, necessary and expedient for the protection of citrus fruit growers against any increase in the freight rate on lemons and oranges by transcontinental lines."

The action of the railroad companies in advancing the freight rates immediately after the new tariff schedule was adopted, means that the growers lose practically all the benefits they had expected to receive. The fight against a raise in rates will probably be taken before the Interstate Commerce Commission.

PROFITABLE APPLE ORCHARD.

Growers of Gravenstein apples in the section around Sebastopol, Sonoma county, have claimed for some time to have the best paying apple orchards in the State. The story printed in the local paper from that place last week would seem to indicate that apple growers were making good money, even if they were not beating the records of other localities. The item referred to states that E. E. Morford nas a three acre orchard of Gravensteins located one mile northwest of Sebastopol, from which he realized a little less than $800 per acre net, this season. Mr. Morford purchased the orchard three years ago for $500 per acre.

MONEY IN A RIVER ORCHARD.

The Sunday News tells of a river bottom farm located near Courtland, 30 miles south of Sacramento, owned by Ernest Gammon. This farm of 40 acres, planted to pears and cherries, this year produced 17,000 boxes of pears which sold for $17,000 net, and $2000 worth of cherries. An average of $475 an acre for deciduous fruit is worth while, and proves that the lands along the Sacramento river are worth the expense in keeping them from overflow.

STOCK MEN RETIRE FROM BUSINESS.

Owing to restrictions in the National Forest Reserves and uncertainty of securing summer range, several of the larger cattle and sheep owners of the northern Sacramento valley announce that they will retire from the business. It is reported that such pioneer cattle men as Ike McKenzie, Mart Stover and Kauffman & March have sold out entirely, and that McKenzie has sold his ranch of several hundred acres.

HOG CHOLERA EXPENSIVE.

At the closing session of the Interstate Association of State Boards of Live Stock Commissioners, held at Chicago last week, the statement was made that hog cholera costs the farmers of the United States over $40,000,000 annually. It was urged that the legislatures of the various States where hog cholera was prevalent would make larger appropriations to stamp out the disease. Dr. M. T. Reynolds stated that it would require $200,000,000 to completely eradicate hog cholera from this country.

STATE GRANGE MEETING.

The thirty-seventh annual session of the California State Grange will be held at Petaluma, October 5th, commencing at 11 a. m.

At this meeting the fifth degree will be conferred, and a Pomona feast served. The usual railroad rates have been asked for.

BUYS FUMIGATING OUTFIT.

The county of San Diego last week purchased a complete fumigating outfit, including tents, chemicals, etc., and will place it in charge of Horticultural Commissioner Stuart. An effort will be made to clean the citrus trees in the county of scale of different kinds at cost for the growers.

STATE CREAMERY MEETING.

The California creamery men will hold a three days' session at Porterville, commencing November 18th. At this meeting, besides discussing practical dairying, a butter scoring contest will be held, and the creameries from all over the State are expected to compete for the prizes offered.

A BIG LAND SALE.

Fifty-two thousand dollars is the price reported to be paid for 1000 acres of land near Atwater, Merced county, recently, by the Arizona Investment Company. It is announced that the land will be divided into 40 acres tracts and set out to trees or alfalfa before being sold to settlers.

GOOD POTATO CROP.

Potato growers in the Salinas district have raised a good crop this season. Iver Madsen harvested 80 sacks per acre from 70 acres. Peter S. Craig planted 65 acres and has harvested over 5000 sacks of Burbanks that sold for $1.32½ per hundred f. o. b. cars.

Horticultural Notes.

Julian, the apple growing and mining town of San Diego county, will hold a big apple day festival on October 9th.

P. J. Dreher, of Pomona, has recently purchased 120 acres of land near Ducor, Tulare county, and will plant it to orange trees.

Apple shipments from Beaumont, Riverside county, are now being made in car lots. The crop is above the average and the quality fine.

J. H. Steinhardt, of New York, is said to have cornered the apple crop of the northwest. Steinhardt's purchase in the Hood river, Walla Walla and Dayton districts amounted to 400,000 boxes of apples, for some of which he paid at the rate of



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The Rhubarb and Berry Specialist. Dept. I.

8 cents per pound. By the deal he has practically stripped the trees of Washington of the season's crop.

Much damage is reported to the apple crop in the mountain district around Manton, Shasta county, by recent high winds. The prospect was for a big crop of fine quality fruit, but the wind blew much of it from the trees.

The annual meeting of the Claremont Horticultural Club will be hald at Ganesha Park, Pomona, Monday, September 27th. This is one of the oldest and strongest farmers' organizations in the State, and the annual meeting is always very interesting and well attended.

The apricot men of Santa Ana, who recently formed an association which controlled 400 tons of dried apricots, have about won out in their fight for an eight cent price. Most of the tonnage has already been sold at that price, and what is left will probably sell for half a cent higher.

General Agriculture.

Phalanx & Company are preparing to plant 240 acres of land to asparagus near Rockwood, Imperial valley, this fall. This will be the largest field in the valley.

The first Lompoc potatoes of the season were sent to the Los Angeles market recently and sold to the retailers at $1.60 per hundred. Car lots are being shipped from Lompoc.

The crop of sugar beets in the Watsonville district is estimated will total between 5000 and 6000 tons. The beets will not be harvested before October 1st, and will then be shipped to the Spreckels factory.

Early shipments of celery were made from the peat lands of Orange county last week. The amount sent out was small, being sent in crates to various Coast points, and sold for $2.25 to $2.75 per crate.

Under the auspicies of the grange, a Farmers' Institute will be held at Napa, October 15th and 16th. A very able program has been prepared for the several sessions, and farmers in that locality will do well to keep the dates in mind and be sure to attend.

According to the Hanford Journal alfalfa growers have had a very prosperous year. At present alfalfa hay is selling for $8 per ton in the stack, and $9.50 delivered in the city. Owing to shortage of feed in that locality dairymen are out in the country looking for hay.

Mr. G. P. Rigsford, special agent for the Department of Agriculture, reports that the crop of dried figs raised in California this year will amount to about 4000 tons. The crop is a good average one, and the growth of acreage coming into bearing makes the crop about 500 tons heavier than last season.

Shipping tomatoes East by carloads is being tried out by growers at Centerville, Alameda county. The tomatoes are picked green, wrapped in paper and packed in cases, the cars are iced before starting on the long journey to New York. Three cars were sent out last week and the prices received in the markets will make or mar the new enterprise.

The experiments being conducted in Butte county by the United States Department of Agriculture, in rice growing, have proven very successful this year. It is reported that nearly 300 varieties of this cereal have done remarkably well, enough so that rice growing is now said to be one of the crops that can be profitably grown in like situations in California.

The cotton crop of the Imperial valley is now being harvested, growers are paying 80 cents per hundred to Mexicans for picking. The first cotton gin is in course of erection at El Centro and will be ready to work next week. Part of the crop has already been sold to the Oakland Cotton Mills for 12 cents per pound, and as the crop is a good one, the growers expect to make money.

Stock and Dairy Notes.

Large cattle sales are reported from Shasta county. The stock being for the San Francisco market was mostly beef.

Twelve head of Jersey dairy cows belonging to Beckley Bros., of Grand Island, Colusa county, were sold recently at an average of $75 per head.

O. Lindley, of Ferndale, Humboldt county, has been in the Healdsburg district for the past two weeks endeavoring to purchase several thousand acres for sheep pasturage.

The co-operative creamery at Pt. Arena, Mendocino county, was destroyed by fire last week. The plant was owned by the farmers of that vicinity and valued at $15,000. No insurance was carried upon the building or contents.

The fall sheep shearing is nearing completion and the clip is reported very good. Prices in the north Sacramento valley are given at 13 to 15 cents per pound. Some sales are reported at 18 cents; many growers are holding for higher prices.

A Colusa firm has leased the 200 acre Speer ranch, near Sutter City, and will erect big slaughter houses there. The firm, Meyers & Brown, announce that it expects to have the largest wholesale meat business in the northern part of the State.

The University dairy at Berkeley last week condemned and killed 11 cows in its dairy herd, which were discovered to be tuberculous. These cows were tested last spring and found to be healthy, but on testing them again recently 11 were discovered to be diseased.

Miscellaneous.

The St. Helena Star states that the California Wine Association will pay from $12 to $14 per ton for grapes in Napa county of the dry wine varieties. As the crop is heavy in that locality the vineyardists will do fairly well at the prices paid.

The California Canneries Co. announce that they will remodel their cannery at Napa in time to handle the crop of next year. The plant is to be doubled in capacity and a sanitary can plant installed, making it one of the largest and best canneries in the State.

The land along Coon creek, near Wheatland, Yuba county, which has been grain farmed for many years, is to be placed under irrigation and be made to grow fruit and alfalfa. Many wells have already been bored in that district and irrigating plants will soon be installed.

The Pittsburg Syndicate which recently purchased the Central canal system of Glenn county, is buying more land and adding it to the vast number of acres they already own and will irrigate. Last week the Syndicate purchased three farms in the river section, aggregating 400 acres.

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Entomological.

KILLING MOTHS BY LIGHT AND SUCTION.

A suggestion quite worthy of the breadth and fancy of an American inventor is described by U. S. Consul T. H. Norton, of Chemnitz, Germany, as having been experimentally used in the German forests.

The method is based upon the circumstance that the moths are most active between the hours of 10 p. m. and 1 a. m., and that they are then attracted powerfully toward sources of light.

The foresters of Zittau established further several important facts. The moths were drawn slightly toward the flame of burning wood; more strongly toward acetylene or magnesium lamps, and most powerfully toward the electric arc. If a gas lamp was located near an electric installation, the former would be almost entirely neglected by the moths of the vicinity, which would cluster about the more brilliant electric light.

The next step was to allure the moths from the forests to points where the electric current was available. This was accomplished at Zittau by co-operation on the part of the municipal electrical works. The entire stock of arc lamps was linked together, after the globes had been removed, and set in activity after nightfall. Although the forests were some miles distant, the effect of the total illumination was sufficiently strong to attract vast swarms of the moths from their leafy shelter. They fluttered about the glowing carbons, and quantities fell to the earth with singed wings. Although great numbers were permanently disabled in this manner, it was evident that the destructive factor must be greatly multiplied in order to obtain an appreciable result. This was secured in the following manner:

At 11 p. m. the street lights were turned off. Electric searchlights, with a current of 40 amperes, were suitably mounted, and their powerful rays were directed upon the neighboring forests. These searchlights exerted great attractive force, which was increased by linking to each two arc lamps with globes. The latter served chiefly for the concentration of the fluttering moth swarms. Between these two lamps a powerful suction ventilator was stationed. A piece of wire netting (of about 0.4-inch mesh), was placed opposite the outlet of the ventilator, a few inches distant. The results secured by this combination when first tried were startling. The moths were allured from the forest in enormous numbers, and all so drawn to the brilliant source of light, sooner or later, were sucked into the ventilator and hurled by it against the wire netting with such force that the wings were broken, and the insects rendered helpless or killed outright.

In the perfected device, as finally adopted, two searchlights are employed. They are adapted for currents from 30 to 50 amperes and are shielded in front by highly polished glass disks. In front of them and somewhat lower are the two arc lamps regulated for currents of 10 amperes and protected by glass globes. Immediately below and between these two lamps is the opening of the ventilator. An electric motor attached to this produces 1200 revolutions per minute, and sucks through about 2800 cubic feet of air in the same time. The outgoing blast of air enters an open box alongside, three sides of which are composed of wire netting. In this the moths meet their fate, and it is emptied as fast as their bodies accumulate in such quantities as to obstruct the free passage of the air blast.

Four of these devices were installed in the town of Zittau upon the roofs of the electrical works, the town hall, a school house, and a factory.

Some few minutes after the searchlight is turned on, scattered moths appear. Then the number rapidly increases until thousands arrive simultaneously and flutter in and out of the great beam of light. Steadily they near its source until suddenly they are within the grasp of the equally unseen suction of the ventilator; and, in a second, pass through it and fall crushed and helpless to the bottom of the wire cage.

The effectiveness of this new destructive agency seems to have been somewhat variable and dependent upon meteorological conditions. The maximum result attained in a single night by such an installation as above described was a total weight of 141 pounds, representing about 400,000 dead moths. Frequently, however, the weight would be less than 70 pounds.

FERTILIZING VALUE OF HAY.

It is sometimes proposed to buy hay and use it as a fertilizer. If the difficulty of decomposition can be overcome and the interference with cultivation avoided, it may be worth consideration. A recent Farmers' Bulletin says: There is quite a difference in the amount of plant food contained in different kinds of hay plants. For example, one ton of timothy hay contains, on an average, 20 pounds of nitrogen, 10 pounds of phosphorus, and 28 pounds of potassium.

If bought in the form of a commercial fertilizer, nitrogen is worth 20 cents a pound and the other two elements are valued at 5 cents each per pound. On this basis the fertilizing value of a ton of timothy hay will amount to $5.90, or $6 in round numbers.

One ton of clover hay contains, on an average, 40 pounds of nitrogen, 8 pounds of phosphorus, and 40 pounds of potassium, which makes its fertilizing value amount to $10.40.

According to these figures it would seem that there is less loss of plant food in growing timothy than when clover is grown. However, such is not the case, for clover and all other leguminous plants store up nitrogen in the soil. This class of plants is supplied with a certain kind of bacteria, which live in the tubercles on their roots. These bacteria have the power of taking free nitrogen from the air and making it available as food for the growing plant. Much of the nitrogen thus secured is left in the soil by the decay of the tubercles, roots, stems, and fallen leaves of the legumes, to the great benefit of succeeding crops.

When a ton of clover is removed from the soil, from one-fourth to three-fourths as much nitrogen is left in the roots and crowns and in the fallen leaves and stems left on the ground as is removed in the hay.

COYOTE BOUNTIES IN TEHAMA.

To the bounty of $5, paid by the county supervisors for every coyote killed in Tehama county, three of the largest stock raisers in the county have each agreed to add $5, making a total bounty of $20 for coyote scalps. This action of stock raisers has been taken as a result of continued depredation and the heavy financial loss from the killing of small calves and sheep by the coyotes.

REPRESSING TULES.

To the Editor: I shall be very much obliged if you can tell me any way of keeping down tule in a fresh water slough. I have heard that some preparation can be put in the water which will kill the tule and will not be injurious to fish or animals.—Reader, San Francisco.

[This is out of our depth. What reader will dive down to it?—EDITOR.]

GET READY FOR HAY BALING

THE demand of the market is for baled hay. There are the best of reasons why you should bale the hay you have to sell.

There's a larger demand for it. It brings a better price. It is easier to handle.

And you should bale it yourself rather than hire it done because the money you would pay the contract baler eats a big hole in your profits.

You have the time to do your own baling. You have idle horses in the fall and early winter to furnish the power. And you have enough help, or nearly enough help, on the farm to operate the press. All you need is a good reliable hay press.

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Buy one of the strong steel and iron I. H. C. presses this year, and if you have any considerable amount of hay to bale, it will save you its cost the first season. And you will have a reliable press for many seasons to come.

I. H. C. presses make you independent of the contract baler. They are specially valuable to the average farmer and hay raiser because they are operated with small forces, at no expense for power, and the work can be done at times when there is little else for either man or horses to do. These presses will bale your hay, straw or anything else you have to bale into solid, compact and uniform bales. The one-horse press, an ideal baler for small hay raisers, turns out 14x18-inch bales. Under average conditions, it will bale at the rate of 6 to 8 tons a day. The two-horse press has bale chambers 14 by 18, 16 by 18 and 17 by 22 inches in size, and bales 8 to 15 tons a day—a profitable machine for joint ownership among neighboring farmers or doing contract baling.

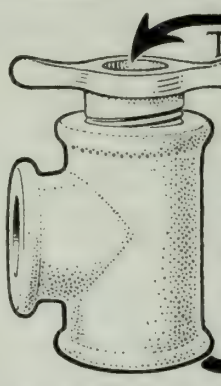
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Live Stock and Dairy.

THE WORK HORSE PARADE.

Written for the PACIFIC RURAL PRESS
By Mr. PAUL P. PARKER.

Every person interested in horses should have seen the Work Horse Parade held in San Francisco, September 9th. Those who did not see this array of horse flesh should make it a point to witness the parade next year.

Work horse parades are a recent innovation in the United States, Boston being the first city to hold one about seven years ago. Since then, however, it has been very popular in many large cities. The parade held in San Francisco was started through the efforts of the Society for the Prevention of Cruelty to Animals. No entry fee was charged, the money, watches, cups and trophies awarded the winners were all given by public subscription. Over 2000 horses took part in the parade, and they represented some $500,000. Every kind and condition of working horse was entered, from huge, compact draft horses and mules to small Shetland ponies. The 200,000 people who watched the faithful horses march by realized the importance and necessity of horses in the upbuilding of San Francisco. It was these horses that carried food and building materials into the burnt city before the bricks had cooled.

The condition of the horses in the parade was excellent considering the rough pavements and steep hills over which they work. Shoe boils, curby hocks and spavins were noticeably rare. Small splints and puffs were frequent, but not enough to interfere with the horses' work. The condition of the old veteran horses was exceptionally good considering one of the requirements of this class was that the horse had been engaged in its present business over 10 years. Some of the horses had been working 23 years, but they walked along like colts.

There were several pure bred Shire, Percheron and Clydesdale horses in the parade, but as a rule they were generally crosses.

The parade showed what type of horse was most adapted to the various industries. Each business requires the horse to perform certain peculiar duties, as a result there is a strong demand for horses that fit these requirements. One horse may be worth $200 on an express wagon, while it would only be worth $150 on a delivery wagon. When horse raisers realize this and become acquainted with the various needs and requirements of certain industries, they will be able to get more money for their horses. Some of the industries represented in the parade were: Breweries, butchers and packers, coal dealers, commission merchants, fire patrol and ambulances, livery stables, draying, dyeing and cleaning, express, grocers, hay and grain, ice dealers, laundries, lumbermen, mineral water, parcel delivery, sand team, storage and moving. These can be divided into eight general types. The heavy draft and light draft horses, express horses, delivery horses, runabout and carriage horses, hoop horses for lumber yards and chunks for dump carts.

The type of heavy draft horses used by breweries, draying companies, coal dealers, and ice companies, is from 16 to 17.2 hands high, and weighs at least 1750 pounds. The demand for heavy draft horses is very strong in San Francisco, especially when five to seven years old. Four-year-olds are even sold at top prices very frequently the demand is so great. Gray horses are the favorites with the buyers, because they attract more attention than darker horses, and thereby advertise their business.

Draft horses must be good pullers, and free workers. Walking is the only gait required of them and it must be in a straight line and regular. This type of horse must be heavy-set and compactly built. The height must be obtained from the body not from the legs. A big body also gives strength and endurance. The chest should be broad and the weight of the horse found in the shoulder, not in the limbs. The bone must be moderately heavy, the back and coupling short, with round smooth hips and the croup long and muscular. The head should be medium size, the neck fairly long and chest well developed.

Light draft horses should be built on the same plan as the heavy draft horses, only on a smaller scale. They should be from 15 to 16 hands high, and weigh from 1550 to 1700 pounds.

The horses used by the express company and heavy delivery wagons should be closely coupled and compactly built. The limbs should be clean set with plenty of bone and a foot of wavy grain which can stand the wear of hard paved streets. They range from 15 to 16.2 hands high and weigh from 1300 to 1500 pounds. Express horses should be quick and active. They must be able to trot with a fairly good load and pull a heavy load at a walk.

As a general rule delivery horses are not as large as express horses, but occasionally merchants have choice horses on their delivery wagons for advertising purposes. Most of the delivery horses have draft horse strains in them along with some lighter type. Delivery horses should stand from 15 to 16 hands high and weigh from 1100 to 1400 pounds.

The demand for delivery horses is good at all seasons of the year, because the residence district of San Francisco is very hilly and soon wears them out. A little better price is usually paid, however, around the holiday season when the number of deliveries is increased considerably.

Light delivery horses range from 800 to 1250 pounds, and from 15 to 15.3 hands high, otherwise their requirements are about the same as the heavy delivery horses.

The horses used in runabouts and cabs should be very lithe and tough. Horses for this work must be quick on their feet and be able to dodge in and out of street cars and automobiles. They must be able to trot all day on the hard pavements, and not tire out. They should stand from 14.3 to 15.2 hands high and weigh from 900 to 1150 pounds. These horses should have deep chests, well-muscled backs, withers high and thin, and a good head.

San Francisco presents the finest market in the West for horses. The vast amount of hauling, the torn up streets and the steep hills makes it very hard on horses so that the supply of good animals does not come close to meeting the demand. There is no demand for poor horses because the hilly condition of San Francisco makes it necessary to use only good horses. In fact the average type of horses found in this city is supposed to be higher than in any other city in the United States.

The business men pay good prices for horses, the wheelers on Crane & Co.'s four-horse team cost in the neighborhood of $1300. Many of the breweries and large grocers pay eight and nine hundred dollars for a team. The advertising alone received from a well matched team pays for their cost.

The person who intends raising horses for the San Francisco market or any other for that matter, should breed to type. If you are going to raise draft horses, do it, don't cross them and get a horse that is not specially adapted for any line of work. Breed a type that will do its work well and economically. Firms are not buying animals of a certain type because it is a fad, but because it is cheaper for them. A given amount of work will be done quicker, easier and on less feed by a horse adapted in type and conformation to a certain kind of service. This same horse will do the work with less wear and tear and for a longer period of time than any other type of horse.

The better a horse is adapted for a certain line of work, the more valuable he will be to someone in that branch of

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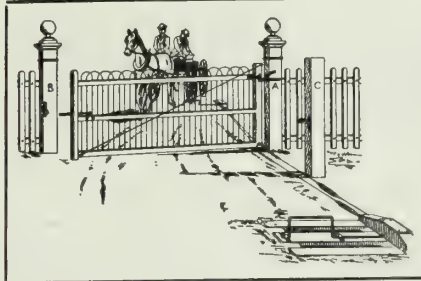
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trade, and a business man will be willing to pay a larger price for such an animal, as it will be far more economical to him to get such a horse, than to buy one not adapted to his work.

THE HEALING OF WOUNDS.

By Dr. G. H. Glover, Veterinarian, Colorado Agricultural College.

Animals on the farm are continually being injured by accidents that happen in a thousand different ways. Barb wire cuts are most frequent and a word or two of advice as to the proper treatment in the hands of farmers will not be amiss. The first thing to gain a correct understanding of a sane and effective method of treating wounds is to remember that nature does the healing and that remedies applied are simply for the purpose of assisting nature. The right mental attitude in this respect will tend to elim inate a thousand and one nostrums which are tried in rapid succession in the be lief that there is somewhere, if it could only be found, a specific remedy with magical influence to bring about the desired recovery in a marvelous way. Mankind has been diligently seeking such remedies for thousands of years and is still keeping up the search. It is time that such a view of the situation, which is based purely upon superstition, should be eliminated and that we get down to principles based upon scientific research, and instead of groping blindly in the dark seeking the "where," let us always be ready to inquire "why."

The ordinary wound will heal of itself if not interfered with. This interference may be from germ infection, parasites or too much meddling with various applications on the part of man. Now, let us suppose a case. A horse has a badly lacerated leg from contact with a barb wire. The first thing to do, of course, would be to stop the bleeding. This can be accomplished by a tight bandage of clean, white muslin, tied directly over the wound or above it. Often the bleeding artery will protrude, and a thread can be run under it with a needle and the artery tied. Do not use flour, dirt, or cobwebs or anything of that sort on the wound; they are unnecessary and may produce a dangerous infection.

Having stopped the bleeding, remove the clots of blood and cut off the ragged edges of muscles with shears. A pan of antiseptic solution should be provided. One of the best and cheapest antiseptics on the farm, good for man or best, is creolin. Add a teaspoonful of this to a pint of water that has been boiled. Place the knife, shears, etc., in this solution, and wash the hands before beginning. After having cleaned out the wound, wash it thoroughly with the antiseptic solution. See that there is good drainage from the wound at the bottom. Do not allow it to start healing with a pocket that will hold pus.

As it is practically impossible to keep a wound on a horse antiseptic, it is not advisable for the farmer to tie up the wound; leave it exposed to the air and apply the antiseptic wash several times a day. Three good antiseptics are corrosive sublimate, which can be purchased at the drug stores in tablets all ready for use; formalin is good, as is also a solution of boracic acid. After about a week, it is well to change to dry dressing, a powder composed of equal parts of boracic acid and charcoal and iodoform makes a very good dry dressing. Clean, air slaked lime, powdered over the wound twice daily, is very satisfactory. The so-called "proud flesh" is only unhealthy granulation. It is seldom advisable for the farmer to interfere with this condition by using caustics; the results are usually disastrous; better in this case to call in a qualified veterinarian. If maggots should get into the wound, a little turpentine or chloroform will help bring them to the surface, where they may be picked out. I did not mention sewing up the wound, for the reason that in case of the ragged barb wire cut, it is seldom worth while to do so.

A wound, to heal properly, must be gotten perfectly clean and free from germs from the start and then kept clean. Remember that it is largely a matter of keeping dangerous germs out and giving nature a chance. Too much interference is often the cause of tardy healing of wounds.

A PECULIAR PIG TRADE.

A cable dispatch from London describes a pork trade which is peculiar enough for everyone to know about. At the close of August, nearly 5000 frozen carcasses of pigs sent all the way from Hankow in China for consumption in England were passing the inspection of the port of London sanitary authorities at Deptford. Their arrival in the steamer Palmero, with many cases of Chinese beef, poultry, deer, game and eggs, marks the commencement of a highly interesting experiment.

"Chinese pig has never before been offered as an article of consumption in England," explained a director of the Union Cold Storage Company, to whom the cargo was consigned. "As regards the Chinese beef, poultry, deer, game and eggs, I am not quite certain whether they are entirely new. The experiment may, so far as they are concerned, have been tried in a tentative way before, certainly not on so large a scale as this. Upon the success of this experiment, in which the resources of China are seriously called upon to aid the markets of London for the first time, depends the building up of a new trade."

"The recent high prices of bacon and other foodstuffs decided the firms concerned to make at once the experiment of an initial consignment," explained the authority quoted above. "The idea is not, however, to undersell. These Chinese pigs, bred by farmers near Hankow, are said to make excellent eating. They are carefully fattened, and the carcasses among this first consignment which have so far been inspected by experts are pronounced to be in remarkably good condition.

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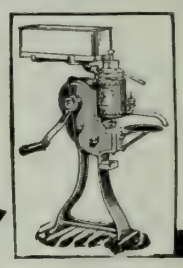
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EXAMINATION FOR FOREST RANGES.

An examination to fill vacancies in the ranger force on all National Forests in District 5 will be held October 25th and 26th. From this examination it is expected that 75 appointments will be made on National Forests in this district.

The examinations will be held at the headquarters of each National Forest in California at the following places: Al-



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While the examination is entirely along practical lines, and knowledge of field conditions rather than book learning is considered essential, the opportunities for those applicants with educational advantages are considerably increased.

The rapid development of the National Forests is making continually increasing demands upon those engaged in their management, and men with ability to assume responsibility and serve in supervisory capacities are in demand. These more responsible positions on National Forests are filled by promotion from lower grades, so that anyone entering as a ranger is eligible for promotion to any of the more responsible and higher paid places, including that of Forest Supervisor.

Only those men who are at least 21 years of age, not more than 40, of good character, temperate and in good physical condition are eligible to take this examination. The salary paid to beginners is $960 a year.

Applicants can secure information concerning the examination from the District Forester at San Francisco, Forest Supervisors, or the United States Civil Service Commission, at Washington, D. C.

WHAT THE INTERSTATE COMMERCE COMMISSION IS FOR.

Very few farmers appear to understand the work done by the Inter-State Commerce Commission, or how to avail themselves of any help it may give them. The Rural New Yorker has undertaken to obtain facts about the Commission and many of the cases it has investigated, to show some of the relations between shippers and common carriers. Let us first understand just what the Commission is supposed to do. It has no jurisdiction in loss or damage cases, but simply settles rate questions. Under the present law the carriers establish for themselves such rates as they deem proper. The Commission does not make the rates in the first place, but can review them on formal complaint of some shipper who thinks he has been unjustly treated. When such complaint is made the Commission investigates it. In many cases the railroad or other carrier admits that the rate was unreasonable, asks the privilege of filing a new rate and offers to refund part of the charge. They, no doubt, realize in such cases that it they were to make a contest the Commission might cut the rate lower still. Where they refuse to refund or make a lower rate a formal complaint is made and a "hearing" is ordered, where both shipper and carrier submit their arguments. The Commission then decides which rate is reasonable. The following case actually occurred:

In March, 1909, two carloads of asparagus were sent from California to New York by express. Each car contained 640 crates, and the bill was rendered as follows:

640 crates, 18,274 pounds (as 20,000) at $3.50	$ 700.00
640 crates, 18,400 pounds (as 20,000) at $3.50	700.00
Refrigeration, two cars at $60	120.00
	$1,520.00

You will see that they charged for full cars or 20,000 pounds, though the weight in the two cars fell short over 3000 pounds. In this case the express company could not furnish regular cars that would hold 20,000 pounds, but offered compartment cars holding only 640 crates. On complaint the company offered a new rate for actual weight and corrected the bill.

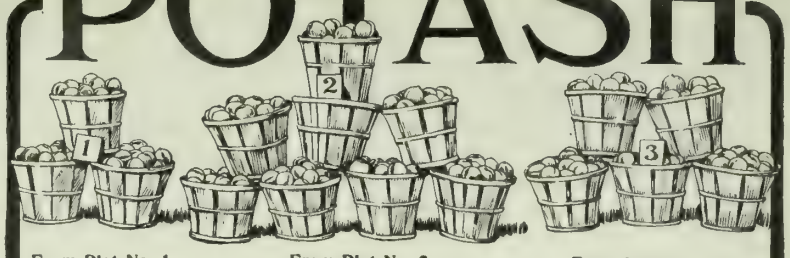
18,274 pounds at $3.50	$ 639.50
18,400 pounds at $3.50	644.00
Icing	120.00
	$1,403.50

They offered to refund $116.41.

If the asparagus had been sent by freight the cost would be $1.25 per hundred, with icing about the same, but of course the time in transit is longer. The express company took $825.16 above the cost of freight for delivering the two cars. While the shipper will get his rebate of $116.41, the chances are that the express company will make more than he did out of the asparagus.

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From Plot No. 3 — Nitrogen and Phosphoric Acid — 5 Baskets per Tree. Rate, 6¼ Tons per Acre. Increase, 2½ Tons of Peaches per Acre.

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It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

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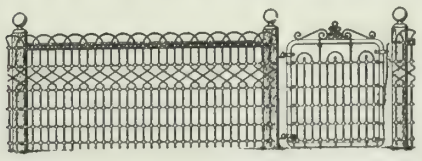
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The following list of books are kept in stock and are for sale at the Pacific Rural Press office:

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Animal Breeding, by Shaw	1.50
New Onion Culture, by Greiner	.50
Home Pork Making, by Fulton	.50
Profitable Dairying, by Peck	.75
The Potato, by Fraser	.75
Asparagus Growing, by Hexamer	.50
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Chemistry of the Farm, by Warrington	1.00
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Broom Corn and Brooms	.50
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The price at which each book is quoted includes postage. Send money order or bank draft for the book wanted and address

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The Poultry Yard.

POULTRY AS A BUSINESS.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

One of the PACIFIC RURAL PRESS subscribers, C. E. G., of Millers, Nevada, sends us the following interesting letter, together with some questions anent the poultry business in California:

"Your answer to my former question is very much appreciated and encourages me to seek further information on the subject. My flock of poultry has always been small and I have taken the best of care of them, and the results have been so good that I am going to locate in California, and try the chicken business on a large scale. What I am trying to get hold of is the best information on the subject. So far I have never had any disease to contend with among my poultry, and I got after the lice early in the game, they were brought in with some fowls I added to my stock, and soon had no more trouble from them. The laying average for August was 19 eggs for each hen. As I have no trap nests, I can't say what the best individual record was. Although I have done very well with a small bunch of birds, I don't think that the chicken business is to be underestimated. Now if you can spare the time, I would be glad to know what you consider the profit on a Leghorn hen, feeding expenses deducted from the time the chick is hatched, also allowance made for the disposal of the hen at the end of the second year; also what you would consider the maximum number of birds one man (who isn't afraid to hustle), could take care of, with 20 to the pen? I have kept books on my chickens, and as the results seem to me better than the ordinary, it may interest you to read them:

"I had 13 birds in one pen from March 11th to August 11th, and they laid 88 dozen eggs; eggs selling for from 45 cents to 65 cents for extra packed and fresh eggs bringing 10 cents above these prices all of the time. It cost me $10.50 to feed for the six months; so you can see what a nice profit there was for the investment. I grow all of my green stuff, and did not figure any cost for that. I made the conditions the best I knew how here on the desert. As I like the work very much and like California, I want to make a trial there on a small scale and grow as fast as I can and make it pay. As a matter of profit, do you consider the Leghorn or the Plymouth Rock the best, markets being average for meat and eggs?"

From the above letter we get the impression that the writer is hopeful, systematic and energetic—a thorough business man. These qualities added to a liking for the work—and some cash capital—make for success in the poultry business—or any other business. His 13 hens have made an exceptionally fine showing—some $3 profit each in six months. But the profits from a small flock are no gauge for those from a large number of fowl. Our correspondent is in fact seeing the poultry business at its best—where it is nearly clear profit. In poultry on a large scale, as a business, every item must be reckoned with even down to grit. In addition to the one item for grain with which he has charged his hens, there are rent or interest on land, cost of buildings, value of his time and work, green food, meat foods (for the scraps from the kitchen are but a drop in the sea with a large flock), food accessories, etc., etc. Then there is the element of loss through disease and accident which cuts no figure with a small flock, but makes a wide swath among large numbers of fowl even under good conditions. Again, while the expenses are proportionately higher with large flocks, the egg yield averages lower. This is why we always advise the would-be poultry raiser in California to mix his poultry up with fruit, garden truck ond a cow or more; and to *grow* into the poultry business on a large scale—not *go* into it.

Answering your first question, we would say that the cost of keeping a Leghorn hen a year where all the feed must be bought at ruling retail prices here, is from $2 to $2.25. The average price which you would get from the sale of the two-year-old Leghorns would be 50 cents; the profit would depend upon how many eggs your hen laid in the meantime, and that would depend largely upon yourself. However, a conservative average of profit per hen on large egg farms is $1 a year.

As to the maximum number of hens, divided into pens of 20 birds each, that one man who is a hustler might care for, it would be less than 1000 if so divided. But on a large egg farm it is not practicable to keep many such small yards except for breeding pens. Perhaps the best way we can help you form your plans is to give a description of a successful egg farm in Castro valley, some 10 miles from Oakland. This has been conducted for some 10 years by one man with a small family, who is a hustler and well supplied with practical sense. He was not at all acquainted with the hen when he started, and he worked out his own problems. When the writer of this visited his farm two years since, he had about 1700 laying hens but was intending to raise the number to 2000, which was the limit set. His equipment was as simple and inexpensive as possible, in fact, the rule of the plant was the greatest economy in both work and outlay consistent with best results. His buildings were of rough lumber some 10 feet square, partly open front, set up some 18 inches from the ground, and contained no furnishing except the perches some two feet from the floor. These sheds were set 20 feet apart in an orchard of several acres through which runs a gravelly creek, which furnished running water during a portion of the year but dried up in the height of the rainless season; when water had to be supplied the fowls by other means. He had no division fences and the laying house for the whole flock was set in the center of the colony of houses. He said that he had intended to have division fences, but before he could supply them, found that each flock kept well to its own house, which proved a great saving of work and expense. He kept hard grain, mostly wheat, constantly before his fowls in the sandy soil, saying that the expense and trouble of hoppers overbalanced any saving by them. He kept no male birds, only pure-bred White Leghorn hens. In the spring he mated up the required number of pens for his own hatchings selected from his best layers and most vigorous hens with cocks bought from one of the breeding yards in the vicinity. The month of March covered his hatching period. During this time he worked long hours, but at other seasons he did not consider his work oppressive. He said that the average profit for each hen above all outlay was $1 a year. This gave him an average income for his labor of $1700 a year.

As a matter of profit between the two breeds you mention, while the Plymouth Rock is a fine general purpose breed and might prove superior to the Leghorn in some cases and localities, for the egg farm in California the White Leghorn is preeminent.

Poultry Notes.

ADULTERATED BRAN.—The Petaluma poultrymen have found their bran salted, but up this way we have found worse than salt in the bran. Last winter the writer bought some bran from the dealer which was one-third grain husks. The grocer took it back and returned it to the mill. We noticed nothing further unusual about the bran till we found that the fowls left a large portion in their feed boxes where they had formerly cleaned it up. On examination we discovered that the left-over portion was the same old husks only ground to about the size of the wheat hulls which make up the true bran. In these hard white husks there is no nutriment and they are irritating to the digestive organs. Think of the fraud upon the poultryman and dairyman struggling with the high prices of feed, and the fraud upon the hen and cow expected to "make good" on such feed!

THE HELPFUL HEN.—"Twelve years ago," says the owner of the Gala Poultry Plant, Benton Harbor, Michigan, "with a cellar containing some provisions, a 2x4 coop with 67 chickens, no cow, no horse, and just 25 cents in cash, we lived through a severe winter when eggs brought 60 cents a dozen. The value of those eggs were so indelibly impressed upon our minds that it will never be erased. We have never had a cent of indebtedness, have made a comfortable living, and now have a poultry plant that is admired by all who visit it, and our chickens netted us a little over $3000 last year."—*The Standard.*

EGGS IN THE ORIGINAL PACKAGE.—Canned and dessicated eggs do not go with the Agricultural Department. Very few people ever saw canned eggs or dried eggs but both forms have become quite common during the last year among bakers and pastry makers in the cities. We have stood in one of the big packing houses in Chicago and watched girls break eggs and separate the yolks from the whites by draining them through the fingers. The yolks and whites are put into large cans separately and sealed, after which they are frozen and kept frozen till thawed for use. Dessicated eggs are eggs dried and pulverized. The Agricultural Department insists that eggs besold in the original package, that is, in the shell, and recently seized six drums of dessicated eggs as being contraband to law. It strikes us that in the process of canning or drying, it might be quite possible to introduce a few eggs of doubtful standing in society, without creating suspicion, and that the department is all right in the position it has taken. A girl breaking two or three eggs at a time and draining them through her fingers might possibly not stop if one happened to be bad. Give us eggs in the original package by all means. They are bad enough that way often.—*Poultry.*

BEES AND GEESE IN BATTLE.

Frank W. Matzke, two miles east of Richland, has a number of hives of bees and when a big white goose pecked on the outside of the hive the support gave way. The bees came swarming out and the white goose was covered with them. The goose squawked as it never squawked before. Its shrieks attracted the other geese and soon the whole flock became mixed up with the bees.

Mr. Matzke and his young son, with their heads wrapped in mosquito netting, hastened to the rescue of the screaming fowls.

Three of the geese did not survive long, but the others, although badly stung, do not appear to be suffering.—*Milwaukee Sentinel.*



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Hens must be kept in good condition and fed feather-producing and egg-making food. You can make your own "Egg Food," as good as anybody can make, by mixing Egg-More with shorts or other good grain products, according to directions. Egg-More is not a strong tonic, but a highly concentrated Poultry Food. Your hens will certainly lay more eggs if you feed it, just a little each day. 25-lb. sack, $1.90; 50 lbs., $3.60; 100 lbs., $7.00. If not kept by your dealer we will prepay freight within 300 miles, if you mention this paper. Send for Biddy Booklet.

Scalefoe

Greatest Known Spray or Wash for Scale: San Jose, Black, Red, Purple and Brown. Also a sure thing for Mildew, Gum Disease, Red Spider, Canker Worm, Moss, Caterpillars, Lice, Coddling Moth, and all Insects and Bugs that infest plant life; without injury to the plants, and with positive benefit to the soil. Scalefoe has long been the leading Spray or Wash in many sections of the country, wherever introduced. Also kills Lice and Mites on Poultry.

Gallon can, 85 cents; 5 gallon can, $3.75. If not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us within 300 miles. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Guaranteed as represented or money back. Circular with many testimonials.

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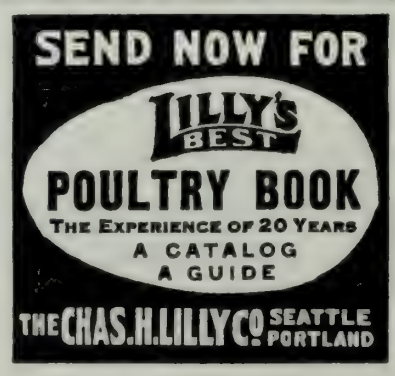
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The Home Circle.

To My Wife.

If wine is improved by the keeping,
  Why not love if 'tis tender and true?
Should passion go yawning and sleeping
  Because it is not fresh and new!

Must age the sweet dream of the lover,
  With a ruthless awaking destroy,
And the man be so proud to get over
  What made him so happy a boy?

Does there grow less ecstatic enjoyment
  As we go towards the foot of the hill?
Does the galley slave, business employment,
  The heart's best desires fulfill?

Shall we yield to the youngsters love's glory,
  Its halo, its passion, its flame!
Of this life all the best of the story,
  And we take mere money and fame?

Away with such nonsense, for truly,
  Love is, as it should be, like wine;
Though, at first, just a little unruly,
  The older the nearer divine.

We can look, we old codgers, so chilly
  That none but our own wives would dream
That we could be, and are just as silly
  As ever, when love is the theme.

Is the dream, to the boy of his treasure,
  When her hand and her heart shall be won,
A greater delight than the measure
  To the man, of her worth, when 'tis done?

Does the hope of the boy, that she'll prove him
  A good and true wife, bring more bliss
Than the sunshine the man has above him,
  Who knows that his wife is just this?

Is the grace of the maid more enchanting,
  More encnanting the words of the bride,
Than the wife, found in all things not wanting,
  Whose virtues are tested and tried?

Then away with the fanciful notion
  That to youth should belong all love's zeal,
All the zest of its truest devotion,
  Or that age should its passions conceal!

Away with such nonsense, for truly,
  Love is, as it should be, like wine,
Though, at first, just a little unruly,
  The older the nearer divine.

—*W. H. Holley.*

One of the Hundred Golden Tales.

The little Emperor of China is now three and his education in philosophy and statecraft is about to begin. Following immemorial tradition his childhood's lessons will be told him in the "Hundred Golden Tales." Here is one of them as interpreted by a Russian writer, Mr. Doroschevitch.

The all powerful Bogdychan (Emperor of China), had often seen at his court clever and cunning peoples; the notion struck him that for once he would like to see happy men.

"I am the sun, which glides only the mountain summits, whose beams never light up the valleys," he said to himself, and ordered his chief master of ceremonies to bring him the register of the lower servants of the State.

The master of ceremonies brought 666 paper rolls, each 66 yards long, and even they scarcely had space for all the names.

"Dear me, what a number!" said the Bogdychan. He put his fingers on the name of the mandarin of the forty-eighth class, Tun Li, and commanded: "Learn what sort of man this is!"

The commands of the Bogdychan are obeyed forthwith, and before he had time to count 10,000 his master of ceremonies returned and said, as he bowed deeply:

"This man is an old, true servant of thy throne, all powerful Son of Heaven. He is an honest, humble official and an exemplary father to his family. He lives in concord with his wife, and both bring up their daughter in the fear of God and love of toil."

"Then he shall know a pleasure," said the Bogdychan, "I shall make him happy by a look from my eyes. Go and inform him that he may present himself to me with his family on the first day of the new moon."

"He will die of joy!" cried the master of ceremonies.

"We will hope that may not happen," answered the good Bogdychan smiling. "Go and fulfil my will."

"Well, what have you to tell me?" he asked, as the master of ceremonies returned to the palace.

"Thy will, which is sacred, has been fulfilled, all powerful Son of Heaven!" answered the official, and fell to the ground before the Bogdychan. "Thy gracious command was made known to Tun-Li amid drum beating and trumpet blasts, and the jubilant cries of the people, who praised your wisdom."

"And what did Tun Li?"

"He seemed to have lost his senses from joy. The earth has never seen such mad delight!"

The day when Tun Li should present himself at court seemed to approach very slowly, like everything that we hope for. The Bogdychan wished as quickly as possible to see a happy man, and one evening he disguised himself as a simple coolie, and went with one attendant to the remote quarter of Pekin, where Tun Li lived.

From a distance he could hear the noise in Tun Li's house. "Is the jubilation really so great?" thought the Bogdychan, amazed. And joy glowed in his heart.

He drew nearer to listen. This is what he heard:

"Most miserable of women! most worthless being that the sun has ever seen!" screamed Tun Li. "Cursed be the day and the hour when it was my lot to marry you. Truly, evil dragons gave me the thought!"

"For three hundred moons we have been man and wife," answered Tun Li's wife, weeping, "and I have never heard you utter such curses. Once you found that I was your dear, sweet, true wife. You praised me."

"Yes, but that was when we did not have to present ourselves to the Bodgychan!" answered Tun Li, raging. "You will cover me with shame. You will make me the scorn of all men. How can you know how to make thirty-three graceful bows as etiquette requires? I shall sink in the earth from shame of you, of you and our daughter. She is the most misshapen creature in all the world. A horror that the Sun has never looked on the like of."

"Father," answered Tun Li's daughter, sobbing, "Father, have you not always called me your pretty child, your dear Mu Sian, your sweet Mu Sian? Have you not often said that nobody in the world was nicer, brighter or more obedient than I?"

"Yes, but your feet are two fingers long," cried Tun Li in despair. "I am sure the the Bogdychan will die of fright if he sees such a monster of a foot."

"I have not been brought up to go in the fine world," sobbed poor Mu Sian. "I have my feet for walking. I was to marry a simple and poor man like yourself, father. I have been brought up to work."

"Cursed be your deformity, for we must present ourselves to the Bogdychan!" cried Tun Li, beside himself.

At that moment a gong sounded at the door, and the money lender entered the room.

"Well, how is it, Tun Li?" he asked. "Have you thought over my conditions?"

"But we will die of hunger if we accept your conditions!" groaned Tun Li, and covered the grief in his face with his hands.

"As you will," remarked the money lender, shrugging his shoulders. "But bethink you time is passing. If you delay longer neither the blue silk coat with gold bordered sleeves for you, nor the silk embroidered gown for your wife, nor the dress with flowerwork for your daughter will be ready, nor everything else that you must have to be presented at court. What will you do then?"

"I must give in to all," gasped Tun Li.

"Then do not forget what I have said so that afterward there be no quarrel. I will deliver you all that you need and you will give me every new moon three-quarters of your pay."

"But we will die of hunger!" cried Tun Li, and wrung his hands. "Take the half. Do not ruin us."

Tun Li, his wife and poor little Mu Sian fell on their knees before the money lender and implored him to take only half Tun Li's pay. "We will have to go hungry all our lives!" they cried.

"No; three-quarters of your pay every new moon," said the inexorable money lender. "That is my last word. Yes or no?" And Tun Li answered gasping: "So be it! As you will!"

"Oh, heaven!" groaned the Bogdychan, and tears streamed from his eyes.

"Dare not call me so!" he cried in his bitterest anger to his master of ceremonies when he returned to the palace; and that officer, as custom required, fell to the ground before him and called him all powerful. "Thou shouldst lie to me on nothing," said the Bogdychan, and tears started in his eyes. "I am called all powerful! I who cannot make one man happy!"

And as he wandered through his beautiful fragrant gardens he thought sadly: "I am the sun which lights and warms only from afar, but singes and parches when he comes near the poor earth!"

FRUIT COOKIES FOR THE CHILDREN.—Cream one cup of butter with one cup of sugar and beat in two eggs, add a cup of sweet milk and a level teaspoon of baking powder sifted into the flour or a cup of sour milk and a level teaspoon of soda instead of baking powder. Make into a dough that may be rolled smoothly to a quarter of an inch thickness; divide this with a sharp knife into two even parts. Over one part spread jelly or jam, or a paste made by chopping figs and stoned raisins together and cooking with sugar. Now carefully lay the other half of the cake rough over the half spread with fruit and cut in squares with a sharp knife, bake a nice even brown and dust with powdered sugar while warm. Delicious!

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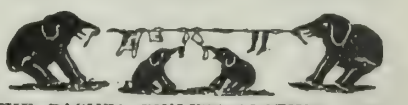
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THE MARKETS.

San Francisco, Sept. 22, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The market shows some improvement all over the coast, with heavy buying by milling interests in the North. Northern exporters are also actively in the market. The local mill men have also shown more interest for the last week, and the principal descriptions of California grain are bringing a little higher prices. Northern bluestem is also higher, and the general tone of the market is fairly firm.

California Club	$1.65	@1.72½
White Australian	1.95	@2.05
Northern Club	1.62½	@1.65
Northern Bluestem	1.80	@1.82½
Russian Red		1.62½
Turkey Red	1.65	@1.75

BARLEY.

Barley is weakening again, and the spot market for feed grades shows only moderate activity. Arrivals have been large, including a cargo for export. Shipping grain is moving well both here and in the interior, and the price is well maintained, though brewers have been getting barley a little cheaper. Choice feed is a little lower. Chevalier is not moving at present.

Brewing	$1.38¾	@1.40
Shipping	1.40	@1.42½
Chevalier	Nominal	
Good to Choice Feed, per ctl.	1.35	@1.37½
Common Feed	1.32½	@1.33¾

OATS.

The belief that the large Government order for Manila will not be filled on the coast has caused an easier feeling in the Northern market, but prices here are unaffected, standing about as last quoted. Little stock is coming in, and the local market remains very dull. Gray oats are lower.

White, per ctl.	$1.70	@1.75
New Red, choice	1.70	@1.80
Common	1.57½	@1.67½
Red, seed	1.95	@2.10
Black	2.35	@2.70
Gray	1.65	@1.70

CORN.

Arrivals of Western corn in this market for the last week have been much larger than for some time past, though the market is not particularly active. Local descriptions are unchanged, but the advance on the Western grain has not been maintained, prices being quoted somewhat lower than last week.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.65
Mixed, in bulk		1.62
White, in bulk		1.69

RYE.

Holders of local grain are asking higher prices, which buyers are unwilling to pay. All trading is accordingly on the western grain, which is fairly strong.

Rye	$1.70	@1.80

BEANS.

New beans are beginning to arrive in larger quantities, several small shipments of bayos being reported, though pinks will not begin to come for several weeks. The crop is very good so far, both in quality and yield. The crop of white beans is very large, and estimates of the California yield of limas indicate that it will be larger than ever before. According to a national authority, there is also heavy production in the East, and prices are expected to be on a considerably lower basis for the new crop. Buyers are accordingly unwilling to make large purchases at present, and conditions are rather unsettled, though there has been fair inquiry for shipment during the next few months. Prices show numerous changes, with no quotations given on several varieties.

Bayos, per ctl.	Nominal	
Blackeyes	$3.00	@3.25
Cranberry Beans	3.50	@3.75
Garvanos	2.25	@2.75
Horse Beans	1.75	@2.10
Small Whites	Nominal	
Large Whites	3.00	@3.25
Limas	4.10	@4.25
Pea	Nominal	
Pink	3.10	@3.15
Red	Nominal	
Red Kidneys	3.50	@3.75

SEEDS.

Some movement of stock to this market is reported, in anticipation of the season of active demand, but dealers report very little business so far. A light crop of alfalfa seed is reported in some of the local districts, and this variety is accordingly firm, though prices are unchanged.

Alfalfa, per lb.	17½@18	c
Broomcorn Seed, per ton	$20.00@	25.00
Brown Mustard, per lb	3¾	c
Canary	4¼ @	4½c
Flaxseed	4	c
Hemp	3¾ @	4¼c
Millet	3	c
Timothy	6	c
Yellow Mustard	Nominal	

FLOUR.

Flour is reported rather weak at the recent decline, and further reductions have been made in the north, though local prices are unchanged since last week. Trading is a little more active, though buyers are not in the market for large supplies. With renewed firmness in the raw grain, however, little further reduction of prices is expected in most quarters.

Cal. Family Extras	$6.20	@6.60
Bakers' Extras	6.20	@6.60
Superfine	5.10	@5.30
Oregon and Washington	5.30	@5.50

HAY.

Arrivals for the last week have been much smaller than expected, falling considerably below recent records, and it is believed that the rush to market is practically over. There is still considerable hay not yet housed, but this will probably come in more gradually. The bulk of the arrivals still consists of low-grade hay, which dealers say is finding a poor market, though quotations on practically everything but wild oat and stock hay are higher. Choice hay is scarce and quite firm in price. The market in general is in fairly satisfactory condition, prices apparently having reached a normal level. One feature of firmness is the practical assurance that the Government order for 10,000 tons will be placed in this market.

Choice Wheat, per ton	$17.00@19.00
Other Grade Wheat	12.00@16.50
Wheat and Oats	13.50@16.50
Tame Oat	13.50@17.00
Barley	10.00@13.00
Wild Oat	10.00@12.50
Alfalfa	10.00@13.00
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

Prices on bran, shorts and middlings are still firmly maintained in this market, with plenty of stock coming in from the north to supply all requirements. Rolled barley is steady as formerly quoted, and miscellaneous feedstuffs are unchanged. The market is fairly active, but has shown little change for some time.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	36.50@37.50
Mixed Feeds	25.00@30.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	30.00@31.00
Shorts	$1.50@33.00

VEGETABLES.

Onions are quiet at present, and while there is no great pressure to sell there is more stock offering than the market can readily absorb. Prices are accordingly easy, with some reduction from last week. The general vegetable market is in a little stronger condition than for some time past, as the arrivals this week have been comparatively light. Green beans and peas are all higher, and the receipts of tomatoes continue to fall off, bringing a further advance in prices. Green corn is also offering less freely, and has been gradually advancing for the last two weeks. Summer squash and cucumbers are a little firmer, but egg plant and okra are lower.

Onions—New Yellow, per ctl.	60@	70c
Garlic, per lb.	4@	5c
Green Peas, per lb.	3@	5c
String Beans, per lb.	3@	5c
Lima Beans, per lb.	5@	6c
Tomatoes, per box	65c@	1.00
Green Peppers, per box	50@	75c
Green Corn, per sack	1.25@	1.75
Summer Squash, large box	50@	65c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	50@	60c
Pickle Cucumbers, per box	75c@	1.00
Egg Plant, per box	50@	75c
Okra, per box	30@	40c

POULTRY.

Arrivals have been quite heavy for the last week, four cars of Eastern stock being on hand at the opening, and local stock has been shipped in liberally. The market, however, has continued very strong, with a large demand, and good heavy stock sells readily at the quotations. Young roosters are higher. Turkeys are steady, and good spring turkeys continue in fair demand.

Broilers	$ 4.00@	5.00
Small Broilers	3.00@	4.00
Fryers	5.50@	6.50
Hens, extra	9.00@	12.00
Hens, per doz.	6.00@	8.00
Small Hens	5.00@	5.50
Old Roosters	4.00@	5.00
Young Roosters	7.00@	8.00
Young Roosters, full grown	8.00@	10.00
Pigeons	1.00@	1.25
Squabs	2.00@	2.25
Ducks	4.00@	8.00
Geese, per pair	2.00@	2.25
Spring Turkeys, per lb.	24@	26c
Gobblers, live	19@	20c

BUTTER.

Prices on extra butter weakened a little during the hot weather, and while the market is in much stronger condition at present quotations have not recovered. The demand, however, is quite active, and all arrivals are cleaning up without difficulty. As light arrivals are expected for the next few days, some advance is looked for. Firsts are higher, but the lower grades are unchanged. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb.	32 c
Firsts	30 c
Seconds	28½c
Fresh Packing Stock, No. 1	25 c

EGGS.

The demand has revived since the end of the hot spell, cleaning up all offerings of extras without difficulty. The arrivals have at the same time fallen off, being exceptionally light for the last few days. While the lower grades show no change, extras are 2½ cents higher.

California (extras), per doz.	43½c
Firsts	34 c
Seconds	30 c
Thirds	24 c

CHEESE.

There has been a little fluctuation during the week, as usual, but local descriptions are now quoted as before, though the market is steadier in tone. Eastern cheese is still quite firm at former prices. Oregon flats are lower, but Y.A.'s show ½ cent advance.

Fancy California Flats, per lb.	16 c
Firsts	15 c
New Young Americas, fancy	16 c
Oregon Flats	16 c
Oregon Young Americas	17 c
N. Y., fancy	18½c

POTATOES.

River stock is a little stronger, while Salinas Burbanks are lower. The market shows a tendency to weakness, as there is plenty of stock for immediate requirements, and a large shipment of Oregon potatoes will arrive in a day or two. This will naturally tend to reduce prices on the better grades of local stock.

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Potatoes—River Whites	60@	80c
Salinas Burbanks	1.40@	1.60
Sweet Potatoes, ctl.	1.50@	1.65

FRESH FRUITS.

Melons are maintained at about the prices last quoted, but a sharp advance a few days ago checked the demand, and there is some accumulation in some lines. Watermelons are higher, but cantaloupes are rather easy. Berries have been in good demand, and while raspberries are lower other descriptions show an advance. The demand for table grapes continues good, prices showing little change, as offerings are still large. The supply of wine grapes is excessive, and notwithstanding the large demand the surplus is hard to move. Apples remain firm, and some kinds of pears are higher. Figs are plentiful and cheap, with little demand. Peaches are unchanged, remaining in fair demand, and plums also sell freely at about former prices.

Melons, Cantaloupes, crate		$1.25
Nutmeg, per box	50@	75c
Watermelons, per doz.	1.50@	2.50
Raspberries, per chest	3.50@	5.00
Blackberries, per chest	3.00@	4.00
Strawberries	3.00@	5.00
Huckleberries, per lb.	10@	12½c
Grapes, per crate	40@	75c
Wine Grapes, per ton	8.00@	14.00
Apples—		
Fancy, per box	1.00@	1.50
Common	65c@	1.00
Figs, per box	35@	65c
Peaches	40@	75c
Lug boxes	75c@	1.25
Plums, per box	40@	50c
Crate	50@	75c
Pears—Bartletts, No. 1, box	1.25@	1.75
Other varieties	50c@	1.00
Quinces, per box	50@	65c
Pomegranates, small box	75c@	1.00

CITRUS FRUITS.

The demand for oranges and lemons is hardly as active as last week, though there is still a fair movement for this season. Choice lemons are again higher, but other varieties are unchanged.

Choice Lemons	$ 3.00@	3.50
Fancy Lemons	4.00@	4.50
Standard	1.00@	1.50
Limes	5.50@	6.00
Oranges, Valencias	2.25@	3.00
Grape Fruit	2.50@	3.00

DRIED FRUITS.

General market conditions for the last few weeks have been very encouraging to both growers and packers. Old stock in most lines is well off the market, prunes being about cleaned up, while it is generally estimated that about half the new crop is under contract for export. Eastern buyers are beginning to realize the situation, and are buying much more liberally in several lines, while the local packers are buying up large lots in the country to fill orders for shipment. Apricots also are extremely strong, with little left in the hands of growers, and packers are offering about 1 cent more. Peaches and pears are also held for an advance at present, and white figs are doing a little better. The situation in raisins is very unsatisfactory, with little business and prices unsettled. Some packers have been able to make purchases on a lower basis, though there is a slightly firmer feeling in the East.

Evaporated Apples, per lb.		7½c
Figs, black, new crop		2 c
Figs, white, new crop		2¼c
Apricots, new crop	8½@	9 c
Peaches, new crop	4¼@	4½c
Prunes, 4-size basis	2¼@	2½c
Pears	6 @	8 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2 @	2¼c
Thompson Seedless		2 c
Seedless Sultanas		1¾c
London Layers, 3 crown	85@	95c

NUTS.

So far there is little doing in new walnuts, though the crop is now being gathered. Prices on old stock are unsettled and inclined to easiness. The market is practically bare, present offerings being of very poor quality, and the new crop is accordingly expected to meet with a ready market. Almonds are still very firm and in good demand, though last week's quotations have not been held. New stock is now arriving freely in the local market.

Almonds (new crop)—	
Nonpareils	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c

WALNUTS.

Softshell, No. 1	11 c
Softshell, No. 2	7 c

HONEY.

This market is extremely dull, and dealers quote the same prices as before, which buyers are slow to pay. The movement in producing districts is a little more active than locally, but considerable stock still remains on hand.

Comb	10	@14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

The situation shows little change, as growers and dealers are still holding out firmly at the advanced prices, and buyers are rather slow to enter the market. The movement is accordingly small.

Hops, Old, per lb.	12	@ 14 c
New crop	18	@22 c

WOOL.

Quotations are practically nominal, as there has been practically no movement since the few sales at the opening of the season. Growers are holding firmly, but dealers claim that there is no Eastern demand for the fall wool from this State, and are holding off from the market.

Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

Prices show no change, whatever, and conditions generally remain about as before. Hogs are still rather easy, though at the reduced prices supplies are not excessive. Beef is quite firm at the recent advance, and mutton is steady, arrivals being about sufficient for the current demand.

Beef: Steers, per lb.	6¾	@ 7½c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal	7½	@10½c
Mutton: Wethers	8	@ 9 c
Ewes	7½	@ 8½c
Lambs	9½	@10½c
Hogs, dressed	9	@11½c

LIVESTOCK.

Steers: No. 1	4	@ 4¾c
No. 2		3¾c
Cows and Heifers: No. 1	3¼	@ 3⅝c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5¼c
Medium		4¾c
Heavy	4	@ 4¼c
Sheep: Wethers		4¼c
Ewes		3¾c
Lambs	5¼	@ 5½c
Hogs: Grain fed, 100 to 150 lbs.		7 c
150 to 250 lbs.		7¼c
250 to 325 lbs.		6¾c
Common Hogs, lb.	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., Sept. 21.—The orange market is in very good shape, in fact, better than at any time since June, but the class of fruit that the jobbers are demanding is exceedingly scarce. In fact there is not much fruit of any kind left here, and if the present rate of shipment be kept up two weeks ought to see the wind up, but the shippers say that this week will see shipments drop from 40 cars a day to less than 20. The policy from now on will be to roll the poorer stuff and hold back the smooth stock for higher prices and it looks as though these higher prices were about due. Nothing good, where the sizes are right, is now being offered at any less than $2.00 f. o. b., and the smooth stock is worth more, but as jobbers will not pay more without inspection, this class of stock will mostly go to auctions or to f. o. b. customers who want fancy fruit and are willing to pay more than the market to get it.

Brokers report more cash orders than for any time during the year, and this is one of the best indications of a good future. They also state that they are having trouble in getting desirable fruit at prevailing prices, and this surely means that the jobbers must come up in their price ideas if they want to get a supply of this kind of fruit. There is still an amount of cheap stock to be had, but it is cheap in appearance and quality.

There appears to be no call at all for lemons and no lemons here if any call should develop for them, that is the supply is very short, probably less than 100 cars in store here and this stock is not first-class and is being shipped without orders and bringing very poor prices in the Eastern auctions. The new pick is good but limited, the shippers saying it is the lightest for years. There are no

settled prices. The Sicily stock available within the next 30 days are 45,000 boxes as against 36,000 boxes at this time last year and 65,000 in 1907.

The citrus fruit shipments to date have been 30,872 cars of oranges and 5967 cars of lemons as against 24,236 cars of oranges and 4528 cars of lemons to same time last year. Over 400 cars of lemons were shipped from this time to October 31st last year, but there is not one-half that amount in sight this year, and there is still time for a price revival.

Deciduous Market Report.

Sacramento, Cal., Sept. 21.—Shipments of plums and prunes are about over with for the season. Peaches also are about all gone and pears will soon be out of the market. The movement of grapes is about over with, excepting Tokays, which are still in abundance and of fine quality.

Sales in the East, as reported by the California Fruit Distributors, were for yesterday as follows:

Prices averaged at New York—Tokays, $1.37; Silvers, $1.15; Germans, $1.25; Malagas, $1.25; Bartletts, $2.65; Salways, 72c.

At Chicago—Malagas, $1.10; Tokays, Lodi, 90c.; B. Clairgeau, $2.10; Tokays, Florin, $1.15; Italians, 75c. to $1.10; Elbertas, $1.

At Philadelphia—Florin Tokays, $1.40; Folsom Tokays, $1.10; Lodi Tokays, $1.20; Malagas, $1.

At Boston—Malagas, $1.05; Tokays, Lodi, $1.10; Tokays, Florin, $1.20; Salways, 72c.

The comparative statement of fruit shipments this season as compared with last, up to September 18th, is as follows:

	1908.	1909.
Cherries	208¼	249¾
Apricots	231¾	209½
Peaches	1759	2579¼
Plums	1607	1526¼
Pears	2396	2541¾
Grapes	1066	2468½
Apples	330	401¼
Sundry	6	12¾
Totals	7605	9989

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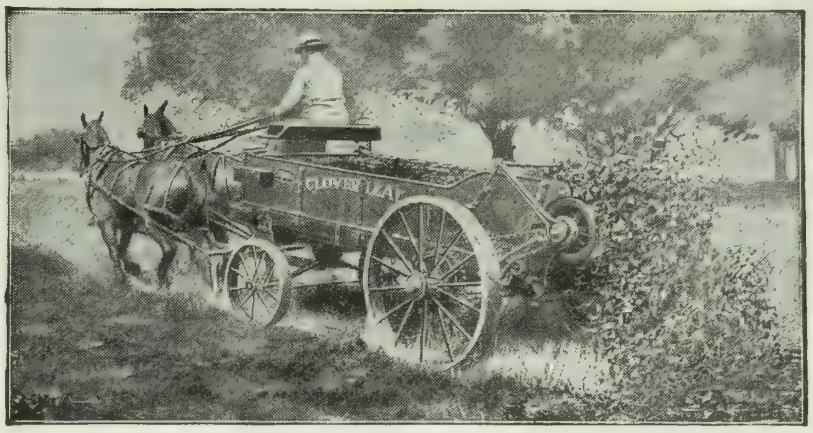
The article on our first page of this issue will prove interesting reading to berry growers everywhere. Judge Logan tells how he originated the Loganberry and other berries. Perhaps his story may be suggestive to some readers that still farther progress along these lines will be made. The PACIFIC RURAL PRESS is promised an article for an early issue on French Prunes, by Leonard Coates, which as outlined by him, will be, perhaps, the most interesting article to growers of prunes that has appeared for many years. Watch for it.

C. Henry Smith, of 24 California street, San Francisco, is desirous of securing a representative in Los Angeles for the sale of nitrate of lime, the principal users and buyers of which are fruit growers and nurserymen. Mr. Smith imports this product from Norway, and receives it in extensive consignments, so that outside representatives or branch managers can be served in quantities to suit the demand.

H. B. Martin & Co., of San Jose, Cal., are extensive dealers in seeds, bulbs, potatoes, etc. This firm has an advertisement in the PACIFIC RURAL PRESS, and as they are able to serve the people with any specialty in seeds, it would be well to secure their quotations when in the market. H. B. Martin is associated with J. E. Bean and R. McCarthy, and the firm is a strong and substantial one. Subscribers or the PACIFIC RURAL PRESS will find the firm courteous and trustworthy. Their stock, as before said, is extensive and complete.

TO PRESERVE CUT FLOWERS.—To clip the ends of the stems each day when putting fresh water in the vases is good, and add some salt to the water; but an English paper says a lump of sugar in the water is the best ever to keep cut flowers fresh.

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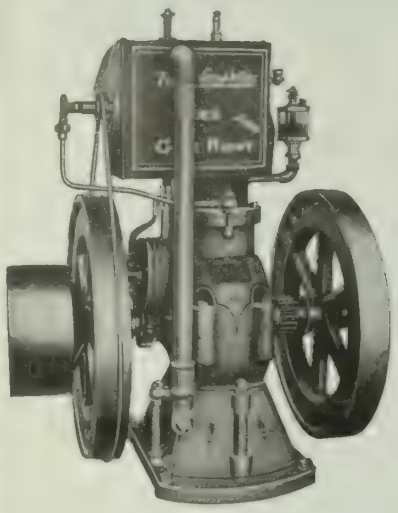
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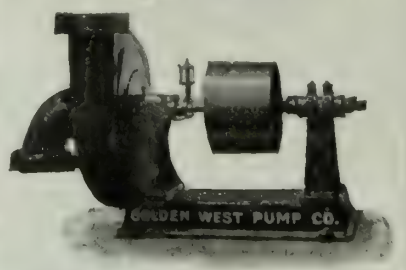
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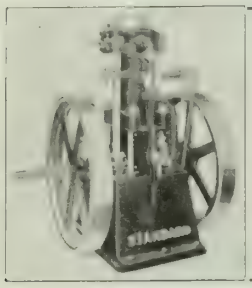
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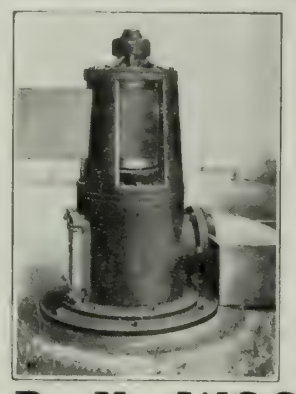
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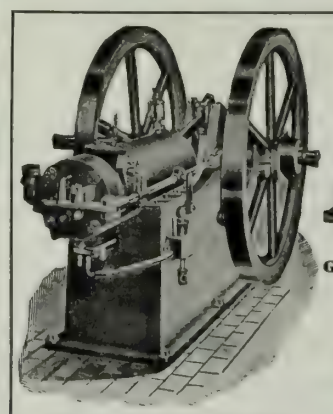
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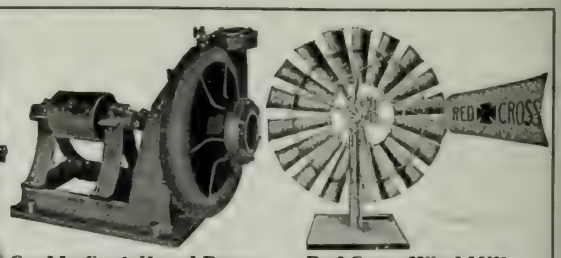
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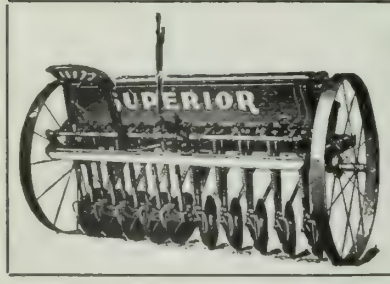
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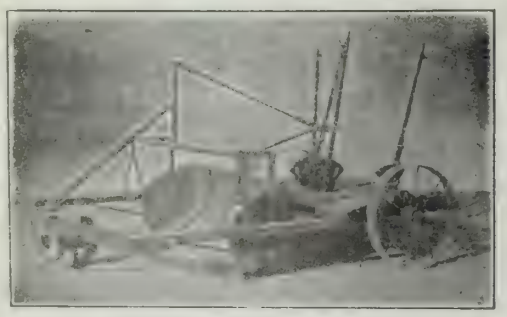
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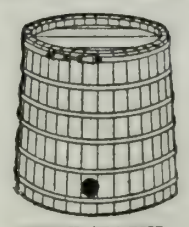
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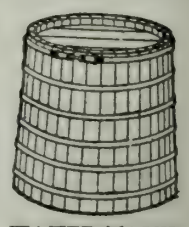
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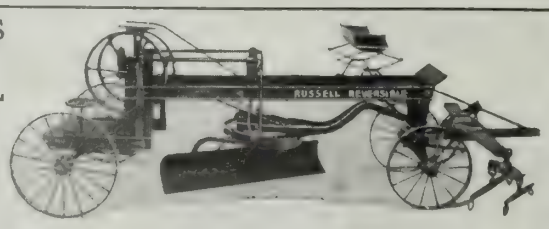
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Vol. LXXVIII. No. 14. SAN FRANCISCO, SATURDAY, OCTOBER 2, 1909. Thirty-ninth Year.

SHIPPING CATTLE.

Written for the PACIFIC RURAL PRESS by Mr. PAUL P. PARKER.

The aim of every stockman shipping cattle to the market is to get them to their destination in the best possible condition. To accomplish this requires careful feeding before shipping, and quiet handling while driving them to the corrals and on the cars. A large percentage of the shrinkage and weariness in which cattle are landed at our stock yards can be averted if they are given the proper treatment before starting on their journey. Often the work of months of conscientious feeding will be partially lost through ignorance or carelessness in shipping. Sometimes the variance in weights is so great between those taken before the cattle are shipped and those weights taken after they arrive at the stock yards that the shipper thinks he is being cheated by faulty scales or collusion between the buyer and the shipper's employees. Ninety-nine times out of a hundred the whole trouble lies in the handling of the stock the last twenty-four hours before shipment. Improper feeding, hurrying, overheating and exciting the cattle so as to cause scours are the principal causes of the shrinkage in weight. The last twenty-four hours that cattle are in possession of the shipper are most important, for it is then that the finishing touches should be applied which will hold the flesh that has taken time and money to put on. A few extra cents for good hay and a little patience in driving and corraling the stock will retain many dollars in a carload of stock.

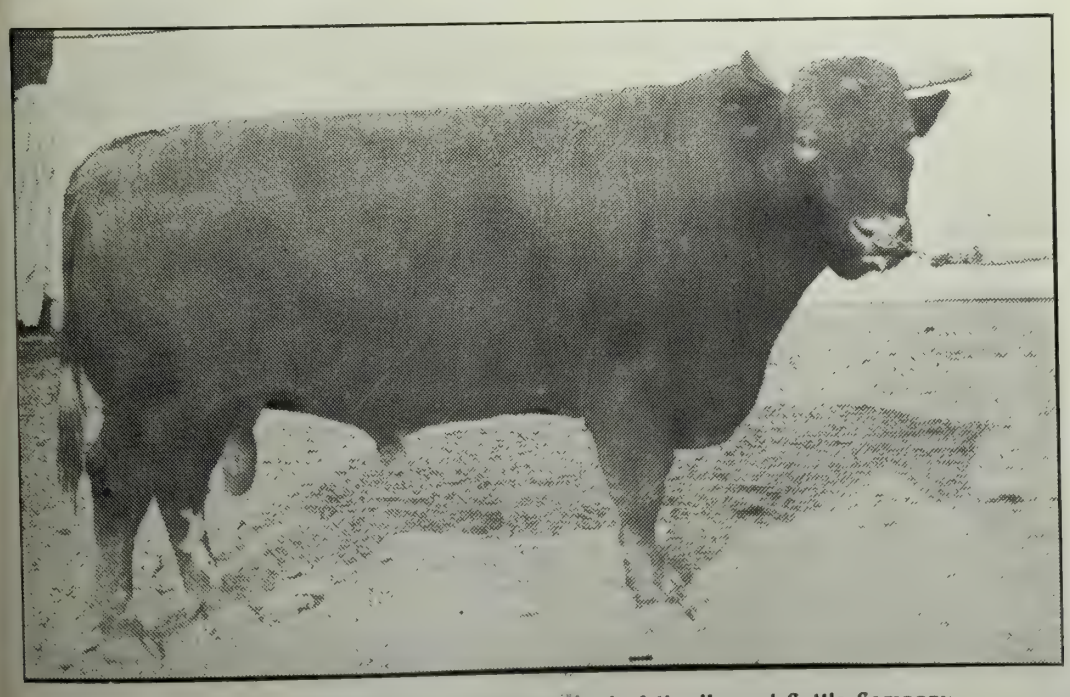


Famous Bull From the Eakle Herd of Short-horns.

In preparing cattle for the market it is no longer possible to "water" or "fill" them with grain and water. The days of "watering" stock passed away along with the Indian and the buffalo. This fraudulent practice was made possible by the general laxity of stock inspection, but fortunately conditions have changed and the cattle are watched very carefully for shrinkage until they are delivered to the consumer. Any great shrinkage is noticed and it works against shipper in his subsequent sales to the butchers.

It is essential that the stock arrive at the market fresh, clean and with no material shrinkage. Some stockmen claim this can be accomplished through proper handling of the cattle, while others claim that proper feeding before shipping is the important feature. It is best to use both precautions and insure getting the cattle before the critical buyers in good condition. When cattle scour they not only shrink badly but also get very dirty, and as appearances influence prices materially, the shipper should use every precaution to keep his cattle clean en route to the slaughtering pens. Overheating or exciting cattle has a tendency to scour them, so that they should be driven quietly and in the cool part of the day. In fact it is best, especially where the cattle are range fed and a little wild, to drive them to the corrals twelve to twenty-four hours before time to load, in order that they can get accustomed to the change of surroundings and get quieted down before being placed on the cars.

Sime shippers prefer driving their stock to the shipping corrals in the early evening, when they are to be loaded next morning, so that they will have the whole night to recover from the weariness and excitement of the drive. This can only be done, however, when shippers are sure that cars will be ready for them at the desired time; otherwise it will be necessary to haul extra feed for the stock. The failure of the railroad companies to get cars on the sidings on time causes heavy losses to the stock raisers every year. It frequently happens that the cars are several days late, so that the cost of extra feed and the shrinkage in the cattle results in large losses to the shipper.



Prize Winning Bull From the Shorthorn Herd of the Howard Cattle Company.

The feeding of cattle for long-distance shipments differs from that on short hauls. This is due to the weariness of the animals standing in one position a great length of time, and the change of water and feed. It is usually possible to carry feed for a three or four hundred mile run, but water must be obtained from the railroad water tank. It is often alkaline, and this has a tendency to scour the animals very badly.

The various States and the United States Government have very stringent laws in regard to carrying cattle in cars over a certain number of hours without giving them feed and water. The California laws make 36 hours the longest period in which cattle can be kept in a car without food, water and exercise. The railroad company furnishes the water, and the shipper supplies the feed. Where the owners refuse to feed the animals the railroad company has power to feed them at the shipper's expense.

Green feed is bad to give cattle just prior to shipment. When cattle have been fattened on a green diet, such as grass, alfalfa or beet pulp, they should be taken off this diet a day or so before shipping and given dry hay. Water should not be given within six or seven hours of loading time, because cattle having too much water in them are sure

(*Continued on Page 218.*)

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Sept. 28, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.35	.90	1.20	62	46
Red Bluff	.34	.34	.74	92	58
Sacramento	.07	.07	.34	90	54
San Francisco	.71	.71	.26	85	54
San Jose	.74	.74	.25	90	46
Fresno	00	00	.22	96	54
Independence	.06	.31	.18	82	46
San Luis Obispo	.02	.02	.43	76	46
Los Angeles	.04	.04	.04	78	54
San Diego	00	.02	.04	72	56

The Week.

We have had occasion to take quite a spin around in southern California during the last week and so far as we can learn the subdivision of the State seems to be regarded as a "josh" outside of the city of Los Angeles, and even within that city they retain enough presence of mind in the midst of their indignation to point with pride to the fact that 40% increase of valuation of taxable property in a year is a thing which no other great city in the country (and in the world probably), has ever attained. Thus Los Angeles proclaims disaster and victory at the same moment. Our versatile sister city seems to have re-cast the old war cry of patriotism into "millions for promotion, but not one cent more for taxes." We find in southern California that Los Angeles is not taken seriously in her desire to divide the State, and that other parts of the south country are inclined to hold that the southern city is so endowed with self-consciousness that she always forgets to do any disinterested service to other parts of the south, and that her cry for State division proceeds from ambition to be the capital of a new State. We have no right, perhaps, to intrude upon this family dispute between Los Angeles and her tributary towns, which are now developing so rapidly, and we only do it for the purpose of forging a piece of wisdom to which all other ambitious cities should give heed, and that is that municipal self-conceit which makes it impossible for a city to cast a disinterested smile into the low portals of smaller towns puts a metropolis into the same relation to them that a man with big head holds to the eyes and hearts of his neighbors. Los Angeles should correct her attitude toward other parts of southern California so that leadership in a great proposition shall not be repudiated.

We consider this matter of importance enough to mention because we thoroughly appreciate the growth and greatness of Los Angeles, and count it one of the finest achievements of recent California development. We expect the city to advance until its present commercial center is continued into a band of traffic, one and of which shall reach the Pacific at the harbor which is being prepared for it. With this will naturally be vertebrated the other forms of municipal existence, and a metropolis will unfold. But it seems to us the measure of this attainment will depend upon the assumption of a representative attitude toward the other parts of southern California, based upon a cordial appreciation of their influence and service in the creation of such a great city. Every great city needs the sympathy and support of its environment and it can only gain this by manifesting reciprocation of the same sentiment and service. There was a time when San Francisco was rightfully regarded in much the same way that we heard other parts of the south declare their attitude toward Los Angeles last week. Quite a different feeling has developed during the last two decades and the result is that San Francisco is now regarded by its tributary country as but the proper exponent of its own advancement, and therefore general satisfaction and delight is expressed on the present rapid growth of the metropolis. Los Angeles has something to learn in this line, if we can judge from what we heard in many parts of the south last week. For it is not definitely decided what will be the relation of Los Angeles to southern California, though it may seem somewhat clear at the present moment. The eastern irrigated districts will have much to say in the future of southern California. New lines of shipment and travel to the Coast ports will be established, and the old rivalry between these ports which has been quieted by the splendid development of Los Angeles, is quite likely to arise anew. In the future, then, questions will largely turn upon the relations which exist between the rivals and their tributary regions, and it is unfortunate for the present largest city to enter upon the conquest of the future with the handicap of ill-will which the recent declaration for State division seems to have brought to sharp expression.

Concerning State division one of our readers in southern California writes us quite feelingly asking us to rebuke an outcry which does not represent the will or desire of his part of the State, and that they desire to protest against the Los Angeles effort to bring the whole south under the immense burden of taxation, which a separate State establishment would inflict, simply because Los Angeles thinks it can make enough out of capital possession to cancel its own share of this expense and make a profit besides. We do not enter deeply into such discussion because it is an utter waste of time. There can be no State division. There never has been a division of a State except in the case of the segregation of West Virginia as a war measure. The Carolinas and the Dakotahs entered the Union in sub-divisions, and are not instances of division as some seem to think. To divide a State an affirmative vote of the whole State would be essential; the vote of Congress and the approval of the President would be essential—not to speak of the farther fact that the Constitution of the United States expressly forbids it, so that an amendment of the Constitution would also be essential. Not one of the various things which are essential could be secured and yet all of them would be required. What a silly thing it becomes, then, for a single county which has not paid its share of State taxes hitherto, to propose State division as an escape from its proper punishment! It is an utter waste of time to discuss the feasibility of State division; the best thing to do is to forget that the proposition has been made.

There is, however, one thing which is worth saying in this connection, and that is that there is a way by which any county can be prevented from making such a spectacle of itself as Los Angeles has done. At the next general election the proposition of change in securing funds for State expenses will be re-submitted to the people. One feature will be to provide that the State will no longer derive its revenue from direct taxes upon the valuation of the counties, but will be supported by taxes upon corporations, etc. Then each county will have its own area and property to tax for its own county purposes, and the equalizers who excited this trouble by raising the assessment of Los Angeles county, will be at rest. No one will care about the rate of assessment in other counties, whether they are equal or otherwise. Each county will fix the valuation and the rate for itself and the State will not touch it. This is an excellent provision and if the Los Angeles sensation calls attention to the desirability of adopting this new method of taxation (which, of course has other desirable features than the one we have cited), it will not have arisen in vain.

The wine grape interest is still unsettled and vexed by conflicting emontions. The awards at the Seattle Exposition would delight many over the victories of California wines, were there not so many clouds on the viticultural horizon. There is a sharp issue between the great wine corporations and the smaller producers as to which is cutting prices for common wine in bulk, and some hard feeling is being engendered. The fact seems to be that both small and great have oceans of common stock wine, which they must sell to get money, and empty the cooperage. It is too bad to get hot over it; there is apparently too much wine in sight and on the way from the presses and some of it must be sold. It would be unfortunate if any conflict should arise which forced undue cutting of prices through spite, for that would cause real hardship. The wine men should pull together, if possible; everyone else is pulling together against them. There is also an issue over the price of grapes and the large establishments are at war with the independent wine makers, so that it is a local question what grapes are worth, or whether they have any price, or must be crushed for future valuation. At the same time there is a prospect on foot to found a $15,000,000 proprietary combination to buy all the vineyards and outputs and operate them. It is pretty hard to tell where the wine industry is at.

Another puzzling question is whether agriculture is going to the dogs or whether farmers are going into the millionaire class. For instance, Secretary Wilson is credited with saying in an interview: "The farmer is out of debt; he has paid for his farm, his fences and his machinery. He has money in his pockets and big crops continue to come on. He is afraid to invest in Eastern securities lest a year might bring trouble there. As a result he puts his money into automobiles and other luxuries instead of channels that might give a return. Why, folks in the East don't know what luxuries are; they must go West to find that out."

Not exactly opposite but substantially so is the declaration of Supreme Court Justice James F. Minturn, before the Frankfort Grange, in New Jersey: "The United States is repeating the history of Rome," said the judge, "in the amalgamation of small farms into large estates by moneyed interests, driving the country residents to the cities for a livelihood. The few who remain behind are becoming laborers and hired men of the big land owners. Something ought to be done to get persons back to the farms. State or national legislation, I believe, could, if it would, effect this."

The issue between these two authorities might be set at rest by the claim that one is speaking of Western and another of New Jersey farmers, or

that Mr. Wilson is talking about those very large farmers and not the very small ones who are being involved in the decline and fall of Rome. It seems to us, however, that both speakers are indulging in hot air, or one in hot and the other in cold atmosphere, if you prefer. However that may be we can think of nothing which can increase the interest in all knids of farming so fast and far as high prices for products, and if Secretary Wilson is right about the large profits in farming, one need not fear that people will abandon it. You could not drag them away with an automobile. Keep prices high and agricultural problems will largely settle themselves. People will get at high prices some way.

But there is another agricultural philosopher who has recently spoken, and he, too, says the West and the East are different; he, too, looks to the maintenance of high prices. Mr. James J. Hill, the great railway builder says this: "The idea that we feed the world is being corrected, and unless we can increase the agricultural population and their product the question of a source of food supply at home soon will supersede the question of a market abroad. Future prosperity will come in developing agriculture, rather than in extending foreign markets." And Vice-President Sherman added: "Mr. Hill made a strong speech, but I would like to say that while Eastern farm lands have unquestionably lessened in value, the reverse has been true of the farm lands of the West which have been opened up by the railroads."

A significant thing about these declarations is that they were not made at a county fair or at a place where speakers pat the farmers. They are solemn utterances made at the Chicago meeting of the American Banker's Association last week. Who would have thought of such proceedings at a cent per cent convention a few years ago. Agriculture is not only profitable, as never before, but it is also popular as never before. It is the great thing in the eyes of the American people, and one who has a good hold upon even a little piece of it he is unwise to let go. He should rather look sharply to see how he can use his piece to better advantage, because that is the only way in which the large pieces can be profitably used. It is rather startling, however, that the old phrase "land poor" must be re-cast into "land rich." It all depends upon how you use it.

Queries and Replies.

Bad Water for Gum Seedlings.

To the Editor: I have a good many eucalyptus rostrata seedlings which do not do well. The seedlings look as if they were sick. They are two months old, but only one inch high. I planted them in sandy soil, mixed with loam, and it is kept moist at all times, but I hardly have any dying, due to "damping off." The water I use has a great percentage of alkali, I believe. Will this water do any harm to the plants? Weeds showing up in the flats are also dying, although they have moisture enough. Is this due to alkali water? If so, is there any remedy in separating the alkali from the water by letting the water stand for a while?—Grower, Solano county.

You cannot expect to get any satisfactory growth of seedlings with alkali water or water containing sea salt, nor will such water be improved by standing. It is apt to get worse because on condensation the evaporation increases the amount of salt in the water which remains. We doubt if you can get good results without securing water which is practically pure, so far as salt or alkali are concerned. This seems to be the trouble with you, because what you say about the handling of the seedlings seems to indicate a correct method.

Vetches for the Pajaro Valley.

To the Editor: What is the best plant for green manure on an old apple orchard? How and when should seed be planted? When should it be plowed under? How much seed should be planted to an acre?—Orchardist, Watsonville.

We believe you will get best winter growth for plowing in your apple orchard by using common vetch, or Oregon vetch, as it is now freely called because the seed is largely grown in Oregon. It should be sown broadcast, about 40 pounds to the acre, as soon as the ground is moist enough to work well, from the fall rains. The crop should be plowed under as early in the spring as the ground will work well after the heavy rains, and at that time the plant should have formed some green pods. Do not, however, allow the straw nor pods to become ripe before plowing in, or the stuff will not decay and will give you trouble in the summer cultivation. You can get seed from seedsmen advertising in the PACIFIC RURAL PRESS.

Ashes and Potash.

To the Editor: I burned a lot of weeds, etc., some three weeks ago, have leached little of the ashes, and it produces a dark colored, strong lye, which I think shows the ashes to be a good fertilizer. Now, a large stack of barley straw was burned down here, and leaving a large pile of ashes. I thought to use the ashes on my garden, but in leaching a little of the ashes the liquid from it is clear as water almost, and tastes salty, and I thought maybe those ashes were not good. What is your opinion of them for trees?—Suburban, Los Angeles.

Undoubtedly all the ashes which you can get from burning plants do contain potash, but the amount will vary somewhat. It does not necessarily follow that the dark colored lye which you get from wood ashes is richer in potash than the light colored one which came from the straw, because there may be other matters which gave the peculiar colors, etc. Only determination by a chemist would enable you to judge of their relative amounts of potash.

Casaba is Not Cassava.

To the Editor: The writer in California last winter was served at hotels with casaba melons. Can I get the seed to plant this winter in a hot-bed for transplanting in the spring? I have been told there were two kinds, sweet and bitter, but the sweet casaba is the one I refer to.—B. E. S., Boston, Mass.

Our seedsmen can all supply the seed. There is no sweet and bitter casaba; you are thinking of cassava, which is not, of course, a melon at all, but a plant yielding a starchy root which is sometimes used for stock food, at least in the Gulf States. Probably your chief trouble with growing casabas in the open air would be the shortness of your growing season, and this could only be overcome by starting the plants and getting them into the open at the first safe moment in the spring time. You can probably grow them under glass with ordinary forcing condutions successfully.

Alfalfa Must Have Enough Water.

To the Editor: Enclosed please find sample of alfalfa which appears to be eaten up by some insect, or possibly some of it is suffering for want of water, although it was irrigated four weeks ago. I find some green worms on part of it. Can you give a suggestion or a remedy?—Grower, Stanislaus county.

We do not find anything on the alfalfa which would account for its appearance, although there may have been something not now apparent. From the looks of the specimens we think that the first need of the plant is water. In the height of the season an interval of four weeks is a little too long for alfalfa on lands which are liable to dry out readily, and if the situation were ours we should get some water on part of the tract at least, to note what effect was produced by it.

Alfalfa in Peach Orchard.

To the Editor: The planting of peach orchards to alfalfa seems to be gaining advocates in this vicinity. Will you give us the benefit of your advice on the subject?—S. E., Dinuba.

We have been writing on this subject off and on for the last decade. We believe in it if you can keep the moisture right; that is, not pinch the trees by allowing the thirsty alfalfa to take their drink away from them, nor drown the trees by too heavy irrigation of the alfalfa. If you can keep right in the middle between these two extremes you will have fine peach trees and plenty of alfalfa; but look out that you do not run out on either side of the road. It will, of course, be easier to do this on a deep loam which is naturally well drained; in fact, we should not try it unless we were sure of this.

Dried Fruit Worms.

To the Editor: Will you kindly inform us as to the best manner of preventing dried fruits, such as peaches and apricots, from becoming infested with worms. And if already so, what process can we use to destroy the worms without injury to the fruit? We wish to keep the fruit for future selling in store, and most of it gets worms therein very soon after being kept in bags.—Country Merchant, San Diego county.

Eggs and larvae of the fruit moth are usually killed by dipping the fruit in boiling water, allowing it to dry sufficiently and when just right packing in tight boxes. It is almost impossible to keep worms out of fruit in sacks. The best that can be done is to dip and dry, as stated, and keep the fruit in the dark in a well-screened room, in the hope of excluding the moth. This is also desirable for fruit packed in boxes for the worms will make their way in through cracks from eggs laid on the outside of the box.

Liquid Manure.

To the Editor: I sometimes use as a fertilizer liquid manure extract from horse, cow and chicken manure, lime ashes and a little salt put all together in a big barrel. Now is that kind of liquid fertilizer equal to or better than the patent fertilizers sold at seed stores?—Gardener, Oakland.

The liquid manure which you speak of is a strong plant stimulant and should be used carefully, for fear of excess. It is probably quite as rich as commercial fertilizers containing the same substances, and possibly more so. Use it in moderate amounts and watch the effect upon the plant. No chemist can give you a better report than the plant itself manifests by its growth, size and color of foliage, character of its products, etc. We see no advantage in the addition of salt unless you think you can discourage some subterranean insects by it. It has no value as a fertilizer except, perhaps, for asparagus.

Measuring Water.

To the Editor: Will you please tell me how much water we are pumping if the stream passes through a hole or gate two feet wide by one foot high and the water stands over two inches above opening all day. The gate is about 100 feet or 125 feet away from discharge pipe outlet in a cement weir.—Irrigator, Los Angeles.

As a rough guess, it is possible that under the pressure which you mention there might about three million gallons of water pass through the orifice which you describe in 24 hours. You will, however, not get any very accurate knowledge by attempting to figure upon such an orifice. You should put in a proper weir, such as is described on page 420 of the PACIFIC RURAL PRESS of June 5, 1909, and make your measurements by following the directions and using the table which are given.

Horticulture.

ALMONDS IN COACHELLA VALLEY.

To the Editor: Under separate cover I am mailing an average sample of Jordan almonds raised in this valley. The nuts in question came from five year old trees, one of which bore 24 pounds of nuts hulled, another, 15 pounds. While we think they seem to do well, have no certain knowledge of how much an average tree of that age should bear under favorable conditions, or how large the nuts should be. As the summers here are very long, intensely hot and dry, it is possible the nuts may mature before reaching full size in spite of sufficient irrigation. The few trees have always borne increasing crops each year, which would tend to show climatic conditions in spring or setting time, were not unfavorable.

Being a hard-shelled variety, there might not be a market for the Jordan in an unshelled state, indeed, I understand that in the East quantities are imported shelled, and command high prices. From my own experiments I find the loss of weight in shelling is considerable, amounting to something like three parts in four, so the kernels wuld have to bring a high figure to yield the same returns as the ordinary soft or paper-shell varieties. Shelling by hand would be slow and costly work, but I suppose there is machinery in the market to take its place. Should these questions be out of your province, perhaps you could give me the name of some importing firm which handles such products, and would be able to give me the desired information.

As the trees seem to do so well here, I am anxious to learn if there is a practical market for the nuts. If assured of such I would set out a considerable acreage, and many of my neighbors would be interested also, for we are quite anxious to grow something in our locality which is of a permanent character, and not perishable; something in short that does not put us so hopelessly in the hands of hungry commission firms, as do the products of the valley at present raised.

I also enclose an almond from a tree which was sold under the name of Ne Plus Ultra. The tree bears a fair crop of good sized nuts of fine flavor, but unfortunately, so far has matured the fruit with a close clinging hull. Would this be a habit of the variety, or arise from local climatic conditions, or improper cultural treatment? The trees are all frequently irrigated to within a month of maturing.—Grower, Coachella.

[The Jordan almonds which you send are fair sized and generally satisfactory. Whether they will be profitable with you will depend upon how large and regular a yield you can get, upon how cheaply you can extract the kernels, and the price which they will command.

You can find out about machinery for extracting the kernels by corresponding with Mr. A. O. Rix, Irvington, California, who makes almond hullers, and can also give information about the machinery used for cracking. Of course, you would not for a moment think of hand cracking, as a profitable method. The adherence of the hull varies with different varieties in different places; those which are too adherent being put through the cracking machine. You should probably look into the matter a little more thoroughly before deciding as to whether you will be justified in planting larger acreage, although your experience thus far must certainly be looked upon as favorable. EDITOR.]

LUPINS IN A VALLEY ORCHARD.

To the Editor: I am mailing you under separate cover a wild pea vine which grows in my orchard, which I would be pleased to have you examine and give me a report as to its value as a fertilizer. Some two years ago I noticed it scattered here and there through the orchard, and have encouraged its growth by letting it seed, and now have a good stand over the entire orchard. It ripens seed about May 1st to 10th. My method for two years (this is the third) past has been not to cultivate the ground until May. I check the rows both ways about March 1st (the orchard is in peaches, with rows 20 feet by 20 feet), then about May 1st I fill the checks with water and when dry enough plow the plant under, harrow down well both ways. Two weeks later I cultivate across the plowing and harrow the other way. About June 26th I irrigate again, plow cross ways from the first plowing, cultivate across this plowing and harrow both ways, when the orchard is laid by for the season. The soil is a sandy loam with no hardpan.

I would like to ask these questions:

1. What is the value of the plant as a cover crop?

2. What is the best time of year, or in what stage of the plant's growth is the best time to plow it under?

3. Does it pay to let the ground remain uncultivated until May 1st in order to let the plant furnish seed for the next year?

4. Is the method of cultivating, which I have followed the past two years right? The trees look vigorous and healthy and bear well, producing good fruit.—Orchardist, Selma, Fresno county.

[The plant which you sent is Lupinus micranthus. It is a native of California, an exceedingly valuable plant which is coming into many of the orchards in southern California, and is eminently desirable for growth as a cover crop. It should be plowed in while in bloom if it should bloom early enough, because the main question is not the condition of the plant, but that the plowing in shall be done early in the spring before the ground becomes too dry. But if you allow the plant to seed and then keep the soil moisture right afterwards, your system of cultivation seems to be very good. It is certainly good if it produces the effects in soil condition and tree growth which are desirable. Cultivation differs a little in method in different localities; the proper method is the one which produces best results and the grower has to work by that rather than by any rule or by calendar dates. Your practice would not do for one working by rainfall alone, but as a method of securing legume growth each year, without buying seed and sowing, in connection with such irrigation as may be needed, it is a thoroughly rational proceeding and should attract wide attention.—EDITOR].

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

I was fortunate this week to meet with a man who travels all over southern California and who meets the orange growers and farmers all over this territory. He is a fertilizer man, but I can say for him that he did not once mention the name of his particular brand of fertilizer, nor did he say that fertilization alone was the cure all for the ailments of the orange tree or other plants. His conversation was in the main along the lines of cultivation, and he repeatedly stated that cultivation was the one great means to the end of better fruit and larger crops. He is an exponent of deep cultivation and claims that the faddists, as he called them, who advocated shallow cultivation were doing an injury to the industry.

He had ideas as to the proper tool to use that I have never before heard, his claim being that four to six teeth are enough and that not over eight should ever be used. His claim is that more than this amount serves only to pack the soil where the great object is to mellow it. His particular hobby is deep cultivation, from 5 to 6½ inches, which provides an immense reservoir for the water that is to follow. He said: "The leaders in citrus culture are plowing deep and using the stiff toothed cultivator with teeth 10 to 14 inches apart. One case in point is that of L. V. W. Brown of Riverside, who puts up the Cerrito and Swastika brands of navels that are always at the top of the market. Mr. Brown uses but five teeth in his cultivator, which is pulled by four horses. With teeth this far apart the ground is turned up and does not pack. Packing excludes the air, and this is the one great important feature which the soil needs. Contrary to general opinion, air does not dry the ground out, but rather keeps it in a moist condition. Disintegrated soil is the one that is full of air and is also the soil that will hold the moisture. A stone in its natural condition will absorb but very little water, but if it is pulverized it will take up quantities. The pressed brick will hold the minimum of water, but the clay from which it was made would absorb a lot. Dry farming, as practiced extensively in the northern grain countries, proves that air passing through the soil does not rob it of its moisture, but rather helps to conserve that moisture."

This is not altogether new, of course, but the fact that so very few growers are practicing deep cultivation and that the growers with a reputation for getting the best out of their orchards make it of such seeming importance that it cannot be set before the grower too often.

I asked if this was the time of year to plant cover crop, and also as to the value of cover crop. The answer was that this was the right time of the year, but that the present hot weather was not favorable, and that it should be done when it was cooler. As to the value of cover crop my friend said there could be but one answer, and that was that it was of great value. He said that he considered that one of the greatest mistakes the growers make is when they plow the cover crop under in January or February; that it should not be touched until the beating rains are over, which is in April; that by that time the plants had attained a root system fully 15 inches deep and was thus a great factor in loosening the soil to that depth, and besides when fully matured the cover crop possessed more elements of value to the soil than they did in February, when there was little to be gotten out of them except lime and potash. He cited the case of a Crafton grower who has a 75 acre orchard, and who up to three years ago was using $3000 worth yearly of commercial fertilizer and stable manure. With a cover crop, which costs $300 yearly, and $2000 worth of commercial fertilizer, the yield of this orchard has been increased from 9000 boxes to 24,500, and the fruit is better in every way and the grove is in better condition. The yield was four packed boxes to the tree from the 6150 trees the orchard contains. Of course cover crop did not do all this alone, for my friend says that this grower's method of fertilization, cultivation and irrigation were absolutely top notch. He has the soil in a nice loose condition and cover crop planted before the winter rains come. He is in a position to irrigate when the orchard needs it and not when he has to take the water, as is common, and of course he uses this man's fertilizer, of which I do not even know the name. A tool is never put into the ground when the ground is moist, for that is the time to form plow sole and to otherwise pack the soil into bricks. He waits until it is perfectly dry, and then with his four toothed cultivator and four horse team he goes through his orchard and the ground breaks up like rich pie crust.

What method do you use in pruning your lemon trees? I met a man this week who spoke very bitterly against the so-called "Baronio" method and says that while Mr. Baronio claims that this was the system practiced in Italy for many years, he believes that it never was so practiced, and that Mr. Baronio was sent here for the purpose of crippling our lemon industry. He says that within the past three or four years this system has been entirely done away with, and that the result is that we now produce 6000 cars of lemons from the same orchards that only produced 3500 cars of fruit three years ago.

Of course he is mistaken in his ideas that Mr. Baronio had any ulterior motive in introducing his method, which was, no doubt, done to benefit the trees. I also think that he is mistaken in his assertion that Mr. Baronio ever claimed that his system had ever been used extensively in Italy save by himself. Mr. Baronio says in regard to this: "The method of pruning the lemon as practiced by me, although having been mistaken for the old "vase" or "tronco rovesciato" form of the Italians, is entirely different, because it brings the tree under control as is not to be obtained by any other method." He claims that his system was the outcome of a series of years of practical tests which lead him to believe that it was pre-eminently suited to the lemon, especially in California. Our man claims that it greatly reduces the bearing surface

of the tree with no corresponding benefit and that the growers of San Diego county, where it was largely practiced upon its introduction, had been almost entirely done away with it.

The lemon men received a jolt last week in the announcement that the railroad rate on lemons were to be increased from $1.00 to $1.15 per hundred pounds from California to the East. The statement is made that this is but the first move in a general attempt to raise the rates on all commodities, the transportation companies claiming that while expenses have increased greatly in the past few years, particularly wages which take 40% of the earnings, the rates have remained the same. The Citrus Protective League is preparing to fight the raise and the following letter has been sent to every grower's and packer's organization in the State.

"The proposed increase of lemon freight rate was brought to the attention of the executive committee and on motion it was ordered that suitable resolutions be prepared and submitted to all the members of the league and to other shippers and growers of citrus fruits, to be by them adopted for the purpose of binding together those interested, in an action or actions to be taken by this organization resisting the attempts of the transcontinental railways to increase the present lemon rates or to maintain the present orange rates or the present refrigeration charges on citrus fruits, and it was further agreed that the Citrus Protective League, having confidence in its ability to get relief from the present excessive rates and charges, and relief from proposed increased rates, do recommend its members and all others interested to join in agreeing to the resolutions to be proposed."

The general opinion seems to be that the railroads have started a row that they will wish they were out of before it is over. All condemn the short-sighted policy that will tend to throttle a growing industry. With encouragement a 12,000 car crop would be possible within five years, but if the railroads win in this case there will be a lack of incentive to plant new orchards.

It is understood that the Western Traffic Bureau (representative of all transcontinental railroads), is responsible for this blow at the lemon men, but shippers here are inclined to think that the initial lines are responsible. It is a sad blow to the lemon men and they feel that they have been knifed in the back.

The Citrus Protective League will take the matter of rate adjustment before the Interstate Commerce Commission, but this body cannot act until the rate is actually in force (November 15th), and the new rate would stand pending a decision. They also consider taking the matter before the courts and praying for an injunction against any collection of the increase until such decision has been rendered.

This is written the morning after the banquet given in honor of Senator Flint and Congressman Needham and up to now I have nothing but pleasant memories of the occasion, which I was fortunate enough to attend. Not the least pleasant part of the entertainment so far as I was concerned, was found in the company at the table at which I sat. I am rather shy among strangers so was pleased to find myself next to lemon man Powell, of the Exchange, and with R. H. Wilkinson, sales manager of the institution near at hand on the right, and Messrs. Hamilton, of Upland, Hubbard, of San Fernando, and Fraser, of Los Angeles, across the table.

The tables were beautifully set and it was a shame that the camera man could not get his bomb to work so that we could have an indelible picture of it all. I, at least, would have liked to have had a picture of it all for it was the best all-round banquet I ever attended. Many pleasant acquaintances were renewed and there was not a jarring note in the whole melody of fun and entertainment.

With the cigars came the speaking and it was all good. I was particularly impressed with the wit, pathos and good common sense of General Jenison, of Covina.

Congressman Smith, of Bakersfield, was bright and snappy in his remarks and when Los Angeles annexes Bakersfield he can have my vote if he wants it, and I think he will, for he will be gunning for that job for a good many years yet. He fired the opening gun at the railroads and I confess that I, for one, had been listening for the sound of that gun through every speech that had been made prior to his. Mr. Smith made considerable fun by his frankness in telling us how things are worked in the House of Representatives, and while he did not seek to apologize for being a part of the machine, he explained that to seek to deprive the other States of what they justly thought due them under the new tariff law was only to defeat what he and others of the California delegation were after for their constituents.

"We were eight," he said, "and imagine our arraying ourselves against the demands of a great State like New York with its 36 representatives. Why, when we go down to take the oath at the opening of the session, we are so small in numbers that we are ashamed to go alone and the rest of the alphabet near us has to go down to make a showing."

He justified the action of the machine in accepting the reports of the committees, saying that with its nearly one-half a thousand members the house would have taken three years on the tariff bill instead of three months if all the individual members that make up that body had a voice in the 3000 items that made up the bill. Smith is all right.

Mr. Needham was all right, too, and brought a great laugh when he told a story. It is worth repeating. He said that when the lemon grower's committee reached Washington during the fight for the raise on lemons, one of them told him upon their meeting, that his face looked to him like a star of hope. Mr. Needham then went on to tell of the time when he was first entering politics and a candidate for the nomination for representative from the eighth district. Well he won, of course, and afterwards upon the street he overheard one man ask another as to who had received the nomination, and the man replied: "Oh, that moon-faced son of a gun from Modesto." "So," said Mr. Needham, "I had long been used to being likened to the moon, but to be called star-faced was a new one on me." He is rather open-faced. A good man, all right, and we ought to have more like him. We need 'em.

Judge Call, the man who pleaded the cause of the lemon men before the ways and means committee, talked entertainingly. In introducing Judge Call, the toastmaster, Mr. C. C. Chapman, told how it was thought best among the committee of growers that the title of Judge should not be brought up too promiscuously in Washington as the legislators might think the growers had brought a hired lawyer with them rather than a grower, which, by the way, Judge Call certainly is, and a good one. It was suggested that he be known as Farmer Call, and so it was, all the Washington papers giving him that appellation during the hearing. It will be remembered that the Judge had several sharp set-toos with the Hon. Champ Clark, from Missouri, and also that he did not come out second best. One of the best remembered sallies was when Mr. Clark asked him if the time would not arrive when the California grower could compete with those of Sicily without an increase in the tariff rate, and the Judge replied that it might happen if the Democratic party came into power and wages went down to 25 cents a day.

We all had the pleasure of listening to Gifford Pinchot, of the Forestry Department, and the audience plainly showed that they were with him in his policy for the conservation of forests. Mr. Pinchot had just returned from a two weeks' fishing and camping trip to San Clemente island, and was more inclined to talk fish than anything else. I have been there myself, and know just how he felt. Mr. Pinchot was particularly proud of the two nine foot swordfish he landed, and no wonder. He spoke of the necessity of the conservation of forests as being necessary for the preservation of the natural watersheds, particularly in such semi-arid climates of the country as southern California. He proved to be a scholarly gentleman of pleasing address.

Senator Flint made the speech of his life. He not only fired the gun we were all waiting for, but he fired broadsides, and the enthusiasm of the listeners was great. He declared that the action of the transportation companies raising the rates was in effect a nullification of an act of Congress, and he was in favor of legislation that would regulate the railroads and no act is so certain to force such regulation as this almost inconceivable, unwarranted and unjustifiable act just decided upon by them. He further said:

"The question is a farther reaching one than a mere increase in a freight rate, and their action will convince any fair minded man that the arbitrary power of raising and lowering rates—deciding whether an industry should exist or not—should not be left to a body of traffic officials, and I shall favor the enactment of a law that will not permit the raising or lowering of a freight rate by railroad officials without the approval of the Interstate Commerce Commission.

"I desire to assure those present that if I have been active and rendered any service in the matter of increasing the duty on lemons, I will be just as active in assisting you to compel the railroads to restore the freight on lemons to $1.00 a hundred pounds."

He also said that, in his belief, no greater blow could possibly be struck at the lemon industry than this ill-advised measure on the part of the railroads, and that instead of an increase in the acreage resulting from the action of Congress, the result would be a decrease, owing to the action of the traffic managers. No doubt he is right. I know, personally, of several deals that were pending in lemon lands and in bearing lemon orchards that are not now likely to go through. While there is still the 35 cent margin over and above what we previously had, the result of the increase has been to discourage prospective purchasers, and the railroads are bound to lose this prospective increased tonnage.

I think this action on the part of the railroads is bound to have its effect on all future tariff legislation if allowed to stand, and there is no doubt but that the point will be used by the opposition political party with good (or bad) effect in the time when such action shall be before the legislative body of the United States.

The traffic men will say that it costs just as much to haul lemons as oranges, that the $1.00 rate was an emergency rate given the lemon men in times of stress, and that with the tariff now in their favor this condition of stress no longer exists. As a matter of fact, it does not cost as much to transport lemons as oranges, for nearly all the lemons shipped are sold west of Ohio and a big percentage of them west of the Mississippi river, while on the other hand, the bulk of the oranges are sold in the far East, and the rate is just the same per pound or per carload to New York City or Omaha, Nebraska.

Not alone are lemons to be attacked, but there is a well defined rumor that the estimated weight on a box of oranges is to be raised from 72 to 76 pounds, making an increase of four and six-tenths cents a box or over $17.50 for a car of 384 boxes. This had the effect of cementing the orange and lemon men together in the fight for justice, and the men at the head of the Citrus Protective League promise that before the affair is over the railroad people will realize that they have at least been in a scrap.

I heard dozens of favorable comments on the attitude of Senator Flint on this question and he certainly made himself solid with the citrus fruit men of California.

I was surprised to see so few of the so-called independent shippers present at this banquet. I counted less than ten present, and I think I know nearly every shipper in California. I have since been told that many of them did not receive invitations, and I wonder why. I had understood that it was the object to line up every interest in the citrus country to aid in the fight, and thought it strange that any action that might possibly alienate the affections of any single factor at this time was either a grave mistake or a bad oversight on the part of someone.

Mr. Chapman is particularly happy in the role of toastmaster, and his witty introductions were appreciated by all.

This is hardly a cultural article, but I thought that possibly the growers of citrus fruit might be interested in catching some of the side lights of a meeting that has been fully reported otherwise in the daily papers, and that is my excuse for writing about it.

BUILDING A ROOF FOR A GARDEN.

In case some of our mansion builders may like to know how Mr. Hill, of Seattle, built a roof to plant a garden upon, we give his account of the method: "The roof is supported by 24 inch steel plate girders. On top of that is an eight inch layer of cement composition. Above that are placed five applications of pitch and tar paper alternating, each one-half inch in thickness. That

is covered with a two inch layer of cement composition and surmounted with an application of boiled linseed oil." Here he paused a moment and then resumed: "Above this are the following: A one-inch layer of mastic red lead, three inches of agricultural drain tile, four inches of clay, filled and tamped; eight inches of soil, four inches of loam, and on top of that the sod for the roof garden."

AGRICULTURAL REVIEW.

WITH THE GRAPE GROWERS.

In Kings county the curing of raisins is as far along as usual at this time of year, the drying weather of the past few weeks having overcome the unfavorable spring. Most of the grapes have been picked and some have the raisins in the sweat box.

H. H. Bennett, of Dinuba, director of the Farmers' Union, returned last week from a round of the Eastern markets, and reports the dried fruit as active, though prices are low.

The meeting of growers held at Fresno last week to discuss the Tielman plan of forming a big corporation, with 25 per cent of the stock to be held by business men, was well attended. The plan of forming a million dollar company seemed to find objectors among the raisin growers, as has every other plan proposed. The meeting appointed a committee of five which will select the first board of directors for the organization, the committee to report to a mass meeting soon to be called. It was understood at the meeting that the originators of the plan would at once take up the work of shortening and simplifying the contract that has been prepared for the raisin growers to sign.

Wine grape growers in Sonoma and Napa counties are securing good prices for their dry wine grapes. Buyers are paying for Mission and Fehrsagos, $12 per ton; for Mataros and Malvoise, $13; Zinfandel and Burgundy, $14; and for small lots of Petit Syrrh and Petit Bouschet, $16.50. Payments are one-third on delivery, balance in four and eight months.

GOOD APPLE CROPS.

Watsonville apple growers will apparently have a prosperous season. The crop is reported large and of excellent quality, and as many orchards have been bought with fruit on the tree, the chances are that good prices will hold for the season. The apple crop in the Yucaipa and Oak Glen valleys in southern California, is estimated at 200 cars loads, which is the largest ever harvested. Picking and packing is now at its height and as most of the crop has already been sold at good prices, the growers there are assured of a prosperous season.

An estimate of the apple crop in the western States was given out last week by Better Fruit, a local fruit paper, of Hood River, Ore., which places the total west of the Rocky Mountains at 12,290 cars, compared with 13,510 cars last year. By districts the production in carlots is given as follows: Colorado, 4300 cars; Utah, 400; southern Idaho, 300; Washington, 1740; Oregon, 750; California, 4500; Montana, 100 and New Mexico, 200.

WALNUT PRICES FIXED.

At the meeting of the Walnut Growers' Association of Southern California, which was held at Los Angeles, Saturday, September 25th, the price of English walnuts for the coming year was fixed at 11½ cents for first-class softshell and 7½ cents for second-class softshells. Brokers will receive 1½ per cent discount. The prices set are one cent below last year, but which were later cut one cent.

The crop ni the southern part of the State is estimated at less than 8000 tons, which is less than that of last year by nearly one-fourth.

The price as set last Saturday will probably carry off the crop quickly, as most of the yield is controlled by members of the Association. Last year a great number of growers were independents, especially so about Santa Ana, where, since last season nearly 300 of them have joined the Associations.

BIG RANCH TO BE COLONIZED.

One of the largest land deals in southern California for some time is reported to be about completed. The 48,000 acre Lankershim ranch, on the west side of the San Fernando valley, is to be taken over by a syndicate and divided into small tracts and sold to settlers.

The ranch is 15 miles long and about 6½ miles wide, which is land enough to give homes for 25,000 people. Most of the soil is fine for gardening and deciduous fruit, it is only a few miles from Los Angeles, and has good railway facilities. The purchase price is stated to be $2,500,000, which includes all stock, machinery and also the Los Angeles Milling Co.'s flour mill in the city.

BIG ALFALFA ACREAGE.

In the Turlock irrigation district there is now growing 29,000 acres of alfalfa and in the Modesto district 16,307 acres of alfalfa. Besides alfalfa there are about 30,000 acres under irrigation in these two districts, which raise trees, vines, sweet potatoes, melons, etc. A very few years ago this land was devoted to grain, and in a short time from now the irrigated acreage there will be doubled. Alfalfa is fast proving itself to be one of the best paying and most stable crops and as dairies increase, the value of alfalfa will become greater, instead of selling the hay farmers will in time sell it as butter.

GOOD PRICES FOR HOPS.

Owing to shortage of the crop of hops growers are being offered good prices this season. At this time last year hops went begging at from 4 to 5 cents, while now the prices are reported at 20 to 22½ cents, and the expectation is that they will reach 25. In California the crop will aggregate about 58,000 bales; in Oregon it is estimated at 60,000 bales, being less than a half normal crop. Continental Europe will have a short crop and England has a light yield—the latter country the yield being shorter than any year since 1882.

ENLARGING STORAGE RESERVOIR.

The Modesto Irrigation District has added nearly 400 acres to the 2700 acres about Waterford, originally acquired for reservoir purposes. The total storage capacity of the reservoir, when completed next spring, will be 30,000 acre feet, or enough water to cover 30,000 acres one foot deep. The water will vary in depth in the reservoir, the deepest part being 30 feet and the average depth being 10 feet.

BIG YIELD OF RUSSIAN WHEAT.

What is believed to be the largest crop of wheat on a large acreage in the northwest, is reported by W. S. Neil & Sons. They have harvested this season from 400 acres near Pullman, Wash., 22,500 bushels of Red Russian wheat. While there are records of heavier yields on small tracts, this crop is phenomenal, being an average of 56 bushels on 400 acres.

Horticultural Notes.

The first of the season oranges from Florida were shipped to market this week. Estimates of the crop are from 6500 to 7000 boxes.

P. C. Hicks, of Arleta, Oregon, has purchased the Axtel farm of 280 acres near Chico and will develop the apple industry there. Already 40 acres of the tract is



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The Rhubarb and Berry Specialist. Dept. I.

set out to apples, and the new owners will put out 60 acres more next spring.

The two packing houses at Healdsburg are new very busy putting up prunes. Several cars will be shipped to Germany on order as soon as possible.

Western New York State has raised a crop of over 3000 cars of peaches this season, the heaviest in many years. The apple crop in that section is only about 40 per cent of a crop.

The prune crop around Napa is much larger than anticipated early in the season. Packing and curing is now being rushed and the prunes shipped to Eastern and fereign markets.

The fruit growers about Roseville, Placer county, have formed a co-operative packing and marketing and packing association. They have rented a building and are sending out fruit.

About 25 tons of almonds were sold from the Houston and Bane orchards, near Orland, last week at prices ranging from 11 to 13 cents per pound. Averaging the price at 12 cents, the crop brought the sum of $6500.

The crop of Cornichion and Emperor table grapes is reported to be unusually good this season, and growers are anticipating good prices in the East when they are sent to market, which will be after the earlier varieties are out of the way.

The California Fruit Exchange report a great demand was found in the East this season for cling stone peaches. At times they were unable to fill all orders which came as a result of advertising. Prices were very good, the lowest being from $30 to $40 per ton, while at local canneries the price ranged from $21.50 to $25 per ton. The Exchange believes that very much larger shipments will be made in the future at good prices to Sacramento valley growers.

Dudley S. Moulton, who has been in the Government entomological work, stationed at San Jose, has been appointed Deputy State Horticultural Commissioner Quarantine Division, with headquarters at the Ferry Building, San Francisco. Mr. Moulton assumes the duties and office made vacant by the resignation of E. M. Ehrhorn, and is well qualified for the position. Commissioner Jeffrey is to be complimented upon his selection of an assistant.

General Agriculture.

From seven acres of alfalfa, grown without irrigation, W. H. Hayes has cut over 60 tons, and has one crop yet to harvest. The land is located near Hume in the Sacramento valley.

The makers of pumpkin flour at Hanford, report a ready sale for their output. A big shipment of the goods to Arizona last week cleaned them out of stock. As Kings county raises lots of pumpkins, it would seem that pumpkin flour will become one of Hanford's valued products.

E. F. Ede, a farmer near Kingsburg, in Kings county, has made money raising onions this season. From two acres he harvested 400 sacks of the Australian Brown variety, which he sold for $1.25 per sack. From three acres of land he also raised 1000 pounds of onion seed which he sells at $1.50 per pound.

The potato crop around Stockton is proving to be very good this year. The area planted was about 24,000 acres, mostly of the Burbank variety. A big crop of spuds is also reported from Klamath Falls, Oregon. One grower claims to have harvested 200 sacks per acre, which will net him more than the cost of the land.

Bean growers of Orange county are being offered $3.50 per 100 pounds for their crop. The crop in that county is estimated at 250,000 sacks of limas and nearly 50,000 of blackeyes, the most of the latter being reported sold. Of the lima beans about 200,000 sacks are raised on the big Irvine ranch. Threshing is now in progress all over the county.

Stock and Dairy Notes.

A large band of sheep belonging to James Burns, of Potter Valley, Mendocino county, was sold to Napa parties last week. The sheep are in fine condition and will be taken to Napa for slaughter.

A good many thousand head of sheep were bought in Tehama county last week, and the prices secured were very good, ranging upwards from $2.40 to $4 per head.

A special train of 32 cars of live stock was shipped out of Klamath Falls, Oregon, last week. This was the first train of stock to be shipped from there, part of it was sent to Portland anu part to San Francisco. Cattlemen are feeling prosperous owing to the good prices received.

Miscellaneous.

Stanislaus county will probably vote on a bonding proposition soon, to raise money for a system of good roads throughout the county.

Experiments are being made in the district around Visalia to make sugar from grapes. If the sugar in the grape can be crystallized the industry will be a success.

Last Monday the grape juice factory at Lodi started on its season's run. Since last year an up-to-date equipment has been installed with a capacity of 20 barrels a day.

The Waters' Cannery, at Pomona, has closed for the season after a very heavy run. Two million cans of apricots, berries and peaches have been put up and about 55 cars have already been sent to Eastern markets, leaving about 40 cars to be shipped.

A deal is reported from Merced county, which is another step in the work of cutting up of the big ranches. C. M. Company, of San Francisco, has taken a bond on the 108,000 acre tract, 14 miles south of Merced, known as the Cowchilla cattle ranch, and will place it under irrigation and sub-divide it. The deal is said to involve over one million dollars.

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Apiculture.

SUN HEAT TO PREVENT GRANULATION.

Mr. E. B. Rood, a Florida honey handler, gives Gleanings some experience which seems to indicate that sunshine may be used to keep honey fluid. California has plenty of that agency and the account is interesting:

I put up for the fancy grocery trade some ten or fifteen thousand pounds of honey annually. One of my serious difficulties has been granulation. I have attempted to teach my customers that this is an evidence of its purity, and that it may be easily liquefied; but few of them want granulated honey, and consequently it sells slowly.

Noticing the statement in Gleanings several years ago that continued rather than excessive heat is important in so changing the honey that it will not easily granulate again, and having a jar of my own honey, extracted in the year 1900, that stood for months above the kitchen stove, that remained clear for years, I decided to put several five-gallon cans of honey in a large wax-extractor, with the pan removed, and leave them there for some time and then use the honey for bottling. This plan was but partially successful, for only in the hottest weather could I get the honey in the bottom of the cans hot enough so that it would not soon granulate. After this I tried square glass jars, such as I use; but after they were waxed, the wax melted and ran over the jars and made an awful mess. I then began putting the honey in the jars corked but unwaxed. This I found very satisfactory; and with a good solar wax-extractor it is possible in this climate to heat the honey to such a temperature that in a week's time it will not granulate again, even when sold I have not yet learned how long it would take to make it granulate.

In summer I can put honey in an extractor for a day or two and it will not granulate, if it is not too cloudy, and at such a time the temperature of the honey often rises to above 150 degrees, and remains there for many hours.

I am adopting this plan more extensively every year, and am now planning one or two extra sun extractors for this purpose, the floors to be terraced to keep the jars from upsetting. My extractors are homemade, and covered by one large glass—the larger the better.

So far I have not lined the boxes with tin, but think I will do so in the future, as the reflection will greatly increase the heat. It is important that the boxes be only a little deeper than the jars so that they will come up close to the glass.

I plan to put many jars through the extractor in the fall and have them ready for the winter trade. In the northern States it would be necessary for the bottler to do this before the cold weather; but the heat of the extractors could easily be increased by a lamp underneath, as many use them for extracting wax.

This method seems very simple, and may be known and used by many beekeepers; but if so, they have not written it up for the bee journals. Had I known it years ago it would have saved me much time, trouble, and expense in returning jars of honey from my customers, remelting, relabeling, and sending them back again.

KILLING WEEDS WITH IRON SULPHATE.

The eradication of farm weeds has been the subject of special investigation by the Wisconsin experiment station for several years. Experiments with the iron sulphate solution were begun in 1906 and successful results were secured in the eradication of wild mustard and in the partial control of other weed pests. These results are described in Bulletin No. 179, just issued, entitled, "The Eradiction of Farm Weeds with Iron Sulphate."

The iron sulphate solution is prepared by mixing 100 pounds of granulated iron sulphate with 50 gallons of water and stirring thoroughly. This solution is sufficient to treat one acre of land infested with wild mustard. A specially adapted sprayer is necessary to apply the solution. Such machines are now to be found upon the market at moderate prices.

Fifteen to 25 acres can be sprayed daily and a single application of the solution will kill all of the mustard if applied at the right time. The spray is most effective if applied when the younger plants are in the bud and the older plants in the third leaf. Weather conditions should be favorable, as rains wash off the solution, making it ineffective.

Mustard spraying experiments made in 1906 and 1907 have demonstrated the effectiveness of this method of eradicating mustard and the partial control of cockle bur, bind weed and rag weed. Fields of oats at the station farm at Madison, and in Waukesha, Kenosha and Langlade counties, were sprayed with successful results.

Canada thistles are not killed when sprayed with iron sulphate. Although some plants are seriously injured, the solution merely causes the leaves to be scorched and the thistle plant soon recovers its natural vigor. Experiments show that eradication of thistles can be more effectively done by the cultivation method. This involves a rotation which keeps the thistles under control by frequent cultivation.

The cost of spraying with iron sulphate is about $1.25 per acre. The cost of the iron sulphate varies according to distance it must be shipped and is cheaper when purchased in car lots.

HOW TO GET NEXT TO THE LEGISLATURE.

To the Editor: One of the most important books published this year, judged from the standpoint of its value to the California farmer, is a book that not one farmer in a thousand will ever hear of, unless he is told of it by some friend.

Sacramento and its legislative halls are a long way off from the farm. I am a farmer, and I realize the immense importance to the farmer of the measures introduced into each legislature. We send Senators and Assemblymen to the legislature, perhaps pledged to certain measures, and promptly lose track of them. Some of them do faithful and efficient work in spite of the many temptations thrown in their way by agents of what Roosevelt calls "malefactors of great wealth."

The man who does not "stand in" is usually ridiculed and lampooned by the great dailies and the gutter weeklies. He is fortunate, indeed, if by innuendo or by false allegations, the community is not induced to think that he is either "crooked" or "a failure."

What we have needed for years is a summary, at the end of each session, clearly and concisely presented, of the work done and the work undone; the reasons why and the reasons why not. We need to know how our public servants have behaved while out of our sight. We need to know whether they have worked for the interests of the average citizen, or the interests of some great corporation seeking to enrich itself at the expense of you or me, and of our neighbors.

There is such a book, at last; published, not as a moneymaking proposition, but as a contribution to "the common good." If the work can be made to pay actual expenses, if you and I and our neighbors show our appreciation of it, there is a possibility of a similar work being done for the next legislature, and succeeding legislatures. But not a single one of the machine-controlled newspapers will tell you of the existence of this book. The politicians hope you will never hear of it.

In the "History of the Legislature of 1909, Franklin Hichborn, of Santa Clara, has given us a book of intense interest to the thinking voter. The appendix shows the votes of each member on all the most important measures that came before the last legislature. You don't have to trust to hearsay as to what your representative did—it is all here in cold, indisputable black and white. He traces the complete history of each measure of importance. The book can be obtained from the author,

A Delightful Allegory
On the Uses of Farm Machines.

One of the most unique and interesting booklets on farm machines ever gotten out has just been issued by the International Harvester Company of America.

It is a beautiful little allegory in verse on the value and uses of modern farm implements, and is not less interesting for the story itself than its many fine pictures which are printed in colors.

The book is entitled "Glimpses of Thrift-Land," and from the start is on the border-line between the ideal and the real, notwithstanding the fact that it is dealing with so staid and substantial a subject as farm machines and implements.

As the story goes, Farmer Brown is engaged in making hay when suddenly there appears a mysterious character of military bearing, made up of corn, wheat, oats, alfalfa, etc., who announces that he is the Genius of Farm Thrift or "Prosperity," called "Prospy" for short. He tells Farmer Brown that his home is in the earth, but that he is charged with the high mission of pointing the way to better conditions in farm life, and asks the farmer to accompany him.

Wouldst have a glimpse
Of Thrift-Land fair—
The smiling land
With promise rare?
Take my right hand,
Your eyes shall see
Less toil and true
Prosperity.

The farmer consents and they go together to the realm of "Thrift-Land," where they meet another farmer who has made a fortune on his farm of ideal surroundings and who imparts to them the secrets of his great success. This takes them step by step over the whole range of modern farm machines and their necessity in getting best results from the farms. The farmer in Thrift-Land is an ideal farmer on an ideal farm and, of course, saves time and expense and preserves himself to enjoy in his old age his rapidly growing wealth by using the peerless I. H. C. farm machines and implements.

It is a fascinating little story, beautifully illustrated, and breathes the spirit of farm progress all the way through. We know our readers will be interested, both in the story and the moral it points. A copy may be had by writing for it to the International Harvester Company of America, Chicago, U. S. A.

The Company has also designed and has ready for distribution a beautiful monogram tie pin in gold, silver and bronze finish, suitable for the coat, scarf, etc. Or you can have a lapel button in gold finish only. One of these presents will be mailed to any reader of this paper who writes for it and who names one or more persons who is likely to be a buyer of a Cream Separator, Manure Spreader, Gasoline Engine, Wagon, Feed Grinder, Hay Press, Auto Buggy or Disk Harrow. You can write for the pin or lapel button when you write for "Glimpses of Thrift-Land." Both are sent postpaid. Don't forget to mention a possible buyer of a farm machine or implement if you want to receive the pin or lapel button. Addess "Prosperity," care International Harvester Company of America, Room 171, Harvester Building, Chicago, Illinois.

the price is $1.25. Send for it and get your neighbors to send also. I don't know Mr. Hichborn, except through his book, and he doesn't pay me to give it publicity, but in making this suggestion to you I feel I am doing a bit to help throw light on something of vital importance of all of us farmers.

FRANK T. SWETT.

Martinez.

Live Stock and Dairy.

Hints on Breeding Sheep.

Now that the tariff is fixed and the future of sheep is fair and the chance of sheep on small farms, which we have always urged looks better, it will be interesting to read some several suggestions from the American Sheep Breeder by Mr. Roscoe Wood, a well known flock authority.

There are many things to be considered in raising and growing sheep and securing the most profit and best results. One must weigh well the conditions of climate, of market, of general local conditions, and of his own individual preference and adaptability to the business. It is in the light of these conditions that he must determine the purpose of his sheep raising, and then he must select the breed which to his mind fits into these conditions and will make him the most, both of profit and satisfaction in handling. Then when he has selected his breed, stay with it. And in any case, whether he has arrived at the selection of his favorite breed by such method, or whether he has simply made a guess, let him be persistent in his course until proven wrong. Here lies the cost of reduced profits and ultimate disgust with the sheep business to many who have undertaken it. It is this fickleness of purpose that proves the undoing of many a would-be sheep raiser. One year he has one idea in his purpose in raising sheep and the type of sheep he thinks he wants to produce, and each succeeding year finds him with a different purpose, until he realizes that he is making little or no profit from his business, when he quits the whole thing. Everlastingly at it brings success in the sheep business as in all places, and with it must be fixity of purpose. When a man starts to raise mutton lambs he must continue his breeding with the aim in view to ever produce better lambs and do it cheaper, and thus increase his profits. He must not be diverted from his original plan by a passing drop in the mutton market or a tempting rise in wool prices. His only excuse for a change can be an acknowledgment that he started wrong, when the conditions under which he must work were considered in their proper proportion.

The breed determined and the purpose for which you propose to raise sheep having been decided, there still remains the very important factor of carrying out your plans. If you are so fortunate as to be able to secure exactly the kind of ewe flock you think you want, you are far on the way to success. But the great majority must be content with what they can secure, and that is generally something that falls short of their ideal. Whatever other faults you may be compelled to accept, at least avoid that of lack of uniformity. Have the flock look alike, even if not of prime quality. There is nothing that detracts more from the value of a flock of ewes than to have a few extra good ones and a few extra poor ones, or a great variety of breeds and types. Have an even bunch every time.

When you have your ewes, the vital factor comes in the selection of the ram you breed to them. Too many have an idea that any sheep called a ram will answer the purpose, and by such presumption destroy much possible profit. It has been truly said that the ram is half the flock; in respects he is practically the whole flock. In the leading flocks of this country, of whatever breed you may mention, it is the superior ram or rams that have been in service that have established the reputation of these flocks. While a select lot of ewes were in the flock, yet it was the superior merit and the prepotent power of the rams that produced lambs that placed the flock among the leaders. In every flock its periods of advance and progress are marked by the use of some particular ram; which has produced certain marked characteristics in his produce; and the skill of the breeder has been demonstrated by his ability to select and use such rams as have produced the improvements desired. Likewise many a man has failed or achieved only partial success by his failure to appreciate the value and necessity of securing a good ram, or his inability to select such a ram. Generally, however, too many think a few dollars put into a ram is money thrown away, instead of the best possible investment in the sheep business.

In the selection of a ram two factors are very essential, individual merit and breeding. A pure bred ram is far more valuable than one that is not, because you have an assurance that his ancestors were good animals and of pure blood of whatever breed you may be buying, and blood will tell, in its reproduction. We have seen extra good individual animals whose breeding was of mixed and uncertain character, and when such rams were used the characteristics of those inferior ancestors made their appearance in progeny of such rams, and the latter lacked that prepotent power of reproducing their own excellencies in their lambs. On the other hand, individual merit is essential in a pure bred animal, especially should any marked defects be guarded against, if that defect be one of inheritance. For such defect, if it has been very noticeable in his ancestors, will be liable to reproduce as well as the good qualities. While perfection cannot be attained, yet judgment in selection, governed by the character of the ewes to be bred and the purpose of the breed, can secure a ram with pronounced characteristics that are especially desired in the produce, and thus secure improvement. And with an average lot of ewes, a ram of strong breeding will impress his own good qualities upon his produce, while if his own faults are not those of the ewes, the latter will be able to overcome his defects to a noticeable extent in the prodcue, and thus produce improvement.

As to individual characteristics, many of these must be determined by the breeder. There are a few things, however, which must be considered in any ram of any breed. Good constitution is absolutely essential, for without that no ram is of much value as a sire. Good bone is another thing that is necessary, and by this is not meant mere bigness. A good, heavy foreleg, not a long one, is one of the best indications of a good-boned, strongly-constituted ram. A well-formed body, even and uniform in its proportions, are extremely desirable. A good head and neck is of no small importance. In the matter of fleece, its relative importance depends upon the purpose of your sheep business. If for mutton primarily, the fleece is not of so much value, but if wool is to be a large part of the revenue, its character, quality and amount must be closely watched and its relative importance to the form and mutton characteristics be carefully considered. The many details of individual merit must be judged by the man who is buying, for it is not our province to determine the exact type of ram for any special condition or purpose.

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Sore Throat, Rheumatism, Sprains, Neuralgia, Cuts, Sores, Swellings, Lameness, Stiff Joints, Poisonous Bites, Cramps, Diarrhoea, etc.

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If you do not agree with us possibly you have not been quoted on

Cocoa Cake or Meal
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You know they are the best feeds on the market.

Do you know how cheap they are this year?

PACIFIC OIL & LEAD WORKS, Manufacturers,
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A Safe, Speedy, and Positive Cure

The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

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USE HERCULES HARNESS SADDLES HORSE COLLARS

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FOR SALE

FOUR THOROUGHBRED AYSHIRE BULLS, Aged 12 to 20 Months.

If you don't want tuberculosis, breed the Ayrshires.

J. W. & J. D. McCORD,
Phone Red 123. Hanford, Cal.

SHIPPING CATTLE.

(Continued From Page 209.)

to scour after they have been jostled in a car for a few hours, and will make a poor showing when they reach the market.

The successful shippers are using dry hay in preparing cattle for shipment. Grain and oats are too expensive, and besides if not properly given have a tendency to bloat or "fill" the cattle. The secret in shipping cattle lies in placing them on the cars full of dry feed and with very little water. This can be accomplished by feeding the cattle very lightly about twenty-four hours before shipping, then give them all the good hay they will hold just before loading them on the cars. They will eat more of the hay if it is given them about the same time they usually feed. Cattle are very regular in this respect and should receive their food at a certain hour every day. Cattle shipped with all the dry hay they can hold and only an average amount of water will arrive at the stock yards in fine condition. They will not only be able to stand the hardships of the trip better, but they will not be nervous through hunger. They will probably have a fairly good thirst, but it cannot be avoided under the circumstances.

Twenty to twenty-five head of cattle are usually loaded in a car. The number varies with the size of the car, the width of the horns and the distance to market. The best cars for shipping cattle have lattice or slats for sides; this gives the animals plenty of fresh air. The cattle should be packed close enough so that they cannot lie down, but yet not close enough to crowd each other. They should face toward the sides of the car, so that when the cars start or stop suddenly the cattle at the ends will not be forced headforemost into the walls. Also the cattle are not so liable to injure each other when they are thrown by a car, as they will move sidewise and not headforemost. A great deal of unnecessary jarring of cattle could be averted if the brakes on the stock cars worked properly, so when it is possible every shipper should see that the brakes are in good condition.

Every car should be loaded with cattle of uniform size; when the stock are all about the same height there is no danger of the smaller cattle being squeezed or running their horns in the taller animals.

Sand or straw placed on the floor of the car absorbs the moisture and prevents the cattle from slipping. When the weather is hot, water sprinkled on the sand or straw will keep the car cooler and get the cattle to the market in better shape.

WHAT THE JERSEYS ARE DOING.

We have received a statement from the American Jersey Cattle Club showing that up to August 2, 1909, 19 Jersey cows have produced 700 pounds or over of butter in one year under authenticated test.

Average production: 12,792 pounds of milk, 818 pounds of butter, 83 per cent fat. Three have produced over 1000 pounds of butter.

Jersey persistency in production is shown by the facts that these cows milked clear through the 365 days, and that in the first month of the year's period they averaged 1260 pounds of milk and 60.5 pounds of fat, and in the last month 769 pounds of milk and 46 pounds of fat; 4.66 per cent of all the cows so far tested for one year are in this 700 pound list. 15.8 per cent of all the *mature* cows (over five years old), that have been tested for one year are in this 700 pound list.

These tests were supervised by representatives of State Agricultural Experiment Stations, and the complete attested records are on file with the American Jersey Cattle Club. The 19 cows are owned and were developed in 11 herds in nine States. Two of the 19 belong to the Hazel Fern Dairy herd, of Portland, and there are thus far no other representatives from this Coast. Many other Jersey breeders are conducting year's authenticated tests in their herds, and some of their cows will qualify for this list. The list of 700 pound Jersey cows is growing.

WEIGHING HAY BY MEASUREMENT.

Estimate of tonnage of hay based upon measurement are interesting to all farmers. We have previously given various data on the subject. The following is given in the Colorado Field and Farm: The rules for measuring vary according to the length of time the hay has been stacked and the kind and quality of the hay and also according to the character of the stack. With alfalfa, which has been stacked for 30 days, it is usual to compute an eight-foot cube or 512 cubic feet as a ton. When the hay has been stacked five or six months, usually a 7½ foot cube or 422 cubic feet is calculated for a ton. In old fully settled stacks it is usual to allow a seven-foot cube or 343 cubic feet for a ton; or sometimes in very large stacks or mows only 216 cubic feet or a six-foot cube is allowed.

The volume of a mow is readily secured simply by multiplying together the length, width and height. There are different methods for measuring hay in the stack, depending upon the shape of the rick and also upon its size. With a long rick the usual method is to throw a line over the stack, measuring the distance in feet from the bottom of the stack on one side to the bottom on the other; add to this the average width of the stack in feet, divide this sum by four—which gives one side of the square—and multiply the quotient by itself and this product by the length of the stack in feet. This will give the number of cubic feet in the stack, which may be divided by 512, 422, or 343 as may be decided upon, in order to find the number of tons.

For small, low ricks the rule is to subtract the width from the over, divide by two, multiply by the width and multiply the product by the length, dividing the result by the number of cubic feet in a ton. There is no established rule for measuring round stacks, but this one will approximate the contents of a stack of ordinary conical form: Find the circumference at or above the base or bulge at a height that will average the base from there to the ground; find the vertical height of the measured circumference from the ground and the slant height from the measured circumference to the top of the stack, taking all measurements in feet.

Multiply the circumference by itself, divide by 100 and multiply by eight, then multiply the result by the height of the base, plus one-third of the slant height of top. The hay in a round stack is usually less compact than in a rectangular rick, hence a greater number of feet should be allowed for a ton—with well settled hay, probably 512 cubic feet. The rules given may also be used in measuring any kind of hay, straw, cane or kaffir fodder, but with cane or kaffir only approxi-

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Lame horses. Veterinarians have given up and which other preparations have failed to help, have been cured, made as sound as a dollar, with Tuttle's Elixir. It produces better results than anything else because it acts on a different principle. It is something more than a mere liniment. Let us explain and show you the proofs of its value in cases of Curb, Splint, Spavin, Sprains, Swellings of any kind. Also for internal ailments.

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mate results may be secured by stack measurements, because the fodder is apt to vary greatly in weight according to the moisture it contains.

THE VETERINARIAN.

AILMENTS OF THE HOG.

To the Editor: I have been troubled with some kind of a scab on some of my young pigs and shoats. It appears on the ears, feet, just above the hoof, and the tail, also belly, but in bad cases more or less all over the animal. I have tried sheep dip but it does not seem to do any good. As the animal gets older it does not affect him so much, but it seems to stunt its growth. What is it and can you suggest a remedy? Have had three litters of pigs to come recently. The pigs and sow appeared all right, but the sows soon got stiff in the hind quarters and could not get up and would neither eat nor drink, and the pigs did not seem to get any nourishment, and finally died or had to be killed. The sows finally got well but lost nearly all the pigs. I have been told by a neighbor that it was milk fever, but he could not suggest any remedy. If you can enlighten me will be greatly obliged.—C. STEWART, Crows Landing.

ANSWER BY DR. E. J. CREELY, PROFESSOR OF THEORY AND PRACTICE, SAN FRANCISCO VETERINARY COLLEGE.

The trouble is a parasitic skin disease. Try the following external application, and report to this department in three weeks: 2% solution formalin, 1 quart; compound tincture benzoin, 1 ounce; mix and apply once daily. Upon your report of progress I will give an internal mixture.

CONTRACTION OF FLEXOR TENDONS.

To the Editor: I have a mule who has contracted cords in the hind legs; the cords which lead from hip joint to the stipple joint. They stand out rigid. I have tried blistering several times and it does not seem to do any good. It has been this way since this spring, and as she is a valuable mule, I am anxious to cure her. I have had a veterinary but no results. The mule stands and pats her toes on the ground lightly, first one and then the other. I have not used her for months. She has had free access to water and hay.—A. W. TREADWELL, Lindsay.

ANSWER BY DR. E. J. CREELY, PROFESSOR OF THEORY AND PRACTICE, SAN FRANCISCO VETERINARY COLLEGE.

Nothing can be done for this mule except by performing an operation viz., dividing the flexor tendons below the hock. You have been applying treatment in the wrong place. Apply the following liniment and put on a shoe with a heel one inch high with no toe calk:

Soap linament, 7 oz.; ether, 1 oz.; tinct. iodine, 1 oz.; oil of origamin, 3 oz. Mix and apply to tendons below hock once daily after which apply cold water bandages.

COMING DAIRY CONVENTION.

Secretary J. H. Severin, of the California Creamery Operators' Association, announces that November 18th, 19th, and 20th have been selected as the dates on which the tenth annual convention of the association will be held at Porterville. Mr. Severin says that this date was chosen after corresponding with the chief of the United States dairy division and with the dairy associations of Oregon and Washington in order that the dates for the three conventions might be arranged so as to make it possible for Chief Rawl, or some other representative of the division, to participate in each one. Mr. Rawl has promised that if at all possible he will be at the conventions.

The officers of the Creamery Operator's Association are at work on the details for the Porterville convention with a determination to make it the best one held by the association. An executive committee meeting will soon be held and a program and other details will be announced at least a month before the convention takes place.

KENDALL'S SPAVIN CURE

NEVER KNOWN TO FAIL

Nooseneck Hill, R. I., May 4th, 1909.
Gentlemen: I keep a number of horses and have used your Spavin Cure for the last eight years. *I have never known it to fail in whatever way used.* T. W. Babcock.

For Spavin, Ringbone, Curb, Splint, Sprains, Swollen Joints, All Lameness

—Proved by 40 years of use by hundreds of thousands, the best that the medical world affords. The standby for family use also. $1 a bottle, 6 for $5. Buy at drug stores and get free book, "A Treatise on the Horse," or write to—

DR. B. J. KENDALL CO.
Enosburg Falls, Vt.

PROTECTION FOR PURE BUTTER.

To the Editor: The dairying and farming interests are deeply concerned in the pressing need for better and more stringent Federal oleomargarine laws. A united and determined effort will be made when Congress convenes, to secure proper remedial legislation. It is a well-known fact that in nearly all sections of the United States, oleomargarine is palmed upon unsuspecting consumers, in immense quantities, as and for genuine butter. In other instances, unscrupulous dealers will violate all oleomargarine laws in the most flagrant manner, by ignoring the regulations regarding the selling and marking of packages, coloring of oleomargarine, etc., and it is believed that the time for marked changes in these defective laws has arrived.

The Pennsylvania State and subordinate granges, Pennsylvania Pure Butter Protective Association, Pennsylvania Department of Agriculture, including the Dairy and Food Division, and various other State and county agricultural organizations, unitedly took the initiative steps early last spring to secure these much-needed changes, and a committee representing these various active organizations employed the best legal talent available to formulate a proper National Oleomargarine Act. It is probable that the Honorable Boies Penrose, of Pennsylvania, will introduce the proposed oleomargarine bill in the Senate during the early days of the next session, and it is confidently expected that the entire delegation in Congress from the Keystone State will show their loyalty and fealty to the agricultural classes by supporting and voting for the new bill.

Many thousands of Pennsylvania dairymen and farmers have already petitioned President Taft and United States Senators Penrose and Oliver to take up this subject at the earliest practicable opportunity, and it is urged that the President should recommend changes in these laws in his next message to Congress, because of the vast and important interests concerned.

This movement does not represent any spirit antagonistic to oleomargarine. Our people do not object to its manufacture and sale by licensed dealers who will sell it as oleomargarine, under legal restrictions; but they strongly protest against its sale as and for genuine butter.

The accompanying petitions and explanatory circular are respectfully referred for your examination. We shall greatly appreciate your friendly co-operation. Should you have occasion to refer to this important problem in the columns of your journal, we shall be pleased to see a marked copy. If we can furnish any material for your columns, kindly command us. The task is an onerous and difficult one but if we stand together in our demand for a better and more effective oleomargarine law, our Senators and Congressmen will come to our aid, and thus protect, conserve and advance dairying and farming interests throughout the United States.

B. N. WARREN,
Chairman of Committee.
West Chester, Pennsylvania.

[We trust our dairy readers, individually and in their organizations, will take up this matter and correspond with Dr. Warren at the address given. He will send petitions to be signed and other publications which it is important to have.—EDITOR].

VETCH FOR WINTER FORAGE.

Many of our readers will follow this winter the suggestions we have made to try fall sown vetches as a winter forage in California valleys and foothills where the temperatures favor the growth of the plant during the rainy season. We have previously given methods of growing the crop. The following, from Farmers' Bulletin No. 360, speaks of the feeding value of the plant.

Common vetch (*Vicia sativa*) is a great nitrogen gatherer and is used as a farm crop in many different ways. In some localities it has proved valuable as a catch crop and also as a cover crop in orchards. In France it has been grown to furnish honey making material for bees. In the eastern United States the common vetch has not proved to be so valuable as other legumes, but in western Oregon, it has become a standard stock feed and is used as hay, silage, pasture and as a soiling crop. It makes a very palatable hay and dairy cattle prefer vetch silage to that made of red clover. On some farms vetch is replacing clover in the regular rotation. Vetch is usually sown in the fall with wheat or rye to support the stalks, and is cut for hay when the seeds begin to form in the pods. Under Western Oregon conditions of soil and climate it yields from 2 to 4 tons of hay to the acre. The seed crop yields from 15 to 30 bushels per acre.

Vetch is a heavy feeder on soil potash. At the Oregon Station the per cent of ash found in water-free vetch was 8.2. The ash contained 37.5 per cent of potash and 10.02 per cent of phosphoric acid. Calculating at the rate of 3 tons of cured hay to the acre, a crop of vetch will remove 150 pounds of potash and 40 pounds of phosphoric acid. As a dairy feed vetch is prized for its high protein content, though it is quite variable. In ten samples examined in 1903 protein varied from 14.63 to 21.31 per cent, with an average of 17.39 per cent; in 80 samples examined in 1904 protein varied from 12.19 to 23.31 per cent, with an average of 18.03 per cent; and in 152 samples examined in 1905 protein varied from 9.65 to 25.52 per cent, with an average of 18.85 per cent.

In experiments with cows at the Oregon Station the digestibility of the protein of vetch hay varied from 61.07 to 69.91 per cent; of carbohydrates from 70.71 to 71.59 per cent. The digestibility of the protein of steamed vetch silage was 14.62 per cent, of unsteamed vetch silage 56.38 per cent; of the carbohydrates of steamed vetch silage 62.83 per cent, of unsteamed vetch silage 66.85 per cent, of the fat of steamed vetch silage 62.91 per cent, of unsteamed vetch silage 77.34 per cent.

From these experiments it will be seen that vetch hay and vetch silage must be considered as valuable protein feeds for dairy stock, and that steaming vetch silage reduces its digestibility.

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1100 does 1 to 8 years old; 100 wethers 3 to 6 years old; 300 wethers 1 year old, and 400 last spring kids. These goats shear 3½ pounds average, which at the present low price of mohair brings 25c per pound net. Price, if sold at once, $2.25 per head for 1500, balance thrown in. For further particulars, call on or address U. G. CLARK, Laws, Inyo county, California.

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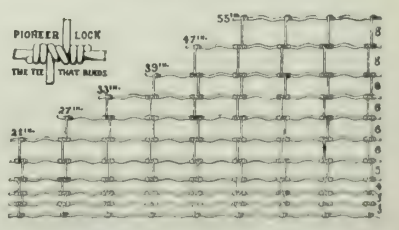
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The Poultry Yard.

POULTRY NOTES.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

THE DOLLAR THAT NEVER CAME BACK—It went to Chicago.—Senator Ammons of Colorado, in an address before the Fanciers' Association, noted the fact that three millions of dollars are sent out of that State annually for poultry products alone, above what are produced at home, and dwelt upon the importance of raising sufficient for home consumption, that these millions may remain and be distributed among the home people. As an illustration, he told of a business man in Denver who a number of years ago marked a dollar, started it in circulation in the State, and found that the same dollar came back to him a number of times. Then the merchant sent this same dollar to Chicago and he never saw it again.

THE 34TH CONVENTION OF THE AMERICAN POULTRY ASSOCIATION.—This meeting was held at Niagara Falls the second week in August. The great work in hand was the revision of the present standard of perfection. It has been said by many and believed by more, says C. S. Valentine in the Tribune Farmer, that farmers are not interested in the fancy side of the poultry industry. Yet a dominant thought in my mind throughout the various sessions was the stimulating effect which attendance there would have upon every poultry raiser who might attend. In every discussion facts were brought out by keen and experienced breeders that would be of value to all poultry raisers, even though the hearers might think they despised "the fancy." One of the first topics to interest poultry raisers of whatever grade was the multiplicity of breeds. Mr. Felch, to whom it was assigned, deprecated the laxity with which new varieties had often been admitted. He affirmed that the association, having admitted a breed, felt obliged to protect it whether it proved good or bad, emphasizing the point that the time had arrived to call a halt and to refuse admission to the Standard to all not of a distinct type. The matter of licensing poultry judges stirred up warm discussion. While at first glance this might seem a topic having no interest for the farm poultry raiser, the lack of good judging at many of the minor shows and fairs where the best farm poultry appears, makes it seem to me of great importance to every one who is aiming to work into pure-bred poultry. It was said on the floor that utility and standard poultry are going to progress together, the breeding of the best utility poultry and the best standard poultry being practically identical as to basic principles, and the rules being capable of application so as to produce at once the best fancy and the best utility poultry. It was also affirmed that the smallest show had as much right to a licensed judge as has the largest. Two resolutions important to the general poultry raiser were passed. The first had to do with an effort to improve express facilities or handling in shipping stock and eggs for hatching. The other appointed a committee to confer with the proper national authorities with a view to a more complete census of the poultry industry in the future.

A prominent member of the association was expelled for exhibiting Rhode Island Reds at the New York show as his own which did not belong to him, and also for exhibiting birds of this variety at the Springfield, Mass., show that had feathers in their wings that were artificially colored.

PETALUMA POULTRY SHOW.

To the Editor: Plans for the poultry show to be held in Petaluma, December 8 to 11, are now being formulated by the poultry people and the commercial bodies of the egg city.

Petaluma, as the leading paultry center of the world, has been very modest in the past about advertising the magnitude of her greatest industry. But the time has come when all are a unit in endeavoring to make the coming show a success in every way.

At a recent meeting of the directors of the Petaluma Chamber of Commerce a movement was inaugurated looking toward "one big thing" for the week of the poultry show.

It is proposed to arrange attractions that will call the attention of the entire coast and bring thousands to visit the poultry show, as well as to observe the advantages of Petaluma as a poultry center and partake of Petaluma hospitality. At a conference soon to be held between the directors of the Chamber of Commerce and the show committee further arrangements will be completed making it to the interest of all connected with the poultry industry to be in Petaluma for the show.

The Dreamland Rink has again been secured for the display of the feathered beauties. These commodious quarters are all that could be desired as to construction and location. Altogether this will be an event that breeders cannot afford to miss.

A DEPARTURE.

Richard Clay, of Colorado Springs, who conducts what is propably the most extensive poultry plant in the State, has made a radical departure in handling his flock. Several years ago Mr. Clay abandoned the showing and centered his efforts on the utility side of the question, with table eggs as the leading item. Lately he has disposed of all male birds, incubators, brooders, etc., depending on keeping up his flock of layers through the purchase of young stock.

This method does away with considerable labor during the breeding season. Eggs are not wasted in incubation; there is no loss in brooding, and no surplus male birds to feed.

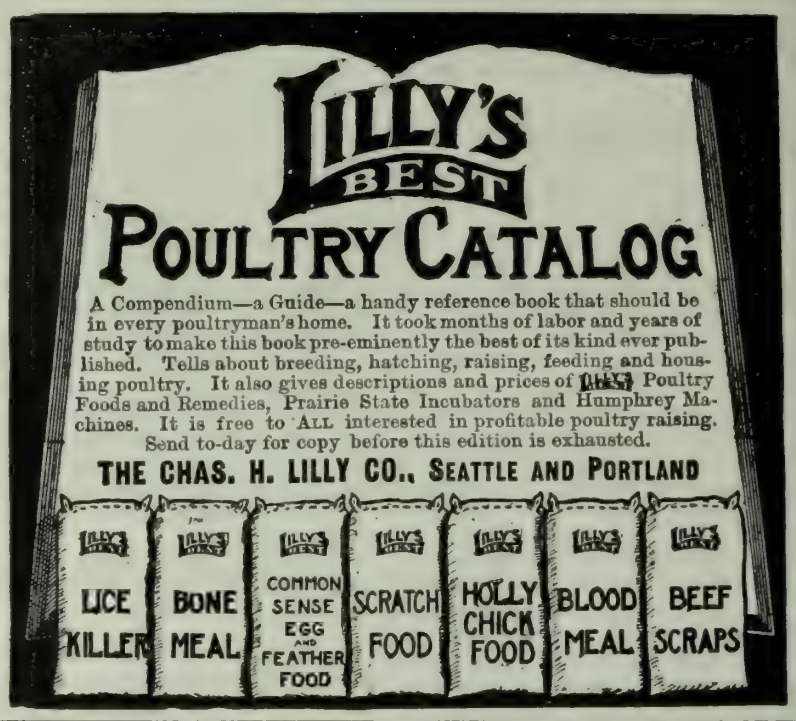
The expense of kerosene in running incubators and brooders sufficient to rear 1,000 pullets amounts to quite an item. If 50 per cent of all eggs hatched and 50 per cent of the young were cockrels, it would require 4,000 eggs to obtain 1,000 pullets, part of which would never pass the critical stage. But the large majority of breeders do not average one pullet for each four eggs, while at times the percentage of mortality in the young stock is considerable. By purchasing young pullets at a reasonable rate one is relieved of the anxiety, labor and expense incurred in bringing them to a certain age. At the age of 18 months the pullet should have produced 10 dozens of eggs, worth $3. This would more than pay the cost of feed and pullet, leaving the old birds to be disposed of in the market at a price almost sufficient to replace them with young ones.

One great advantage would be in guaranteeing to the trade eggs that are not fertile. This class of eggs does not spoil as readily as do fertile eggs. The life of the germ is supposed to be about three weeks, and whenever this germ dies it can truthfully be said that the process of decay has begun.

Mr. Clay's departure will be watched with interest by many breeders. Having made a success of the poultry business under previous conditions, he would hardly have made such a radical change unless convinced it was to his advantage —*Western Poultry World.*

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JUST OUT Croley s "Little Red Book No. 51." Free. Send postal GEORGE H. CROLEY, 637 Brannan St., San Francisco. **POULTRY SUPPLIES.**



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Gallon can, 85 cents; 5 gallon can, $3.75. If not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us within 300 miles. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Guaranteed as represented or money back. Circular with many testimonials.

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The Home Circle.

Life's Mirror.

There are loyal hearts, there are spirits brave,
  There are souls that are pure and true;
Then give to the world the best you have,
  And the best will come back to you.

Give love, and love to your life will flow,
  A strength in your utmost need;
Have faith, and a score of hearts will show
  Their faith in your word and deed.

Give truth, and your gift will be paid in kind,
  And honor will honor meet;
A smile that is sweet will surely find
  A smile that is just as sweet.

For life is a mirror of king and slave;
  'Tis just what we are and do;
Then give to the world the best you have,
  And the best will come back to you.

—*Madeline S. Bridges.*

The Rural Press Household.

Homemade Brown Bread.—A more frequent use of this would add to the wholesomeness of our daily bread. For those engaged in outdoor work and for growing children the various kinds of brown bread are more healthful and upbuilding than a constant diet of bread from fine white flour; and they possess another advantage over the latter in requiring less time and work in their preparation.

Graham or Rye Bread With Yeast.—Dissolve one cake of compressed or magic yeast in a scant quart of warm water and stir in enough white flour to make an ordinary sponge; beat this till foamy, then cover and set in a warm place to rise. When very light beat in one-half cup each of melted butter and molasses, and one teaspoon of salt; now stir in either graham or rye flour, according to the kind of bread wanted, until the batter is as stiff as can be beaten with a strong wooden ladle. Have deep rather small baking pans warmed and well greased so that a little of the melted lard or butter covers the bottom. Fill these about half full of the stiff batter; dip the spoon in warm milk or water and smooth the top of the loaf nicely, then cut across with a sharp knife; cover and keep warm till light, then bake an hour, keeping the oven at a steady heat. An empty pan of corresponding size turned over each pan of bread while baking greatly improves the quality of the loaf. When done, dip a bit of white cheesecloth in a little butter and rub over the crust; then wrap the loaf in a bread towel.

Quick Graham Bread.—Take one pint of either sweet or sour milk; if the former, sift a heaping teaspoon of baking powder with the flour; if the latter, use instead a level teaspoon of soda. Stir into the milk one teacup of white flour and two of graham flour and one-half teaspoon of salt; now beat in one heaping tablespoon of melted butter and two of molasses. Turn into a large baking pan so that the cake will be little more than an inch in thickness when baked; smooth with a spoon dipped in milk, and bake to a rich even brown in a moderately hot oven. Cut in squares and serve warm with plenty of fresh butter; or it is almost as good cold if eaten the same day it is baked.

What Is Right?—This is the question put by a reader of the Household: "Many, especially among my more progressive friends who have become interested in Fletcherism and such cults, have dropped meat almost entirely from the menu, together with other of the heavier articles of diet. I have always felt a realizing sense of the housewife's responsibility—that she is the keeper of the household health—and I have made something of a study of the various health cults and treatise on household matters, that I may first know the right and then follow it in my own household. But what is right? The doctors as well as others disagree on this especial subject, and who shall decide for us perplexed housewives?"

When doctors and others disagree upon what we shall eat, who shall decide? Answer: Nature and common sense. A natural and healthy appetite is a sure index to the needs of the system at any given time. Be guided by it and indulge the appetite always in moderation and you shall not go far astray.

For instance: On a hot day what appeals to us? The cool cucumber fraternizing with the calm onion; the red tomato on emerald leaves of crisp lettuce; the refreshing acids and salts of fruits and vegetables; the thin slice of white bread and the mere shaving of cold ham; the delicate cake and dainty custard; the glass of cold water or cup of tea with a slice of lemon floating upon its surface—these are the things which look good to us; while we instinctively loathe the hot dishes of strong meats and heavy foods, and we do not need to ask "the doctors and others" if they are good for us.

Again, on a chill raw day or when the system is exhausted by exposure, work or illness, what does the appetite crave? A dish of hot soup, rich with the juices of meats and savory with vegetables and herbs. This stimulates and strengthens the flagging powers—it "goes to the right spot" and it prepares the stomach to deal with the solid healthy food required for the system's upbuilding.

It is thus with good judgment and Nature's kindly help the housewife should regulate her menu and leave the "doctors and others" to fight it out among themselves.

This writer was early inoculated with the microbe of hygiology. In my callow years I tried the various isms upon myself, but with the growth of wisdom I found it much healthier to take such experiments at second hand. The crystalized results of such experiments at both first and second hand may be stated thus: All food in a wholesome state and properly prepared and partaken of at the proper time and season and in moderation, is good for us, and the greater variety of our food the better. The well-developed human brain and nervous system is a complicated affair, and requires a complication of salts, acids and minerals for its development that can only be found in the wide variety of foods which Nature has generously spread for this autocrat of her creations.

The trouble in almost every household of limited means, even where there is no prejudice against any class of food, is a lack of sufficient variety in the menu; and often this is due to the carelessness or thoughtlessness of the housekeeper. The greater the variety of food—but not at one meal—the greater the health of the household.

No Doubt of His Party.

A matron of the most determined character was encountered by a young woman reporter on a country paper, who was sent out to interview leading citizens as to their politics. "May I see Mr. ——?" she asked of a stern looking woman who opened the door at one house.

"No, you can't," answered the matron decisively.

"But I want to know what party he belongs to!" pleaded the girl.

The woman drew up her tall figure. "Well, take a good look at me," she said; "I'm the party he belongs to."

Violets.

This popular flower is grown by everyone who has a garden, but not always with success. During the heat of summer the north side of the house is all right, but for winter blooms there must be more sunlight.

Now is a good time to take up old violet plants and subdivide. If planted in good soil of any sort, well mulched, they should produce blooms by the first of the year.

In transplanting use only the strong plants and plant about one foot apart in rows.

Leaf spot, the violet disease, can be overcome by using paris green or Bordeaux mixture. Snails, another pest, must be hunted in the early morning and destroyed with salt.

Keep the ground moist and all old foliage picked off, so that the plants may make a rapid growth.

There are many varieties. Marie Louise is the most satisfactory double blue, and Swanley White the most perfect double white. But for all round satisfactoryness the California takes the lead. This is a single flower with long stems and is only excelled by the justly celebrated Princess of Wales. This is a very large fragrant blossom and is grown largely for cut flowers.

Health.

Sore Throat.—Pour a pint of boiling water upon 20 or 30 leaves of common sage, let the infusion stand for half an hour. Add vinegar to make it moderately acid and honey according to taste. Use as a gargle several times a day.

Another excellent remedy is a strong solution of salt and water, using as a gargle once an hour.

Cough Syrup.—Put one quart horehound to one quart of water and boil down to a pint, adding two or three sticks of licorice and a little lemon to flavor. All cough medicines are more effective if taken in small doses frequently rather than larger doses at longer intervals of time, as the benefit of all cough mixtures lies in soothing the inflamed membranes of the throat.

A cold compress worn at night is often helpful in checking a troublesome cough. This consists of a cloth wrung out of cold water placed on the patient's neck and then well covered with a dry towel. In the case of a child that is inclined to toss the arms about, care must be taken to keep them covered or the throat will become chilled.

"My boy," said the head of the firm, "I've noticed that you have a great head for figures, although you don't seem to be able to spell or write at all. How does it happen?

"I studied 'rithmetic," replied the office boy, "'cause I wanted to know how to figure de battin' averages."—Chicago Record-Herald.



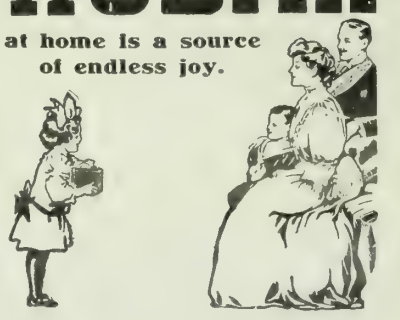
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THE MARKETS.

San Francisco, Sept. 29, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

A little easier feeling has developed in some of the outside markets, though prices generally are pretty steadily maintained. Arrivals at the northern shipping points are increasing, but the growers in that section are storing larger quantities than ever before and expect to hold their grain. Trading locally is quiet, with prices unchanged on everything but two northern grades, which are lower.

California Club	$1.65	@1.72½
White Australian	1.95	@2.05
Northern Club	1.62½	@1.65
Northern Bluestem	1.80	@1.82½
Russian Red		1.60
Turkey Red	1.70	@1.72½

BARLEY.

There is a good demand for shipping grain at the ruling quotations, and a steady movement for export is going on at shipping points, with another cargo cleared a few days ago. Brewing barley is a little lower and feed continues weak, with few sales at the top quotation. The local demand is light.

Brewing	$1.37½@1.40
Shipping	1.40 @1.42½
Chevalier	Nominal
Good to Choice Feed, per ctl.	1.35 @1.37½
Common Feed	1.30 @1.32½

OATS.

The market on all descriptions is very dull, and everything on the list is weak, with lower prices quoted on most descriptions. White and red for feed show a sharp decline, though red seed oats are fairly steady in anticipation of a good demand within the next few months. Gray are practically nominal. Texas red are very firmly held, but are not moving.

White, per ctl	$1.60	@1.65
New Red, choice	1.60	@1.70
Common	1.50	@1.60
Red, seed	1.90	@2.10
Black	2.35	@2.70
Gray	1.60	@1.65

CORN.

Quotations are entirely unchanged, but there have been no arrivals of any consequence this week, and the market is very dull on all descriptions.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.65
Mixed, in bulk		1.62
White, in bulk		1.69

RYE.

Local rye is still nominal, as all stock is held at high prices and none is moving. There is not much demand for Western grain, but occasional sales are reported.

Western California	Nominal

BEANS.

Prices have not yet settled down to any firm basis, and numerous changes are noted. The harvest is progressing well, with no appreciable damage by the light rains of last week, which have probably been beneficial in some districts. The quality of the new stock is holding up very well. Buyers are not taking much interest in white beans at the present prices, and some decline is expected, as the yield in most places is large. The crop of limas is also heavy, and prices tend downward. The colored descriptions have so far been steadily held, but the prices are considered too high for any large speculative buying. Local dealers are securing considerable stock in the river districts, though they show less desire to trade than last week.

Bayos, per ctl	$3.60	@3.90
Blackeyes	3.60	@3.85
Cranberry Beans	3.75	@4.00
Garvanos	3.00	@3.25
Horse Beans	1.75	@2.10
Small Whites	4.00	@4.50
Large Whites	3.00	@3.25
Limas	4.10	@4.25
Pea		Nominal
Pink	3.00	@3.20
Red		Nominal
Red Kidneys	3.50	@3.75

SEEDS.

A slight demand is reported at present, but there is no movement of any consequence, though more activity is expected within the next few weeks. Local dealers report prices about as formerly quoted.

Alfalfa, per lb	17½@18	c
Broomcorn Seed, per ton	$20.00@25.00	
Brown Mustard, per lb	3¾	c
Canary	4¼@4½	c
Flaxseed	4	c
Hemp	3¾@4¼	c
Millet	3	c
Timothy	6	c
Yellow Mustard	Nominal	

FLOUR.

Prices have undergone no further change in any quarter, and the market shows somewhat more steadiness, though large consumers are still keeping their purchases down as low as possible. Many consumers are looking for a further decline, but so far there is no indication of it.

Cal. Family Extras	$6.20	@6.60
Bakers' Extras	6.20	@6.60
Superfine	5.10	@5.30
Oregon and Washington	5.30	@5.50

HAY.

While the rush was thought to be over two weeks ago, the recent showers have caused a heavy increase in arrivals, which are almost twice as large as last week. It is believed that most of the unstored crop has now been marketed, and that the arrivals from now on will be moderate. The rain has limited trading locally, and with the unusual receipts the market is badly depressed, alfalfa in particular being lower. The choice grades, however, are still in strong demand, with the supply apparently limited, and some stock of this description is already being taken from storage. The better grades of wheat hay already shown considerable advance and dealers here predict still higher prices.

Choice Wheat, per ton	$18.00@20.00
Other Grade Wheat	12.00@17.00
Wheat and Oats	13.50@16.50
Tame Oat	13.50@17.00
Barley	10.00@13.00
Wild Oat	10.00@12.50
Alfalfa	9.00@12.50
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

Miscellaneous feedstuffs remain entirely unchanged as to price, with about the average demand. Bran, shorts and middlings are also without any particular feature, except for the arrival of a large lot of bran and middlings from Japan.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Corn Meal	39.00@40.00
Cracked Corn	40.00@41.00
Middlings	36.50@37.50
Mixed Feeds	25.00@30.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	30.00@31.00
Shorts	$1.50@33.00

VEGETABLES.

Supplies of vegetables have been a little lighter this week on account of the rain, but the demand has also been very moderate, and it has been impossible to get any material advance in prices. Onions are still weak, with more stock on hand than the market can absorb. Green peppers are fairly firm, and a slight advance is quoted on both summer squash and cucumbers, while egg plant and okra are lower, with very little demand. String beans are also easier. Green corn is lower, and tomatoes are very cheap. The latter have been coming in rapidly for several days, and with large accumulations on the market the canners are buying largely at bottom price.

Onions—New Yellow, per ctl	60@	70c
Garlic, per lb	4@	5c
Green Peas, per lb	3@	5c
String Beans, per lb	2½@	5c
Lima Beans, per lb	5@	6c
Tomatoes, per box	25@	60c
Green Peppers, per box	50@	75c
Green Corn, per sack	1.00@	1.50
Summer Squash, large box	50@	75c
Turnips, per sack	1.00@	1.25
Cucumbers, large box	50@	75c
Pickle Cucumbers, per box	75c@	1.00
Egg Plant, per box	50@	65c
Okra, per box	25@	40c

POULTRY.

The market has been very quiet most of the week. Many retailers had some stock held over from last week, and a small lot of Eastern left on the market had little sale. Since then three cars of Eastern stock have arrived. Aside from a decline on hens there is little change in prices. Local stock is in small supply, and good offerings are moved without difficulty, though a further decline is expected in poor stock. The demand for turkeys is still limited, though live gobblers are a little stronger.

Broilers	$ 4.50@	5.00
Small Broilers	3.00@	4.00
Fryers	5.50@	6.50
Hens, extra	8.00@	10.00
Hens, per doz	6.00@	7.00
Small Hens	5.00@	5.50
Old Roosters	4.00@	5.00
Young Roosters	7.00@	8.00
Young Roosters, full grown	8.00@	10.00
Pigeons	1.00@	1.25
Squabs	2.00@	2.50
Ducks	4.00@	8.00
Geese, per pair	1.50@	2.50
Spring Turkeys, per lb	24@	26c
Gobblers, live	20@	21c

BUTTER.

Butter has remained very firm all week with limited arrivals and a continued strong demand. The market has been kept bare of extras most of the time, and this grade stands ½ cent higher. There is no scarcity of the lower grades, however, and prices on them remain unchanged.

California (extras), per lb	32½c
Firsts	30 c
Seconds	28½c
Fresh Packing Stock, No. 1	25 c

EGGS.

Prices have shown no change whatever this week, all grades being firmly maintained as before. Arrivals have been unusually light most of the time, and with quite an active demand for the upper grades there has been no surplus on the market. Extras are closely cleaned up, and the outlook is for continued firmness.

California (extras), per doz	43½c
Firsts	34 c
Seconds	30 c
Thirds	24 c

CHEESE.

Cheese has been barely steady most of the week, as the market has been amply supplied for current requirements and the demand is moderate. Fancy flats are slightly lower, other descriptions being unchanged, and the market shows a rather firmer feeling at present. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	15½c
Firsts	15 c
New Young Americas, fancy	16 c
Oregon Flats	16 c
Oregon Young Americas	17 c
N. Y., fancy	18½c

POTATOES.

Oregon shipments are now coming in, and large arrivals have weakened the market. Salinas stock is lower, though prices are still held on good river potatoes. The early and late Oregon crops are reported large, though the middle planting is expected to be short.

Potatoes—River Whites	60@	80c
Salinas Burbanks	$ 1.25@	1.50
Oregon Burbanks	1.15@	1.25
Sweet Potatoes, ctl	1.60@	1.75

FRESH FRUITS.

Arrivals have fallen off somewhat for the last week, but prices show no improvement to correspond, as the weather has had a depressing effect on the demand, and the market is quiet. A good many nutmeg melons were held over from last week, and they, as well as cantaloupes are lower, while watermelons also drag badly at weak prices. Blackberries and huckleberries are lower, though other descriptions are firm. Wine grapes bring better prices, but table grapes are easy. Figs find little sale even at low prices. Apples are firmly held and in fair demand. Peaches and plums are being taken from cold storage in small quantities, though they are slow of sale. Bartlett pears are higher.

Melons, Cantaloupes, crate	75c@	$1.25
Nutmeg, per box	30@	65c
Watermelons, per doz	$ 1.00@	2.00
Raspberries, per chest	3.50@	5.00
Blackberries, per chest	2.00@	4.00
Strawberries	3.00@	5.00
Huckleberries, per lb	7@	10c
Grapes, per crate	35@	75c
Lug boxes	50c@	1.00
Wine Grapes, per ton	9.00@	15.00
Apples—		
Fancy, per box	1.00@	1.50
Common	65c@	1.00
Figs, per box	25@	50c
Peaches	50@	75c
Lug boxes	60c@	1.00
Plums, per box	40@	60c
Crate	65c@	1.00
Pears—Bartletts, No. 1, box	1.50@	1.75
Other varieties	50c@	1.00
Quinces, per box	50@	75c
Pomegranates, small box	50@	75c

CITRUS FRUITS.

Valencia oranges are quite firm, with an upward tendency, though the demand is still of very moderate proportions. Lemons are also slow of sale, but a further advance is noted on both fancy and standard grades. Limes and grapefruit are unchanged.

Choice Lemons	$ 3.00@	3.50
Fancy Lemons	4.00@	5.00
Standard	1.50@	2.50
Limes	5.50@	6.00
Oranges, Valencias	2.25@	3.00
Grape Fruit	2.50@	3.00

DRIED FRUITS.

Conditions are still favorable on all lines of fruits. Prices are firm on all descriptions, though the only change is a slight advance in peaches, which are rapidly going into the hands of packers. They are considered very cheap at the present figures, and a good clean-up is expected. Eastern dealers show increasing anxiety to get into the market on account of the upward tendency of prices, though some buyers are said to be still holding off. Prunes are attracting more attention, with packers asking higher prices for large sizes, and it is reported that a large proportion of the new crop has already been sold. A large part of the evaporated apple pack has also been moved, and the market is firm, with reports of a short pack elsewhere. A large movement of old raisins is reported in the East, and there is somewhat more interest in the new crop, though the uncertainty of the situation has prevented extensive buying, and prices are still low.

Evaporated Apples, per lb		7½c
Figs, black, new crop		2 c
Figs, white, new crop		2¼c
Apricots, new crop	8½@	9 c
Peaches, new crop	4½@	4¾c
Prunes, 4-size basis	2¼@	2½c
Pears	6@	8 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2 @	2¼c
Thompson Seedless		2 c
Seedless Sultanas		1¾c
London Layers, 3 crown	85@	95c

NUTS.

The associations in southern California have fixed prices on the new crop as quoted, at an advance of ½ cent over the present old-crop quotations. The new nuts will be on the market shortly, and should meet with a ready demand, as the old stock is about exhausted. There is a strong demand in the trade for new almonds, and a large proportion of the crop has been taken out of growers' hands.

Almonds (new crop)—	
Nonpareils	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7½c

HONEY.

Honey continues very quiet locally, but prices are steadily held on account of the small production, and growers expect to move their holdings without difficulty.

Comb	10 @	14 c
Extracted, Water White	7 @	7½c
Extracted, Amber		6 c
Old Extracted	3½@	4 c

HOPS.

With short crops all over the world, hops are scarce in all markets, and the local output is in strong demand. The local movement is moderate, however, as those who have any stock unsold are holding for another advance.

Hops, Old, per lb	12	@16 c
New crop	20	@22½c

WOOL.

Wool is still firmly held by growers, but the local buyers are taking little interest in the fall clip, and the market remains quiet, former prices being quoted.

Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½@	8½c

MEAT.

Hogs have been arriving in larger quantities for the past week, bringing down prices to some extent and causing a weaker feeling on all lines. Live cattle are also weak, both live and dressed steers showing some decline. Slight changes are also noted in sheep and mutton, live wethers being higher.

Beef: Steers, per lb	6½@	7½c
Cows	5½@	6½c
Heifers	5½@	6½c
Veal	7½@	10½c
Mutton: Wethers	8@	9 c
Ewes	7½@	8 c
Lambs	9½@	10½c
Hogs, dressed	9 @	11½c

LIVESTOCK.

Steers: No. 1	4 @	4½c
No. 2		3¾c
Cows and Heifers: No. 1	3¼@	3⅜c
No. 2		3 c
Bulls and Stags	1¾@	2 c
Calves: Light		5¼c
Medium		4¾c
Heavy	4 @	4¼c
Sheep: Wethers		4½c
Ewes		3¾c
Lambs	5¼@	5½c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs		7¼c
250 to 325 lbs		6¾c
Common Hogs, lb	4½@	5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Deciduous Market Report.

Sacramento, Cal., Sept. 28.—Following are the average prices received for fruit in the Eastern markets yesterday, as reported by the California Fruit Distributors:

At Philadelphia—Tokays, Florin, 87c.; Lodi, 72c.; Folsom, $1; Galt, 72c.; Woodbridge, 75c.; Malagas, 97c.

At New York—Bartletts, $3.25; Tokays, market overloaded, 20c.; Malagas, $1; Muscats, 90c.; Salways, 87c.; Cornichons, 75c.; Nellis, $1.87.

At Chicago—Tokays, Florin, $1.05; Lodi, 85c.; Malagas, 90c.; Italians, 60c. to $1.15; Elbertas, $1.05.

At Boston—Elbertas, $1.25; Tokays, 90c.; Malagas, 95c.; Bartletts, $3.50; Salways, 80c.; Nellis, $1.50.

To date the shipments of deciduous fruit for the season from California amount to 10,991 cars, as against 9263 cars to same date last year.

WEEKLY LETTER.

The following gives number of cars of deciduous fruit shipped to all points by all members of the California Fruit Distributors, for the week (7 days), ending Monday night, September 27th, 1909.

Peaches, 9 cars. There is still a very small quantity of peaches to go forward. Probably another week will witness the close of the season for this variety.

Pears, 33 cars: Shipment of this fruit continues to dwindle and there are not more than ten or a dozen cars of the fruit left to go forward.

Grapes, 515 cars: A comparison of the shipment of grapes for this week with that of last will show that there has been practically no difference in the two weeks as predicted in our last report. There is still plenty of fruit of this variety in California to go forward and it improves in quality each day. Some of the finest fruit produced this season is yet to go forward and we are anticipating a cordial reception and good results for future shipments.

Weather: The first rain of the season materalized on Friday last. In the sections where the table grapes are grown in effect it amounted to little more than a heavy dew and we anticipate no damage whatever has resulted to the growing crop. It will, however, have a beneficial effect in increasing the development of color and we feel that we are justified in anticipating it will result in gain rather than loss.

Special Citrus Market Report.

Los Angeles, Cal., Sept. 28.—The orange market as a whole is fairly strong and about in the same condition as for the past month, though just at this time the auction prices are lower, this being due to immediate local weather and other conditions that might be relieved tomorrow or next day. New York City, which is the banner auction market, has been experiencing cold and rainy weather, and the amount of fruit being sold there was very heavy for the time of year and so the market was considerably easier and this was also true of Philadelphia and Boston.

The shipments for the past week are somewhat lighter, dropping from 40 to 30 cars a day, but are not yet light enough to cause any advance in the prices. It was predicted that the output would drop below 20 cars a day before last week was over, but apparently all the shippers were anxious to reach the apparently good markets and so there has been no let up.

Brokers state that the inquiry for Val

encias is fairly good, but that they are having hard work to find good fruit at the price the jobbers are willing to pay, the shippers preferring to take a chance in the auctions rather than to sell such stock at any price below $2.00 a box at this end. For the average orchard run pack the price is $1.90 cash, and $2.00 f. o. b., or usual terms.

Good lemons are now in demand and at the last sale of foreign stock in New York City the best stock went to over $5.00 a box, 2000 boxes being offered. There are now 39,000 boxes of Sicily lemons available for sale within the next 30 days of which 20,000 boxes are afloat, 12,000 boxes in New York City and 7000 boxes in New Orleans. A total of 15,000 boxes will be offered this week. Last year at this time there were 23,000 boxes available and in 1907, 50,000 boxes.

New cut lemons are scarce in California and $4.00 a box is being asked at this end. If any demand should arise for any quantity of lemons the prices would be likely to go very high. Last year from this time to the end of October over 400 cars of lemons left California but there are not one-half that number of cars available at this time. The total shipments to date have been 31,077 cars of oranges and 6006 cars of lemons. To same time last year, 24,286 cars of oranges and 4574 cars of lemons.

PUBLISHER'S DEPARTMENT.

Have you secured a copy of "California Fruits and How to Grow Them," by Prof. E. J. Wickson, A. M. The edition is going very rapidly and will be sold out in half the time of previous ones. This is the time of year when the book will be of the greatest value to you. Price, postpaid, $3.00.

Other new advertisers in this issue are the Capital City Commercial College and the Pacific Coast Patent Agency. Both good firms and worthy of your patronage.

Among our new advertisers in this issue is the Western Normal School, of Stockton, which is the successor of the Normal Department of the Western School of Commerce, the Heald Oakland Normal, and the Heald Stockton Normal. It is exclusively normal. Fall term opened with 90 pupils. Actual attendance now 115. New enrollments every week. Teaching force provides for 150 to 200 pupils. New quarters are at 632 E. Main street, fitted up especially for the work.

Kodaks—everybody should have one. The Holden Drug Co., of Stockton, advertise them in this issue. Write them for catalogue which not only gives prices, but much valuable information about taking and printing photographs.

Ate 10,000 Pumpkin Pies.

Longmont, Col., Aug. 12.—Ten thousand pumpkin pies were consumed here today in the observance of Longmont's annual pumpkin festival. For weeks wagons filled with pumpkins have come in from the surrounding country, which is famous for its pumpkins, and every oven in town has been running to its capacity in baking the golden disks of spicy pie. The pies were served free to everybody and excursions were run from Denver and other cities.

The celebration is adopted by the farmers as a means of demonstrating the superiority of Colorado pumpkins for pie making.

Small Boy—Hi, Mr. Policeman, the countryside is all stirred up over there!

Village Policeman—Go hon! Tell me what caused it?

Small Boy—Ploughing. (Then he vanished.)—Comic Cuts.

THE YOUNG MAN'S PREPARATION FOR BUSINESS.

By H. E. Cox, San Francisco.

The young man just starting out in life has a very important question to decide. Young men are needed on the farm and in other agricultural pursuits, and the young man that has a taste for these things certainly will not be happy if he takes up other lines of activity. However, there are many opportunities today calling for young men in the line of business.

When our daddies were boys and they wanted to go into business, they went into a firm and entered into an apprenticeship. They were taken by the merchant and given a training that fitted them for his business. They began at the lowest rung of the ladder and advanced from time to time.

Now the business man does not want to devote his time to training young men for his business. He expects them to come with some experience, with some office training, expecting to advance them as their ability shows itself. They like to have young men who have had a high school preparation and with business college training.

Formerly if a boy could not get along at public school his parents invariably sent him to business college. Now the business college wants high school men and advanced university trained men to come and train themselves for the business world.

In our days business is a profession that requires special training and special aptitude just as much as the law or medicine, dentistry, pharmacy or any other professional calling.

The special training that the young man should have should be along the line of bookkeeping, commercial accounts, commercial law, commercial arithmetic, shorthand and typewriting.

Many a young man has the idea that because young ladies are employed as stenographers, typewriters and assistant bookkeepers that there is no longer an opportunity for them in this line.

Let us disabuse the young man's mind of this policy. Connected with the largest business college on the coast and receiving calls daily for help, the writer can testify that three-fourths of the calls come for young men.

Large corporations and large mercantile firms must have men for the higher and more important positions. They must take the young man and prepare him for these advanced positions. Many firms today are employing young men to do their stenographic work with the idea of training them and fitting them for advanced positions. They realize that the young man that does their stenographic work comes in contact with the leading men of the firm, and with business men who transact business with the firm. In this way they get the training that they cannot get in any other way. They get an understanding of the business, they get an insight into all of its dealings, the secrets of the firm are in the possession of the stenographer, all of its correspondence goes through his hands, and naturally the young man is prepared for the advanced position.

George B. Cortelyou is an illustration of this kind of training. When a young man he secured a position as stenographer in the postoffice of New York City. He did his work well and was advanced to the position of stenographer for the fourth assistant postmaster-general.

This postmaster was bragging that he had the best stenographer in Washington, and Cleveland hearing about it sent for the young man and offered him the position of private secretary.

Cortelyou accepted the position, and upon Cleveland's retirement from office, President McKinley appointed Cortelyou his private secretary. Upon McKinley's death, Roosevelt appointed Cortelyou to the same position, and finally offered him a position in his Cabinet. He was advanced from time to time until he occupied one of the most important positions in the Cabinet, namely, that of Secretary of the Treasury.

Cortelyou got his start because of his understanding of shorthand and typewriting. This put him in touch with the leading men of the nation, and gave him such a training that he was able to advance very rapidly. There are hundreds of men in prominent positions, leaders in the political world, in banking circles and mercantile firms who have advanced in much the same way that Cortelyou has done.

The training in shorthand therefore gives the young man the best opportunity possible today. However, this knowledge of shorthand should be supplemented by a thorough training and knowledge of accounts. No man who expects to transact business should be without a knowledge of this subject. He should understand the loss and gain side of his business, should understand how to read a statement, should understand something about banking, loaning money, real estate transactions and the financial part of our government. He then is in a position not only to act as a business man, but as a better citizen because of his knowledge of business affairs and bookkeeping.

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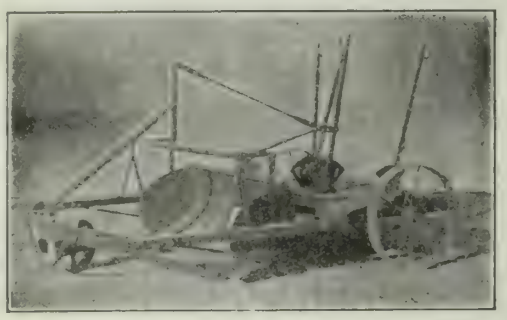
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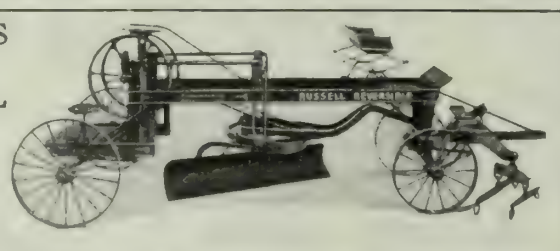


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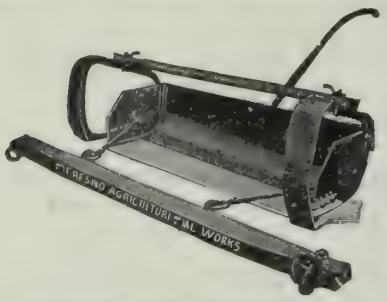
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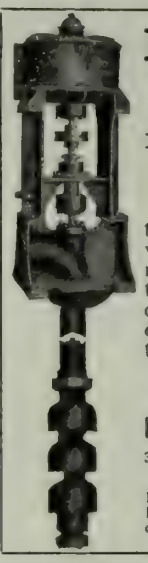
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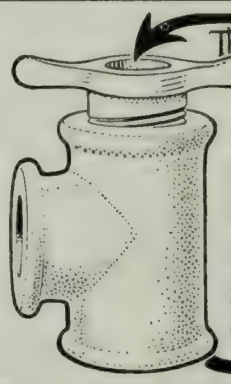
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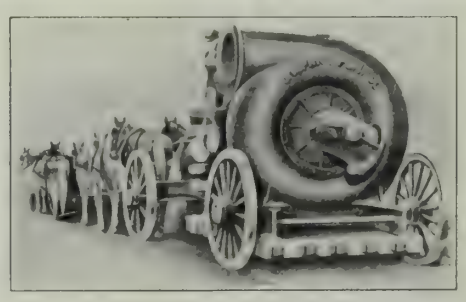


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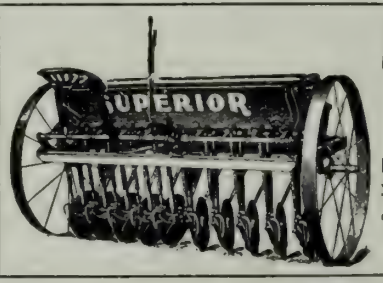
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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 15. SAN FRANCISCO, SATURDAY, OCTOBER 9, 1909. Thirty-ninth Year.

"PEDIGREED" PRUNES.

itten for the PACIFIC RURAL PRESS by Mr. LEONARD COATES.

Every California fruit grower recognizes the ct of the variable sizes of French prunes which ist in all orchards, and under precisely e same conditions as to soil, moisture, ot, etc. A large proportion of these me growers are also aware of the fact at occasionally a few trees, or an iso- ted specimen, are found that bear large ops of prunes of an immense size, and l will admit that fine, upright, vigorous ees are only too frequent which yield od crops of what are contemptuously signated "stick-tights"—little prunes at hold fast to the tree, but which run sizes about 90 to 120 to the pound dried not really worth picking. And no sys- m of pruning or quantity of fertilizer ll improve them.

About twenty years ago I made a col- tion of prunes, a copy of the original etch of which is here produced in Fig.

The water-color sketch was loaned to e late B. M. Lelong, secretary of the ate Board of Horticulture, who used it r illustrating some of the Board's publi- tions, and the PACIFIC RURAL PRESS was nd enough to publish a communication om me on the subject, entitled "Types French Prunes."

Just a word as to the origin of these pes, a fact which is often overlooked, t which fully explains what otherwise ppear to be a somewhat contradictory d knotty horticultural problem. It was xplained by W. B. West, one of the oldest the pioneer nurserymen of the State, d who spent two years in France after s retirement from active business duties, hat years ago the d'Agen prune was ised from the seed, and that subse- uently the small farmers and peasants ade it a practice to dig up sprouts from a eighbor's orchard for their own planting, he original being seedlings, and therefore he same from root to top. As various eedlings were grown, however, there was, f course, the usual variation, and when he industry was commenced in California, rafts were imported from these varying types," which variations have therefore een propagated in California by budding nd grafting for half a century or more. his also agrees with a remark often made y the late Felix Gillet when describing me newly introduced prune, "true from he root."

Next year I will submit photographs rom several orchards, which will illus- rate more particularly the trees and the fruit on he trees. There are marked differences in the liage and general habit of growth, differences hich an expert committee of scientific pomolo- ists might deem sufficient to warrant varietal distinction. To speak of these selected types of prunes as "pedigreed" is not scientifically correct, when the parentage is unknown, but the term is generally adopted by practical pomologists to signify the breeding up by propagating only from selected types or bud variants. The three sizes of prunes illustrated will be, roughly speaking, 40 to 60, 60 to 80 and 80 to 120. It will be noticed that there are two very distinct prunes of the larger size. I shall be glad to hear suggestions as to distinctive names for both, as they will be kept separate in the nursery.



Fig. 1. Early Showing of Types of French Prune.



Fig. 2. Large Type: Contrasting Size and Form.

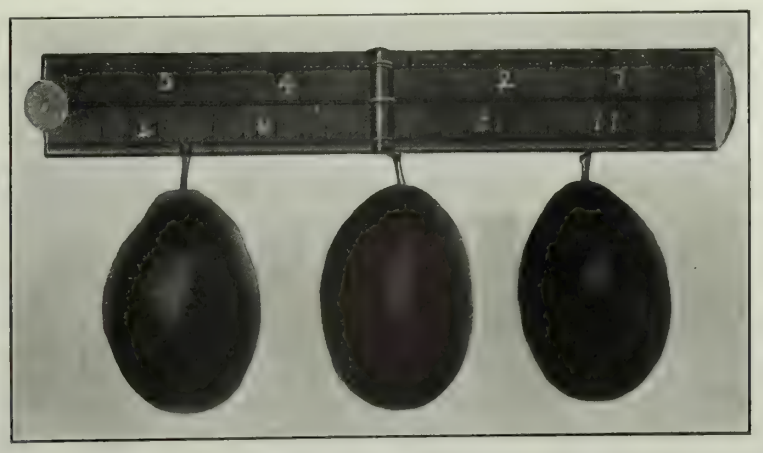


Fig. 3. Another Type of Large French Prune.

The average grower hardly appreciates the tremendous difference in value of a prune orchard that will run 40's to 60's, as compared with prune orchards as they everywhere exist, having only too many of the smaller sizes, many of them being so small that at present prices they do not pay cost of harvesting, the trees cumbering the ground and being an expense rather than a source of profit.

Said Luther Cunningham (local manager for Griffin-Skelley Co.), "Give us an improved French prune, one that will run to fair sizes, and we want nothing better." And this is the sentiment of all experienced handlers of prunes.

The illustrations are from photographs, Figs. 2 and 3 used by the PACIFIC RURAL PRESS for the first time. Fig. 1 is from a water color sketch painted about twenty years ago from a collection of these French prune types that I had just made. Fig. 2 shows the same large type as illustrated in Fig. 1, but from prunes grown this year, and in a different county; and Fig. 3 shows the other type of large size French prunes, quite distinct in shape, but in every other way a genuine "French prune."

Mr. Coates' undertaking to develop superior types of the French prune is in direct line with the convictions of many growers. For nearly half a century they have striven for a variety which would average better size than the French prune, but none as yet combines the flesh points, sweetness and regularity in bearing of that variety with greater size. At least a score of aspirants have appeared and retired, and the French prune wins more favor than all others combined. In seeking information from growers some time ago as to what they desired in the way of improvement of prunes, we received the following specific statements: "A French prune of larger size"; "a French prune of earlier ripening"; a French prune with a smaller pit"; "a selected, improved, pedigreed French prune"; "an Imperial that is not shy in bearing"; an Imperial that does not require such care in drying to escape fermentation"; "a variety like either the Silver or Robe de Sergeant, but a good bearer"; "a variety as early as Sugar which does not discolor at the pit and has the flesh points of the French."

Mr. Burbank has had these desirable points in mind for years and is still working to attain them. We have received from him this year a large new prune which may be the longed for variety. It has the sweetness, the size and, so far as we could judge from a couple of specimens, the texture of flesh which is required to displace the French. The whole subject is of great interest and importance,

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Oct. 5, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.47	1.37	1.74	66	48
Red Bluff	.40	.74	1.04	76	52
Sacramento	1.07	1.14	.50	88	50
San Francisco	.92	1.63	.62	67	52
San Jose	.68	1.42	.40	70	52
Fresno	.54	.54	.37	80	50
Independence	.07	.32	.40	76	36
San Luis Obispo	.50	.52	.37	74	48
Los Angeles	.26	.30	.59	76	54
San Diego	00	.02	.11	68	52

The Week.

Rains have continued at intervals and in some places in rather heavier amounts than the ordinary early fall rains, and naturally some damage has resulted to late crops, especially to grapes and beans, and sometimes to the dry feed though all such losses will be lessened by the alterations of drying winds and sunshine. New grass is starting here and there and some lands are ready for the plow, but this activity will not be general until more water is thrown down. Meantime the weather prophets are busy watching the burrowing animals and migrating birds, and are announcing their predictions which seem to agree that we shall have a rainy season, not so wet as some, and not so dry as others, and this weight of wisdom seems to flatten the wrapt listener into contentment. It is wonderful how satisfied some people are with a little wisdom, which from another point of view is a very dangerous thing, as the proverb has it. It is, perhaps, fortunate on the whole for if everyone should demand much wisdom there would not be enough to go around. About all we know about the character of the coming season is that everyone should do the best he can to take it as it comes. We do not refer to the trite exhortation to "be these—with content," but to get ready to make the best use of what comes. Have the teams, tools and seed ready and make every effort to be forehanded in the work. More is lost by not being ready to do work at the right time, than by the measure of the total advantage received: that is, a man is apt to lose more than is actually taken away from him. This is particularly true in farming operations.

This brings up the very old question as to whether a man can lose a thing which he has never had, and we are impressed with it, after reading a scolding which the New York Sun gives to farmers in these words: "The fundamental cause of the high price of foodstuffs is the excessive cost of production, not as a consequence of lack of laborers or of the high price of labor, but as a result of ignorance and indifference to common business principles. The day will come, because it must come, when the farm will be as much a business enterprise as the store or the factory, when maximum production and minimum unit cost will determine the success of the individual farmer as they now determine the success of the manufacturer."

That is all right in a way, but not in the way the Sun regards it, for it proceeds to say: "An increase in the number of farm hands would unquestionably result in increase in area cultivation and in total output, and that increase would unquestionably affect prices, but the proper remedy for the existing condition is cheaper production, a lower unit cost of commodities. This may be, should be, and some day must be effected by the adoption of business methods on the farm. Under a proper business system the farmer would make more money than he does by the now prevailing custom, and could as a result of better methods reduce materially the selling price of his products and so materially reduce the cost of living for the consumers."

This is, of course, exactly the wrong way to reason from the premise of better business management among farmers. To talk about farmers reducing the selling price of his products, that is, the amount he receives from them, is to talk nonsense. The farmer does not get at all his share of what the consumer pays. Anyone can compare the prices which the farmer gets (as shown from week to week in our market columns, for instance), with the prices the consumer has to pay his storekeeper for the same article and be wise. He will find that he has to pay more than five times the amount the farmer receives. What nonsense it is then to think of reducing the minimum price by reducing cost of production. The minimum price should be raised on the basis of cost of production, and still the consumer should not pay more than half he does at the present time. No one can change this but the farmer, himself, and as long as he refuses to do so by rational and effective co-operation for marketing, he ought to be lectured—even if the lecturer is an agricultural ignoramus. We sometimes feel the force of the protest of the man who, when he heard that a careless offender should be horsewhipped, cried: "No, not horsewhipped; he ought to be kicked by a mule." On this principle the farmers are getting the right punishment from the economists of the New York Sun.

We dislike to continue such an old preachment, but its lure is irresistible. We presume New Yorkers pay 10 cents, at least, for raisins—probably twice as much in some cases. This is about five or more times what the growers get. In fact the report comes that in the commissary department of the Fresno county jail there reposes three tons of standard Sultana seedless raisins, waiting to be fed to the prisoners, and Chef Venn, of the culinary end of the prison will begin serving the raisins with meals. He says: "You can't find a better or cheaper diet, considering the low price of raisins at the present time. A good, meaty Sultana seedless raisin is a great tissue builder. The prisoners who work in the court house park will get raisins more often than the others. I expect to serve raisins in the form of stew, raisin bread, yeast cookies and pies. We won't give them raisins all the time, but just enough to make them holler for more and work the harder in an effort to get them." And yet the critics talk about reducing the minimum price of food products when the grower has to sell them at the price of jail feed!

It is interesting to note that our friends of the Canadian dominion, who are rushing settlement by inducing immigration of Americans, are at the same time Americanizing their provinces at a most rapid rate. The new comers do not serve the Canadians, they rival them; they do not buy English goods; they displace them. The correspondent of a London journal, who has been looking into the subject, writes: "Americans have secured three-fifths of the import trade of Canada and they have done it through systematic, sustained and well planned work. The English invest mainly in shares yielding a fair fixed interest, with little risk and no control. Americans build factories and acquire retail business. The result is that a large part of the Canadian manufacturing trade is in the hands of Americans and the policy of many of the stores is dictated by them. In Winnipeg, alone, there are 100 firms working wholly or in part on American money. In city after city leading stores have American men standing behind them." The report is that, in addition to these American business men, 75,000 American families, each with an average capital of $1000, had entered Canada from the United States this year to become homesteaders. No wonder the British do not like Cook's discovery of the north pole and are sending up explorers to take possession of all the land there is left up there.

And speaking of planting the British flag on all the unoccupied land in the polar circle so that there could still be colonies, after the present dominion is Americanized as the English journalists fears, we are reminded of a very forceful statement recently made by Mr. E. O. McCormick, assistant traffic director of the Southern Pacific and Union Pacific railroads. He said: "The Lord is not making any more land on this continent. There is a limitation to the area of land available on the earth, and as population increases, men's minds and money are being turned toward the value of the development of the resources of land. A whole new State is being virtually added to California for the land hungering people of the Union through the colonist rates which will be in force during this winter and spring, and doubtless many thousands of people who are desirous of establishing homes for themselves on the productive lands of the State will be added to its permanent population as a direct result." It is very fortunate that there is still ample opportunity for those who desire to establish themselves in a favoring climate where outdoor effort during the whole year is comfortable and effective.

And while the theme is promoting, it is interesting to note the compliment which the French are paying to this Coast in the arrangements which are being made to advance the industries of France, particularly viticultural products, by a series of exhibits which will be established in the large seaport towns. Maurice Huet and ... Colombet, of Paris, recently arrived in this city from Seattle, where they have been in charge of the French exhibit at the fair, and it is their plan to establish here a permanent display which will be an object-lesson what France produces and furnishing information to all who desire it. We take this enterprise to be a recognition of our advancement in the world, and while we do not perhaps need their agricultural products, it is but fair that the French should retaliate for the vigorous efforts we are making to sell California products in France. Let the industrial war go on, anything is better than inactivity.

Perhaps we can do as well in France as is now promised in Germany, where the old conflict over the American meat product importation seems to be displaced by welcome. A statement comes from Berlin that the American Government's certificates of inspection are now recognized, and packing house products have been shipped to Germany in the last few weeks for the first time in several years. It may mean the opening up of the

German market to American packers and the adding of millions of dollars to the export trade. The statement is coupled with a threat that if the use of benzoate of soda is again permitted in this country the meats will be excluded. That may, perhaps, be so, but the Germans are scientific leaders and cannot be imposed upon by prejudice. If benzoate is demonstrated to be harmless they will recognize that fact. We don't care much about benzoate as such, but the principle is the same as with sulphur, perhaps, and we do object to the use of the political methods of slamming benzoate and of pre-judging sulphur just to support a premature regulation which never should have been made. But that is a long story which will not reach its last page this year.

Mr. J. W. Jeffrey, State Horticultural Commissioner, has made two excellent appointments in naming Mr. Dudley Moulton as quarantine officer for the Commission, with offices in the Ferry building, San Francisco, and Mr. Frederick Maskew, as assistant superintendent of the State Insectary, in Capitol Park, Sacramento. Both these men are wise, energetic and conscientious, and will do the State's work well.

Queries and Replies.

Potatoes and Peach Grafting.

To the Editor: I have adopted your suggestion in the RURAL PRESS in answer to my inquiry, and will get a carload of gypsum for my adobe. I have taken out some six acres of Seller's clings (which only brought $10 a ton this year) and will try potatoes. Will gypsum applied liberally help the potatoes?

I did not read your "California Fruits" assiduously enough, and so split the stock when I grafted over some peaches. They did not do well, though at the time I did not know the reason. I have had very great success with the side graft explained and illustrated in your book. I had never seen it used here. It was entirely new to me, but it is good and I shall use it whenever I can. In this connection I would ask, into how small a branch can I insert a scion in side grafting? I have been working over some sugar prunes, and took my scions (Imperial) from good bearing trees. I shall do a lot more grafting this year? Can I use the prunings from the last summer's growth of these scions? They have made a tremendous growth, and some of the wood I will cut out will be one-half inch and more in diameter. What is the limit in size of wood for scions?

Can I cut back those branches which I wish to graft as soon as the leaves fall, cutting a fresh cut later where I wish to place the scions?

Some of my trees have a crotch that collects rubbish and rain. To fill this depression, can I use coal tar, or will it injure the tree?—Farmer, San Jose.

Your gypsum applications will certainly help the potatoes by rendering the soil more friable and warm. Besides it may also render more plant food available.

We are glad to see what you say about the side graft. We are very partial to it and can work successfully into wood three-quarters of an inch in diameter, using a scion of about a quarter of an inch, preferring, however, to take it from well matured shoots of about that diameter at the base rather than chase out to the proper diameter on an overgrown sucker. Of course, in working larger branches a little larger scion may be used, but one-half inch would be the limit for us, if not a little beyond it. You can cut back after the leaves fall, branches which you wish to graft later, but do not cut too close to the grafting place. We should prefer to have a foot or more to remove for fire wood at the second cutting.

We would not want to have a pocket of coal tar to continually act upon the adjacent bark. If we could not remove a branch so as to drain the place naturally, we should feel better about filling it with cement than with tar.

Soils and Fruits.

To the Editor: Do cherries or prunes draw from the soil the properties requisite for raising strawberries? I have a tract of land from which cherry and prune trees were removed last year. I intended planting to strawberries this winter. Would it be necessary to fertilize, and if so, what would you use? Would cow peas, plowed under, put the necessary properties in the soil?—Reader, Watsonville.

There are some variations in the items of plant food which the different fruits take from the soil as some make a greater draft than others upon soil fertility, but at the same time there is a general similarity which makes similar treatment of the soil successful with all fruits. You will have to judge this matter from an agricultural point of view, not alone considering fertility, but how the character of the soil meets the requirements of different fruits in lightness, heaviness, moisture, retention, etc.

If you know from the crops which you have secured that the soil is rich, the presumption is that strawberries could be successfully placed upon the land without fertilization. There is a little danger of over-stimulating strawberries, and we should be inclined to make the plantation without much fertilizer if the soil is good. At the same time such improvement as you can make by the growing of a winter crop preparatory to planting, would be thoroughly rational, and the growing of a crop of legumes would not only increase the plant food but increase the humus and improve the friability of the soil. You would have to calculate, though, whether you can get a satisfactory crop without making your strawberry planting too late, because there should be some little time for the green crop to decay after plowing under, and there might be difficulty if you should undertake to plant strawberries immediately upon land into which much coarse stuff had been recently plowed. How much this danger would amount to depends upon the character of the soil, greater in sandy and less in heavy, and also upon the amount of moisture likely to be received either by rainfall or irrigation.

If you are quite sure that the soil can be settled back quite firmly and not render it too liable to dry out through the green stuff that is plowed under, there might be a gain. If, however, you wish to plant quite early in the winter there would be a great danger. No one can settle such a matter by a prescription. It is to be determined with a knowledge of the conditions which prevail. In most cases it would be better to give land extra good tillage and plant without the green crop, unless the planting can be deferred until spring.

Cow peas would not be a good crop for the purpose which you mention in your district, the plants are likely to be killed by the frost. The common vetch or Oregon vetch, as it is sometimes called because the seed is grown in that State, would be better to try than cow peas.

Green or Ripe for Drying.

To the Editor: Which will dry the sooner, grapes that are slightly green or grapes that are very ripe, under the same weather conditions? Or, in other words, does the large percentage of sugar cause grapes to dry faster or slower.—Reader, Fresno.

We do not know, and it is hardly worth knowing. It is not valuable to know which will dry faster, but which will be worth more when dried. The chances are that better raisins can be had from grapes which are very ripe than from those which are slightly green, although the terms "very" and "slightly" are very inexact. The prime service of the adequate sugar percentage is toward the quality rather than toward time, and the arrival of that percentage should be determined by the saccharometer in the juice, and not by guess, although the educated judgment may become a good guide.

The Alkali Problem.

To the Editor: I send a little sample of the soil upon which I planted a lot of fruit trees but they all died but the pears. Please let me know whether treatment by gypsum would improve the soil sufficiently to enable apple and peach trees to grow in it. Nearly all the pear trees are doing well, and I have this summer grown a large crop of sugar beets between the rows of trees. Alfalfa also grows well there after getting once started.—Amateur, San Diego.

Your sample shows by test considerable alkali. What you say about the growth of plants upon it warrants the conjecture that you may be able to get apple and peach trees started by using a certain amount of gypsum, but no guarantee that they will succeed. The sugar beets which you mention as succeeding are really tolerant of more alkali than most plants, and the alfalfa plants have evidently rooted below the surface accumulation and their future will depend upon how much alkali they have to deal with later. Many alfalfa plantings look well at first and go out afterwards. The only real test of what your land will do is to try it, remembering that the real cure of the situation is washing out the alkali by using plenty of sweet water on the surface after providing under drains to carry away the drainage.

Earth Pest on Peanuts.

To the Editor: I have some peanuts which have made a fine growth and put out lots of feelers for peanuts, but I find a small weevil eating on the feelers and killing them; they also eat into the peanuts. What is the cause and is there any remedy for them? They are going to spoil my crop and if there is any remedy I would like to hear through the PACIFIC RURAL PRESS. I will send you some of the feelers to show you how they eat them.—Subscriber, Lindsay.

We do not find any of the pests present on the specimens, but their work which remains is like that of wire worms of a small species which is common in California and sometimes gives much trouble in nursery seed-beds. We have not seen the trouble before and cannot prescribe. Such subterranean pests are hard to reach. They are sometimes repelled by the use of nitrate of soda sparingly, mixed with the soil at planting, but one has to be very careful not to get too much for the good of the plant. Has any reader had experience with such things on peanuts? It may be that later settings on the roots may come through all right if the plants are not cut off by frost. It seems rather late in the season for peanuts to be beginning.

Simply a Seedling Almond.

To the Editor: I am sending you, under separate cover, a small box of almonds with some leaves for identification. The tree grows bushy, like a Drake, and has wide leaves and the leaves are a dark green. The trees came with my IXL, and are three years old, and their first crop is quite heavy. What is the name of the almond? What price does it bring compared to other almonds?—Grower, San Joaquin.

The almonds which you send belong to the hard-shell class, and they have the other objection of growing twined kernels, which results in mis-shapen meats of less value than single, shapely ones. The variety is not named, so far as we know, nor would it be considered desirable to grow. It is probable that this tree missed the bud in the nursery, and the result was you had a seedling. In spite of its heavy bearing it would be less desirable than a better type of almond producing less quantity.

Horticulture.

RELATIVE QUALITY OF APPLE VARIETIES.

In order to arrive at the relative quality of different apples largely grown in this country, the American Pomological Society some time ago prepared a table in which 10 points are given for the highest quality and varieties scored downward from this standard. The following is the list:

Apple.	Quality.
Arkansas	7 to 8
Arkansas Black	5 " 6
Bailey Sweet	7 " 8
Baldwin	5 " 6
Belmont (Waxen)	8 " 0
Ben Davis	4 " 5
Blue Pearmain	6
Canada Baldwin	5 " 6
Canada Reinette	7 " 8
Carolina Beauty	7
Cox Orange Pippin	8 " 9
Delicious	9 " 10
Fall Pippin	9
Garden Royal	10
Golden Russet (N. Y.)	5 " 6
Gravenstein	8 " 9
Green Newtown	8 " 9
Grimes Golden	9 " 10
Jersey Sweet	8
Jonathan	8 " 9
Louise Princess	5 " 6
McIntosh	5 " 6
Maiden Blush	5 " 6
Maryland Maiden Blush	7 " 8
Monmouth (Red Cheek Pippin)	6 " 8
Northern Spy	8 " 9
Red Canada	8 " 9
Rhode Island Greening	7 " 8
Romanite South	6 " 7
Rome Beauty	6 " 7
Scott Winter	5 " 7
Sierra Beauty	7 " 8
Spitzenberg	10
Stayman Winesap	8 " 9
Sterling (American Beauty)	7 " 8
Swazy Pomme Gris	8 " 9
Sweet Winesap	6 " 7
Tompkins King	8 " 9
Wagener	7 " 8
Wealthy	6 " 7
White Pearmain	8 " 9
Willow Twig	5 " 6
Winter Banana	8 " 9
Winesap	7 " 8
Wolf River	5 " 6
Yellow Bellflower	8 " 9
Yellow Newton	9 " 10
York Imperial	6 " 7

This proportionate rating will be used in judging apples at the Spokane apple show on November 15th to 20th, where "quality" is to be given consideration with other things, as follows: Quality, 20; color, 20; condition, 20; pack, 20; uniformity, 10; size, 10; total, 100. Prof. H. E. Van Deman is to be chief judge at Spokane.

OLIVES AS SHEEP FEED.

Some times hard things are said about olives, but we do not remember to have heard them consigned to sheep feed. They have, however, good standing in this line, judging by some tests at the Arizona Experiment Station, which are described by Prof. F. W. Wilson, who had the matter in charge. He says that owing to the scarcity of green feed at the Station Farm during the cold weather of January and February, the flock was given opportunity to pick up weeds in the orchards and also had access to a nearby field of oats. It was noticed by the writer that the flock made frequent trips to the olive orchard, remaining under the trees rather than feeding on the nearby field of green oats. Soon small heaps of olive pits were observed in various places where the sheep had bunched in the shade and also in the yards where they were placed at night. About this time a large fat ewe was caught in a fork of one of the trees where she remained for several hours. Evidences of her diet for some time past were found in the casts of olive pits and skins. During the time that the flock grazed in the olive orchards the sheep gained in flesh and seemed to be very greedy for the fruit.

To determine the value of ripe olives as an addition to a ration of alfalfa hay two lots of sheep, consisting of two wether lambs, as nearly equal in weight, breeding and general conformation as could be selected, were fed in separate pens. Lot 1 received a ration of second-crop alfalfa hay. Lot 2 in addition to the same ration of alfalfa hay received ripe Mission olives. The sheep were carefully weighed each day for three days preceding the feeding trials, and each Saturday thereafter. At the end of the trials they were again weighed for three consecutive days and an average taken of the three weights. No account was taken of waste feed, and each day's feed was charged up to the animals. The following table gives the amount of hay and olives consumed, the weights on February 24th and on March 25th, and the gain in weight for each lot:

Lot No.	Alfalfa hay. lbs.	Olives. lbs.	Weight Feb. 24. lbs.	Weight Mar. 25. lbs.	Gain. lbs.
I	155	..	162	165.66	3.66
II	155	93	146	162.00	16.00

Since sheep do not injure mature trees while feeding on the waste olives, it would seem from the above experiment that they might act as excellent scavengers in olive orchards, utilizing feed that is ordinarily wasted.

HOW ALASKA-YUKON PRIZE BERRIES WERE GROWN.

Mr. Fred Holcomb, of Snohomish, Washington, took the first prize for raspberries at the Alaska-Yukon Exposition. A writer for the Northwest Horticulturist secured an outline of the kinds he grows, and the way he grows them, from which we take suggestive statements. Mr. Holcomb grows the Cuthbert, which for a general purpose berry, he considers superior to all others. His plantation of one acre was made five years ago, and this acre of Cuthbert, this year, produced 300 crates from which he realized $400 gross, with a net profit of $260. They were marketed through the association and brought from $3.00 to $1.35 per crate. The rows of raspberries are eight feet apart in the rows. They are now trellised on two wires nailed to stakes, the bottom wire being about three feet from the ground, and the upper wire about 16 inches above it, using two outside wires on each side nailed to cross-arms about three feet apart. The wires are exclusively for holding young canes in place which is a very important point. The fruiting canes early in spring are looped onto the lower wire and curved over top wire in a slanting position and tied to the lower wire. Not over two canes are allowed in a bunch.

Cultivation is begun early in spring and kept up until after picking. Canes are so trellised that a horse and cultivator can go through at any time, and no one cultivates more intensely and thoroughly.

Another grower of Cuthbert at the same place, Mr. D. F. Sexton, says he believes "the Cuthbert the best general purpose berry we have." He continues: "I use the double trellis system of four wires. My idea is to tie part of the old vines on each side of the row and let new canes come up between. I do not prune raspberries, but cut out the old canes in the spring. Cultivation is begun early in the spring and continued through picking. Nature does all she can to produce berries, but we can, by heavy manuring and proper culture, make her produce a superior berry. Several years ago I tried the Antwerp, but because of a root disease I gave it up."

TRELLISING BLACKBERRIES.

Growers of trailing blackberries at Snohomish, Washington, widely practice wiring. In one case the blackberries are set in rows eight feet apart and 24 feet apart in rows. The double trellis system of two sets of wires are used. They are two feet apart on the arms. The lower wires are for the fruiting canes and upper wires for growing canes. Eight good strong, healthy vines are allowed to each hill, four going to the right and four to the left to be trellissed on each wire. In the spring all old canes are cut out, drawn from the field and burned. The new canes from the upper wires are dropped to the lower wires and vice versa each year. The vines are all manured in the spring.

Another grower says: "In blackberries I am growing the Evergreen, Himalaya Giant, Snyder, Mammoth and Phenomenal. The freeze last fall killed vines of the Mammoth and Phenomenal and injured the Evergreen. It also killed one-half the vines of the Himalaya Giant.

"The canes are trained on double trellis of four wires. New vines are trained on upper and old canes on the lower wires. In the White River valley, I understand they reverse this order. The Himalaya Giant, I am inclined to believe, will give more berries and of better quality than the Evergreen, but the latter is a better shipper, and the best money maker of all. With me the Snyder is very profitable, but is subject to blight. Mulching is applied in winter. The moles trouble us a great deal in this valley. They make runways directly under the rows and hills and the only way to break them up would be to adopt the hill system and cultivate both ways. If I were setting out a new patch I would adopt the hill system."

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

This is the time of the year when the growers of citrus fruits meet together to receive the reports of their stewards, the managers of their associations and packing houses, to elect officers for the coming year, apportion money for improvements and to outline the policy for the coming year. These growers' meets always bring with them their share of good things to eat, the renewal of old acquaintances, serve to tighten the bonds of friendship and by no means the least important feature of these meetings is the opportunity to talk over the different methods of pursuing the work in the orchards to the end that right methods may prevail and good results accrue.

I attended such a meeting last week and this was in fact purely a grower's meeting, having nothing to do with the marketing feature nor marketing politics, but was simply to better means of meeting the problems that ordinarily rise to confront the citrus grower and was primarily to discuss fumigation in all its phases and to encourage the so-called block system, whereby all orchards in one block are treated at the same time and the danger of contamination reduced to the minimum.

Professor A. J. Cook presided at the meeting, which was held in Ganesha Park, Pomona, on the 27th of September. He makes an ideal presiding officer, pleasing in his address but snappy and to the point, with the interest of the growers evidently close to his heart. He told how the boys of Pomona College had become expert in ferreting out the scale in orchards and stated that six of the best of them were regularly employed and were at the service of any grower for the purpose of examining his orchard to detect any and all kinds of scale. By the efforts of these boys many orchards had been found infected that had not been suspected and it was thought that with the power that lay in the horticultural commissioner to force fumigation and the use of the block system the scale could be kept within such bounds as to render its bad effect almost nil.

Horticultural Commissioner Pease, of San Bernardino county, gave a very interesting talk regarding the subjugation of scale pests and cited some of the history of the fight that had been made against them. The first means taken to check the scale was with sprays but it has been completely demonstrated that no spray can reach over 80% of the tree and where 20% of the scale is left alive it is worse than money wasted to use this method because the scale breeds so fast. Mr. Pease remembered that when he was comparatively new in the business a trial was made to see which of the different sprays did the best work and observations were made as to the effects of whale oil soap, carbolic wash and kerosene emulsion. He said that he told one of the older experts present that he thought the kerosene emulsion was a very fine wash and the man agreed that it was, but said that it did not kill the bugs.

He stated that fumigation was first introduced by the late Alexander Craw and after it had been

demonstrated that it was practical it was decided that San Bernardino county should try it out and that there was much discussion as to whether as much as 200 pounds of cyanide should be purchased, some thinking the amount too large. Now the county buys 60 tons, or four car loads, at one time and has 500 tents. At first their tribulations were many and they were obliged to learn by experience but that now they had the system down to such a point that they knew just what dosage a tree required for the different kinds of scale, just how long to apply the gas and that they were practically certain to kill 99% of the pests in any given orchard.

Mr. Pease also spoke at length regarding the work of private fumigating concerns and stated that while many of the operators understood the work as well as the commissioners, that some of them were very liable to give too small a dosage and that it was not altogether their fault either for the reason that some of them had been sued for burning the leaves on the trees as a result of using the proper amount of gas and for that reason they were apt to be timid about using the proper quantity even where they were otherwise perfectly willing to do so.

Mr. Pease stated that the proper amount of cyanide was ½ ounce for every 100 cubic feet of the content of the tent for black scale, not less than one ounce for red scale and one and three-quarters ounces for mealy bug. The speaker said that anything less than this amount would not produce results and would be money thrown away. He said that the trees would be burnt to some extent but that no material damage was done by this cause and that it lay with the growers themselves to get results from the private contractors. If growers cannot stand to have the new growth burnt back a little they cannot get the scale killed.

The above schedule is adopted for what is known as the Woglum system, and the cubic content of the tent are measured in each case and there is no more guess work about the operation.

Commissioner Bemis, of Los Angeles county, spoke at length and his remarks were not as encouraging as the growers would have liked to have had them. He did not think the block system feasible, but gave no further reason than to say that the county tent supply was short and that there was not any danger of the pest spreading only at certain times of the year. He stated that fumigating by the county had not been a success, and that while it was originally supposed that such work constituted a lien on the property for pay, it was afterwards found that this was not so, and that Los Angeles county was out $10,000 on the work done so far. He said that the county did not now own one-half tents enough to work in the block system, and that with their lack of facilities they had to start too early and work too late in the year to get the best results.

There was nothing in his remarks that were convincing as against fumigation in general or in the block system in particular, but he appeared to convict those responsible of not being as interested or as capable in handling the situation as they were in other counties, and exposed defects in the law that should be remedied at once. This matter is an important one and means dollars and cents to the growers. Mr. Bemis thought that the grower's association should look after the work and said that many of these associations now had fumigating outfits and were prepared to handle the work for their members.

This is certainly all right as far as it goes, but it leaves the no association member out in the cold, and, according to Mr. Bemis, he would have to join a shipping association, which, perhaps, he feels justified in refusing to do for reasons best known to himself.

From a report issued by the State Board of Horticulture on the Hydrocyanic Acid Gas Treatment, I take the following:

"This treatment should be used in the night to avoid light, heat and wind, which neutralize the effects of the gas. The chemicals used for producing the gas are: Sulphuric acid, cyanide of potassium (98 to 99%), and water.

"The following instructions must be carefully observed: First, the tent, which must be air tight, is placed over the tree; second, the tent is made air tight around the bottom by throwing some loose soil over the bottom of the canvas; third, the necessary amount of sulphuric acid, together with the required amount of water, is put in a glazed earthenware vessel, placed under the canvas and the potassium is added. A piece of sacking or burlap is thrown over the top of the vessel, to spread the gas and to prevent it as much as possible from burning the leaves immediately above the generator. The tree is left covered 40 minutes.

"The chemicals are to be used in the following proportions:

Tree Height, ft.	Diameter, ft.	Water, oz.	Cyanide, 98%, oz.	Sulphuric Acid, 60%, oz.
6	4	2	1	1
8	6	3	1½	1½
10	8	5	2½	2½
12	14	11	5	5½
16	16	17	8	9
20	16-20	22	10	12
20-24	18-22	30	14	16
24-30	20-28	34	16	18
30-36	25-30	52	24	28

"The cyanide should be as coarse as possible, so that the chemical action will be less violent. The gas is also generated more evenly and there is not so much danger of the chemicals boiling over or spattering the tent. As soon as the tent is removed the vessel is rinsed with clean water and prepared for another charge."

Agricultural Engineer

THE GREAT PROBLEM OF DRAINAGE IN THE SAN JOAQUIN.

[One of the most notable and significant publications concerning the agricultural development of California has just appeared from the United States Department of Agriculture describing the results of investigation by the experts of that department carried on by it in co-operation with the State of California through a legislative appropriation each bearing one-half of the expense. The report is by Dr. Samuel Fortier, chief of the Irrigation Investigations of the United States Department of Agriculture, and Mr. Victor M. Cone, an irrigation engineer of that department. The report goes into the subject in very satisfying detail and is accompanied with suitable maps and engravings. It deals particularly with the Fresno and the Modesto-Turlock districts, but is suggestive of valley conditions in other parts of the valley, and the publication should be widely circulated and studied in that great and growing region of the State. We shall take certain general statements from the report to show its importance and definiteness.—THE EDITOR].

The San Joaquin and Its Problems.—The San Joaquin valley occupies more than three-fifths of the great central valley of California. Extending from the Tehachapi Mountains on the south to Suisun Bay on the north, it includes in its great expanse of comparatively level land a large part of the irrigable area of the State. The floor of this valley, with its foothill and mountain watersheds, is nearly equal in extent to the State of Indiana. The run-off from this basin reaches the axis of the valley through a number of nearly parallel stream channels from the Sierras and thence it is conveyed by the San Joaquin river to Suisun Bay, form whence it flows through the Golden Gate to the ocean.

For years after the discovery of gold in California the valley remained virgin soil. Bunch grass carpeted the swamp area of the trough of the valley; wild oats grew on the higher land near the foothills; but the large expanse of rich land between these borders supported only a scant growth of grass and alfilaria during the rainy season. During the greater part of the year the valley was too dry, barren, and devoid of green vegetation to attract even the herds of wild horses and cattle from the slopes of the Sierras. In the course of time, however, as the valley became settled, the grain raisers took advantage of the winter rainfall to raise profitable crops of wheat.

Irrigation development in this part of California dates back to the early seventies, when the people of Fresno county began to use a part of the water of Kings river for the production of fruits and grapes. Prior to 1875 a number of small canals were built to supply water to lands near Bakersfield, and in that year the Calloway canal, belonging to the Kern River Land and Canal Company, was built to convey 500 cubic feet per second to lands on the north side of Kern river. The Modesto and Turlock irrigation districts, although organized in 1887, used little water until 1902. The practice of irrigation has gradually extended from these centers until at the present time there is probably more than 1,000,000 acres irrigated. The volume of water required for this area exhausts the flow of the stream after the spring floods have subsided, and in all probability one-third of the entire run-off from 16,000 square miles of Sierra watershed is diverted for irrigation.

The diversion of so much water every spring and summer from the natural channels and the spreading of it on the porous soil has greatly changed the natural conditions with regard to the water table. As a direct result of heavy waterings when the works were new, the subsoil dry, and water both cheap and abundant, the water table has risen in places with astonishing rapidity, a rise of 20 feet in four years not being uncommon. It now fluctuates between one and eight feet below the surface, while, before irrigation was practiced, well water was available only by digging or boring to considerable depths. If the surplus thus accumulated could readily be drawn off through either natural or artificial channels, and the ground water thus prevented from rising too high, such a filling of the subsoil with waste water would be beneficial in any district having an average annual rainfall of nine inches, as is the case in this locality. The drainage of this district, however, is very poor; many of the deep creek channels and ravines that drain the foothill area of the Sierras widen as the slope of the land decreases and disappear entirely before the trough of the valley is reached. Only those streams, which have their origins far enough up in the mountains to provide continuous flows, have the level of their stream beds far enough below that of the surrounding country to admit of the land being drained naturally into them.

While irrigation has raised the ground-water levels in the better drained portions, it has seldom brought it near enough to the roots of vines, fruit trees, and alfalfa to do much damage. It is where the drainage is poor that the ground water has risen and caused destruction to deep-rooted plants and trees. The presence of water too near the surface reduces the area which is available as a feeding ground for plants, dissolving the alkali, which exists more or less in all the soils of the arid region, keeping the soil moist continually by capillary attraction, thus inducing a more rapid rate of evaporation and drawing up the alkali through the soil to the surface. These losses, due to the rise of ground water and to the depositing of alkali, have reduced farm values in many cases from $350 to $20 per acre, and many 40-acre farms in the Fresno district have depreciated in value more than $12,000. The object of the investigations herein summarized was to determine the practicability of systematic drainage as a remedy for the conditions described.

A General System for the Fresno District.—The report gives about 40 pages of details of the work pursued to determine the feasibility of removing alkali and lowering the ground water by drainage, the result of which is a complete demonstration of the fact that drainage is the one remedy. Careful descriptions of methods and computations of cost are also given. These proceed toward an outline of a general system for the Fresno district, which is also suggestive for other districts requiring similar relief. We give leading parts of this system:

In a general way the boundaries of a drainage district for the Fresno section should include practically all of the land irrigated from the Fresno Consolidated Canal System. The final boundaries of the district should be fixed to exclude the large bodies of land that are so high as not to be in need of drainage. It stands to reason that the small tracts of high land in the heart of the water-logged district would have to be included in the district, although they may never be in need of drainage.

(*Continued on Page 235.*)

AGRICULTURAL REVIEW.

FRUIT MEN MEET.

The meeting of fruit growers and shippers called to meet at Newcastle, in Placer county, last Thursday, by Commissioner Jeffrey, was well attended and the discussions proved of great value. The particular object of the meeting was to create a sentiment among growers and shippers to grow and pack a better fruit—the eradication of pests and better methods of handling fruit. The following extracts from talks made by speakers, perhaps gives the trend of the thought expressed:

The afternoon session was commenced with a discussion on the acceptance or rejection by the shipper of fruit brought to him, and its condition when it gets to the consumer. Frank McKevitt, of the California Fruit Distributors, contended that California has more rivals among other States right now than ever before in its history, and that it was vital that all fruit shipped from here should be sound and of the best quality; that while we are handicapped by distance from the Eastern markets, still, we grow the best fruits in the world, but that we are fast losing our reputation on account of sending on green and wormy fruit. If one-fourth of a shipment is bad, said the speaker, that condemns the whole three-fourths. The speaker believed that an inspector ought to be appointed and paid by the fruit men to inspect all packs, and turn down all wormy or undersized fruit.

Chairman Jeffrey stated that in the Southern States part of the orange shipping houses, distributors and exchanges, all had inspectors to examine all fruit sent in by growers for shipment. J. P. Dargitz, of San Joaquin, said the habit of selling for cash to the grower put a big premium on trickery; that whenever the growers knew they were going to get cash for their fruit at the houses they cared little whether they shipped good or indifferent fruit. The fruit grower, the speaker contended, must know that unless he puts up first-class fruit he will not get top prices.

RAISIN NOTES.

A mass meeting was to be held at Fresno this week to further discuss the Tielman plan of forming a million dollar corporation, which will take over the selling of the crop for the next five years, providing at least 65 per cent of the growers sign an agreement to work with the company. This plan is apparently meeting with great favor by some of the growers, and also as great opposition by others.

W. R. Nutting, of Fresno, who has made a success of the selling of his own raisins, by opening an office at Boston, was a caller at the PACIFIC RURAL PRESS office this week. In discussing the raisin problem, Mr. Nutting said that there would be no difficulty, in his judgment, if one of two plans were followed. Either form a corporation which could control the crop or start an advertising campaign that would reach across the continent and educate the people to use more raisins. If each one of the inhabitants of the country would use two pounds of raisins per year, the problem would be not how to sell, but how to supply the demand. Mr. Nutting has for years had his own salesmen visit the trade in New England States, and by advertising his brands has had no difficulty in selling his crop of 700 tons of Thompson seedless raisins. This year he has purchased 400 tons from other growers to have raisins enough to fill his orders.

The rains of last week damaged grapes around Lodi to quite an extent, though to what amount growers are not agreed. Some place the damage at 25 per cent of the crop remaining upon the vines. At Fresno the rain did little damage as most of the raisins were stacked and some in the sweat box.

A BIG DAIRY ENTERPRISE.

Capital from Los Angeles and San Francisco has been enlisted in a big dairy farm in Tulare county. Four thousand acres of land near Tulare has been purchased, and this season 600 acres of it was plowed and seeded to Egyptian corn which made a good crop. The 600 acres will be seeded to alfalfa, the intention being to soon have 1000 acres planted with this forage crop. The ultimate purpose of the owners is to have 2000 dairy cows and 300 brood sows, besides horses and mules, kept on the ranch. In addition to the stock there will be put in a creamery, butter and cheese factory.

A NEW INDUSTRY.

A couple of Japanese have made a success of growing peppermint on three acres of land near Garden Grove, in Orange county, this season. The growth and culture of this plant is similar to alfalfa, though the weeds must be kept down or the quality of the oil is affected. This year four crops of peppermint was produced and the oil was extracted at the eucalyptus oil refinery at Garden Grove, the oil selling for $3 per pound. From one cutting 75 pounds of oil were produced. It is stated that the Japanese will plant 40 acres to peppermint next season.

WITH THE APPLE GROWERS.

Heavy shipments of apples are going out of Watsonville daily. Already over 900 cars have been shipped this season, and as plenty of cars are available and prices are good, the fruit men there will have a prosperous season.

S. A. Andros, of Watsonville, will have a car load of apples on exhibition at San Francisco during the Portola festival week.

Horticultural Notes.

The prune output of Anderson, Shasta county, this season amounts to 2000 tons, dried.

Oranges will soon be shipped from the Coachella valley in car lots for the first time in its history.

Grape growers have declared war on the sparrows. Recently thousands of these birds took possession of the vineyards and caused heavy damages.

The orange crop in the eastern part of Tulare county is reported to be in much better shape than was expected a few months ago. The prospect is that the yield will be about 65 per cent of a full crop.

September 30th was Sacramento Day at the Alaska-Pacific exposition, at which time representatives of that city and county gave away to visitors 10,000 baskets of Tokay grapes, 7000 packages of matches and 60,000 badges.

Lindsay is to have the orange king if the plans of T. D. Torrey, a young man recently from the East, are carried out. Last week it was announced that he had purchased various tracts of land near Lindsay amounting to 1000 acres and would set it all out to orange groves.

George West & Son, Inc., of Lodi, have published a grape price list, offering $7.25 for Alicante Bouchet, $10 for Petite Syrah, $12 for Semillon, and $5 for Zinfandels. Last year the price offered was $6 for all varieties. No contracts are being signed up at the above prices, except for this season.

Selma is claiming the honors in the production of Thompson seedless raisins per acre in the crop raised this year by Wallace L. Lynn on his ranch thre miles north of Selma. Mr. Lynn has three acres of six-year-old vines, and from this land produced twelve tons, or four tons to the acre. In addition Mr. Lynn harvested four tons of Phillips cling peaches which were grown on trees which had replaced the outer row of grape vines around the



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land, thus really leaving less than three acres of vines from which his banner crop of raisins were taken.

There is a very heavy demand for walnuts this year, the fact that the crop is short and the price lower than last year being the cause. The associations control the situation this year, the so-called independent operators not being able to get a single car of nuts with but one exception. This firm state that they are already oversold so it would seem within the bounds of possibility that prices would go up in the very near future.

The popular horticultural lectures which have been conducted by the Y. M. C. A. of Riverside during the last two seasons will be maintained during the coming winter. Following is a list of subjects and the dates on which they will be delivered: October 9, "How Trees Grow"; November 2, "Production of Humus"; November 16, "Commercial Sources of Plant Food"; November 30, "Calculation of Values"; December 14, "Cover Crops"; December 28, "Soil Bacteria"; January 4, "Prospective Water Supply"; January 18, "Reforestation"; February 1, "Pruning Young Trees"; February 15, "Pruning Old Trees." The last lecture will be on "Citrus Fruit Growing in Sicily," by G. Harold Powell.

General Agriculture.

A carload of Russian hard winter wheat from Kansas has been received by farmers of Siskiyou county, who have found that this wheat does well in California. The growers expect to raise this hard wheat, which contains the necessary gluten and which will make good flour when mixed with other California wheat.

The southern California celery crop will begin to move on the 20th of October. The Vegetable Union claims to control 85 per cent of the total output, which will amount to 2000 cars, the Interstate Distributing Company claim 350 cars, Pinkham & McKevitt, 150 to 175 cars, and the Pacific Vegetable Company, 200 cars. The outside claims represent a pretty heavy 15 per cent, and it is just possible that some one will have to revise their figures.

As an evidence of the great work being done in the Imperial valley, which was in an absolutely desert condition in 1900, the following figures taken from the report of the Imperial county statistician for 1909 is interesting: Number of farms, 731,520; value, $4,208,556; acres irrigated, 181,545; value of 1909 crop of cereals and hay, $2,006,090. Total number of fruit trees set out, 51,050; in bearing, 2985; value of butter produced, $316,850.

A recent estimate of the industrial output of this State for the year 1908 made by the California Promotion Committee places the total at $1,005,000,000. Of this large amount agriculture played a very important part, its production amounting to more than $400,000,000. To show how agriculture is growing in the State the above figures will be better understood when it is realized that this output was just double that of three years before. The committe reports state that that more than half of the grape vines growing in the United States are in California, with an annual output valued at more than $25,000,000.

A largely attended meting of lima bean growers from Ventura, Santa Barbara, Los Angeles and Orange counties was held at Oxnard last Saturday. The lima bean crop of the United States is practically all raised in these four counties, and the meting was called by the recently formed association of bean growers to take steps to secure a fair price for the crop just harvested. A pool of beans is being formed by the growers in an attempt to secure more than half the entire crop. The association has decided to hold its produce in order to obtain $3.75 per 100 pounds, and it has advised farmers not to sell for less than that sum within the next sixty days.

Stock and Dairy Notes.

The Deputy State Veterinarian reports that the epidemic of black leg in cattle around Benecia is rapidly being controlled. Very few deaths were reported last week and the carcasses of these were cremated at once.

It is announced that the Western Creameries Company, of San Francisco, is endeavoring to lease large alfalfa tracts near Gridley, Butte county, and will stock them with dairy cattle. The prospects are they will start a creamery soon.

The cattle lands and herds in the quarantined districts of Plano and Poplar, Tulare county, are now said by the inspectors to be free of the Texas fever tick. For a year the district has been under strict quarantine and regulations regarding dipping and inspection have been rigidly carried out. No new case has been discovered during the past four months.

An attempt will be made by the San Jose Chamber of Commerce to secure the manufacturing plant at that place, of the new aseptic milk bottles. The bottles are made of paper and paraffine and are to be used but once. The cost being so small that with the saving in breakage and washing the new bottles are not only better but cheaper.

The company of Greeks who are conducting a sheep-milk cheese factory near Biggs, in Butte county, are well satisfied with the results the past season. They report having made the extraordinary large amount of two pounds of cheese from three pounds of sheep milk. Contracts have been made with other sheep men for milk and the milking season will commence earlier than usual this year.

The wool from 2500 head of Mohair goats belonging to the Hull, Osbourn & Oakes Co., from near Red Bluff, is being sent to market. This firm is the largest Mohair goat raisers in that section, and send their product to Eastern mills direct, thereby saving about 3 cents per pound in handling charges. It is expected that the price for this season will be in the neighborhood of 25 cents per pound.

Big prices were realized for mules at the auction sale held at Chico last week by the John Crouch Land Company. There were sold, besides live stock and machinery, 150 head of mules. Several spans are reported to have brought $500, and single head went at $200. Horses averaged well also. The great amount of development work going on in northern California is responsible for the high prices.

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For over a decade the leading seedsmen of the Pacific Northwest.

200,000 SOUR ORANGE STOCK

For 1910 spring planting. Every plant from Genuine Selected Florida Sour Seed. **Also sweet stock. Don't** buy uncertain and inferior grown plants. This is nursery gospel. **Don't** waste time and money on 6 and 8-in. plants when you can get them twice the size for the same price. **Don't** take my word for it; come and see the plants in seed-bed and nursery. Plants are 8 to 12 inches now, with 8 more months to grow.

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PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J St., Sacramento, Cal. Send for catalogue.

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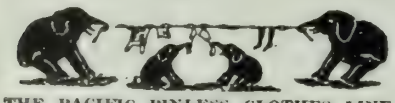
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The Field.

SELECTING SEED CORN.

California is not counted much of a corn country and though that may be true considering the area upon which corn does not do very well, there are places where good corn can be grown in much greater quantity than is now thought possible. Of the small amount now grown the average is quite up to or beyond the average of corn as it runs in the United States though it must be admitted that we have done little to reach the standard of the best corn. It may help some of our readers who are working in this line to have hints of ways toward improvement which we take from a circular just issued by the Michigan Experiment Station:

In Michigan, corn is grown both for grain and fodder. It becomes important, therefore, in the selection of seed, to consider the stalk from which the ear is selected, as well as the ear itself. Hence, the ear should be selected while it still remains upon the standing stalk. The stalk from which the ear is selected should be of good size with a considerable amount of foliage.

Position of the Ear.—The position of the ear on the stalk should be considered. It should not be too high, for it is claimed that the higher the ear, the later in matures. Moreover the weight of the high growing ear increases the tendency of the stalk to fall in stormy weather. The ear should not be too low for there is then danger of its being knocked off by the harvester.

Recent experiments seem to indicate that the location of the ear on the stalk can be controlled by the careful selection of seed ears properly located on the mother plant. The ears should have a pendant attitude, for if they stand erect rains are apt to beat in upon the tips between the husks, and result in molding the grain.

Two Ears on the Stalk.—There is a difference of opinion as to whether corn for seed should be selected from stalks bearing two ears, and whether it is possible by selecting such ears to secure increased yields in future crops. The writer is inclined to the opinion that increased yields are procured by the judicious selection of seed from stalks bearing two ears.

Size and Shape of Ears and Kernels.—The ideal ear of corn should be cylindrical rather than tapering in shape. For Michigan conditions, when dry, the ear should be about nine inches long and seven inches in circumference, but the smaller breeds will fall somewhat short of these dimensions. The kernels should be deep and slightly spaced between rows and should be well filled at butt and tip.

Depth of kernel is indicated not only by the weight of the ear, but also by the degree of roughness of the top of the grain. The experienced corn breeders of the country are strongly favoring and developing rough-top kernels even among the breeds of corn that were originally smooth. Ears as ordinarily secured from the stalk in the fall will shrink as much as 10 per cent in both length and circumference.

Maturity.—Seed corn should be selected from stalks that mature just before the average time of the first frost, which, in Michigan, occurs about the 15th of September. Corn that matures earlier than this fails to use all of the growing season, while that which ripens later is injured.

Removing vs. Marking Ears.—Some farmers select seed ears by removing them from the standing stalks, but a number of progressive corn growers and some investigators, indeed, now hold to the opinion that corn that is to be used for seed should be allowed to remain on the stalk until rusking time and offer the reason that corn removed from the stalk at an earlier period is lacking in vitailty. In case this practice is followed, each ear selected is marked by tying upon it a bright string. The stalks bearing these marks are cut and shocked with the balance of the crop and at husking time the marked ears are saved by themselves.

Selection at Husking Time or From Crib.—Some farmers allow the practice of selecting seed at the time of husking, in which case the best ears are set aside regardless of the character of the stalks upon which they grew, or the position and attitude of the ear upon the stalk. Though not commendable, this is undoubtedly a much better practice than selecting ears from the crib the following spring. Experience demonstrates that the best results only can be secured when every phase of careful selection has been observed. On large farms it is sometimes the practice to select a sufficient amount of seed corn in the manner above described, to plant a portion of the field, and from this portion seed for the following year is selected, both from the stalk and from the shock at the time of husking.

AGRICULTURE AT THE NEXT CENSUS.

It will be suggested by United States Census Director Durand to the farmers all over the country that the work of securing accurate returns at the coming census of agriculture will be greatly facilitated if the farmers will keep or provide some sort of written record of their farm operations during the year 1909. This effort to secure the farmers' personal co-operation is but one of a number of ways and means chosen by Director Durand in the effort to secure an accurate, expeditious and economical census concerning population, agriculture, manufactures, mines and quarries which are the subjects of inquiry defined in the census law.

Director Durand believes that great good will be accomplished by getting into direct contact and co-operation with the farmers. Some of the instrumentalities which will be used by him and which promise practical results are the State Commissioners and State Boards of Agriculture, the State agricultural colleges, the agricultural experiment stations, the farmers' institutes, the farmers' unions, the Patrons of Husbandry and the State granges; in fact all the existing organizations for the education and betterment of the farmers. Added to these will be the daily newspapers, the country press and the farmers' publications.

Director Durand wants the farmers to keep books this year so that guess-work and recollections will be eliminated as far as possible from the thirteenth census and the farmers' organizations are coming to the front with cheering offers of co-operation toward producing a practical, useful and believable census of America's farm population, operations and wealth.

The Fresno Scraper



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FRESNO CALIFORNIA.

A Delightful Allegory

On the Uses of Farm Machines.

One of the most unique and interesting booklets on farm machines ever gotten out has just been issued by the International Harvester Company of America.

It is a beautiful little allegory in verse on the value and uses of modern farm implements, and is not less interesting for the story itself than its many fine pictures which are printed in colors.

The book is entitled "Glimpses of Thrift-Land," and from the start is on the border-line between the ideal and the real, notwithstanding the fact that it is dealing with so staid and substantial a subject as farm machines and implements.

As the story goes, Farmer Brown is engaged in making hay when suddenly there appears a mysterious character of military bearing, made up of corn, wheat, oats, alfalfa, etc., who announces that he is the Genius of Farm Thrift or "Prosperity," called "Prospy" for short. He tells Farmer Brown that his home is in the earth, but that he is charged with the high mission of pointing the way to better conditions in farm life, and asks the farmer to accompany him.

Wouldst have a glimpse
Of Thrift-Land fair—
The smiling land
With promise rare?
Take my right hand,
Your eyes shall see
Less toil and true
Prosperity.

The farmer consents and they go together to the realm of "Thrift-Land," where they meet another farmer who has made a fortune on his farm of ideal surroundings and who imparts to them the secrets of his great success. This takes them step by step over the whole range of modern farm machines and their necessity in getting best results from the farms. The farmer in Thrift-Land is an ideal farmer on an ideal farm and, of course, saves time and expense and preserves himself to enjoy in his old age his rapidly growing wealth by using the peerless I. H. C. farm machines and implements.

It is a fascinating little story, beautifully illustrated, and breathes the spirit of farm progress all the way through. We know our readers will be interested, both in the story and the moral it points. A copy may be had by writing for it to the International Harvester Company of America, Chicago, U. S. A.

The Company has also designed and has ready for distribution a beautiful monogram tie pin in gold, silver and bronze finish, suitable for the coat, scarf, etc. Or you can have a lapel button in gold finish only. One of these presents will be mailed to any reader of this paper who writes for it and who names one or more persons who is likely to be a buyer of a Cream Separator, Manure Spreader, Gasoline Engine, Wagon, Feed Grinder, Hay Press, Auto Buggy or Disk Harrow. You can write for the pin or lapel button when you write for "Glimpses of Thrift-Land." Both are sent postpaid. Don't forget to mention a possible buyer of a farm machine or implement if you want to receive the pin or lapel button. Addess "Prosperity," care International Harvester Company of America, Room 171, Harvester Building, Chicago, Illinois.

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Nearly every California ranch needs Gypsum. It corrects soil conditions, helps other fertilizers give better results and aid fertility in the soil. Alfalfa, grain, vegetable and fruit crops are greatly increased.

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Live Stock and Dairy.

SHORT COURSE IN ANIMAL INDUSTRY.

Last year many prosperous farmers were attracted to the Short Courses offered at the University Farm at Davis. A very instructive course was given along the line of animal industry and was largely attended. The course prepared for this year will be even more attractive. The work will be in charge of Professor Major and his two assistants, Mr. Howard Phillips and Mr. F. D. Hawk, graduates of the Iowa State Agricultural College, who have recently been added to the force of instructors. These young men were both members of winning teams in live stock judging and received individual honors in judging at the live stock shows held in Kansas City and Chicago, and come to the university highly recommended.

The Short Course in Animal Industry will begin November 1st, and continue until November 20th. The first week will be devoted to dairy stock and dairy interests. A course of lectures will be given on the various phases of dairying. The origin, history, importation and improvement of each breed will be studied, attention being paid to herd registry and to the register of merit. Selection, feeding, care and management from the standpoint of economical production of milk and butter fat will be discussed and practical work in judging dairy stock will be given each afternoon.

The second week will be devoted to cattle, sheep and swine. Lectures will be given on the origin, history and development of the different breeds; their place in our agriculture, a study of the different market classes, methods of feeding the breeding herd and methods used in feeding for the fat stock market. Two hours each afternoon will be given over to the judging of stock both from the breed and market standpoint.

The third week will be given to the subject of horses and mules and the lectures will include a discussion on the various breeds; their origin, history and adaptability to different soils and climates, the breeding, care and handling of the mare and the rearing of the colt, special attention being devoted to their feeding.

The last day of the course there will be a judging contest which will be open to all men under 25 years of age who have attended the course. A number of classes of live stock will be arranged for competitive judging and the student receiving the highest standing will be given a liberal award.

The foregoing is a part of the general offering of Short Courses at the university of which the following is the full schedule: Dairy Manufacture, eight weeks, October 4th to November 24th; Market Milk and Cream Supply, two weeks, October 11th to 23d; Irrigation, Fertilizers, Field and Forage Crops, two weeks, October 11th to 23d; Poultry Husbandry, two weeks, October 11th to 23d; Animal Industry and Veterinary Science, three weeks, November 1st to 19th; Horticulture, Viticulture, and Entomology, two weeks, November 1st to 13th; Farmer's Week, October 25th to 30th.

A NEW USE FOR PERSIARINOS.

Some months ago we gave the claims of Mr. C. J. Jones, of New Mexico, for some crosses he had made with the Persian fat-tail sheep upon the Merino and other breeds. Such crosses have been freely made in this State by C. P. Bailey & Sons, of San Jose, and probably by other California growers for the Persians came first to this State. Mr. Jones tells the American Sheepbreeder how he is establishing a new industry on his Persiarino cross-bred sheep: "My fleeces are being converted by the fair and deft hands of the Navajo maidens and squaws into Persiarino-Navajo rugs and blankets. I raise the wool and condition it for the loom, and the Navajo women weave it into the most beautiful rugs or blankets ever made. You know the Navajo women have become famous the world over for making the "Navajo blankets" from the wool of the low grade sheep of which the tribe owns several hundred thousand head. Blanket making is indeed the principal industry of these children of the plains and mountains (the female children). The industry of the braves is mainly confined to basking in the sunshine and lounging at the agency. Even these coarse wool fabrics with the rich colorings known only to the Indian women, have a charm about them not excelled by the more costly oriental rugs, and the Navajos are entering upon a phase of the industry that promises greater artistic triumphs than they have yet achieved. The Persiarino wool is finer fibered and many times stronger than the coarser, harsher Navajo wools, and makes an incomparably finer, softer blanket and rug than the fabrics they have for decades been making. Of course the new Persiarino-Navajo blanket or rug is a more costly one because of its lustre, delicacy of texture and immensely greater durability, for its real life is only well begun with a century of age and wear."

Mr. Jones claims also that he is breeding Persiarinos for their incomparable mutton quality.

MORE MONEY FOR LESS HORN.

One can get some side light on the question of dehorning stock from the greater value of bald animals in the Chicago market. The Breeder's Gazette tells of two droves of northern-bred steers of practically the same quality which were sent over the scales. One lot from South Dakota was taken to fill a New York order at $7 per cwt.; the other went to a local packer at $6.85. The 7 centers were dehorned, the others still wore these unnecessary weapons and were consequently ineligible for the shipping outlet. A competent buyer, who participated in the transaction, expressed the opinion that a shipper would have found the $6.85 cattle as cheap at $7.25, as were the others at $7, if they had been dehorned. The lesson was plain and easily learned. Western cattle are proverbially wild and when in transit inflict severe punishment on one another with their horns. This is especially the case when they are taken at Chicago for shipment on the hoof. A New York buyer bought a load of them last year says he could not be induced to repeat the experiment, as the beef was so badly bruised that it could not be sold for enough to pay first cost of the cattle.

"No Western breeder ought to permit a calf intended for maturing purposes to wear horns," said Henry DuPlan, a prominent buyer, "yet the dehorned steers we get from that quarter are the exception. Growers are striving to improve quality, but for some inexplicable reason neglect to take off the horns. That they would deliberately contract outlet channels for their product is strange and yet that is the result. These good steers the northwest, and especially Montana, has been sending to market would invite outside competition in a majority of cases but for the horn handicap. As it is, buyers take them rarely and then only to fill an urgent order, when nothing else is available, the price being invariably 25 to 35 cents lower than if they could load the stock with assurance that the beef would present an attractive appearance."

SHEEP AT THE ARIZONA STATION.

Prof. F. W. Wilson, who has charge of animal industry at the Arizona University and Experiment Station, gives an account of sheep trials at that institution.

The breeding flock now contains 106 two-year-old native ewes, 32 Tunis-Native ewes, two pure bred Tunis ewes, one pure bred Rambouillet ewe, one pure bred Shropshire ram, two pure bred Tunis rams, one pure bred Rambouillet ram, and 10 Tunis-Native rams. Five of the Tunis-Native ewes are now two years old, and four of them have produced lambs. This year's crop gives us 27 ewe lambs, eight ram lambs and 30 wether lambs of the Tunis-Native cross.

Since beginning breeding operations we have, unfortunately, lost several very valuable Eastern bred rams, due for the most part to the sheep botfly. These losses, however, show clearly the need of a particular type of sheep better adapted to the valleys of southern Arizona.

The Tunis-Native cross returns a good fleece of wool of longer staple than that

Warranted to Give Satisfaction.

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As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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Cocoa Cake or Meal Gives Best Results—Lowest Cost.

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Free Pamphlet "General Feeding Hints."

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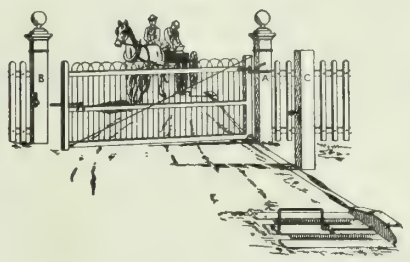
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Manufacturers and Proprietors.



20th CENTURY AUTOMATIC GATE

It adds to the beauty, value, convenience and safety of any home.

A. J. BLOOM

Petaluma, Cal.

DR. DANIELS' MEDICINES FOR Horses, Cattle, Hogs, Sheep, etc.



27 Horses die from Colic where one dies from Fire.

Why not insure against Colic?

Daniels' colic cure is SURE, SAFE and QUICK!

$1.00 per Package—20 cents cures a horse. At Dealers, etc.

Agents wanted in each town west of the Rocky Mountains.

A. T. ROCHE & CO.

166 Valencia St., San Francisco, Cal.



Can a horse pull more and pull it easier with a perfect fitting collar?

Can a man walk faster with perfect-fitting shoes than with shoes that hurt his feet?

Same answer applies to both questions.

If you can't buy our goods from your dealer, write and we'll see why.

P. SHARKEY & SON,

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USE HERCULES HARNESS SADDLES HORSE COLLARS

Made in California, guaranteed oak tanned, and cost no more than the nonguaranteed makes. If your dealer cannot supply you, write us direct for a price list. Manufactured solely by W. DAVIS & SONS, Wholesale Saddlery, 2040 to 2042 Howard st., San Francisco, Cal.

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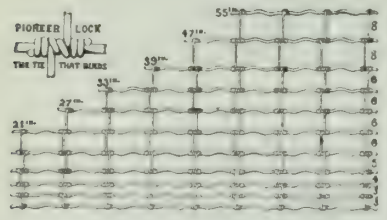
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from the Native dam, but somewhat shorter than that from the Tunis sire. There is more yolk in the fleece than was expected; but this fact may be attributed to the abundance of feed and the peculiar climatic conditions of southern irrigated valleys.

The Tunis-Native fleece is rather coarse, but has a long staple with a few long hairs. The wool is a decided improvement over that of the sire both in quality and in quantity, the fleece being a little heavier than that of the Native, produced under the same conditions.

The first cross of Tunis on the Native ewe produces a hardy, active, early maturing lamb that stands the warm weather well and produces a profitable quantity of wool. Out of more than 70 Tunis-Native lambs only two have been of the same type as the dam. This cross shows uniformity in conformation, in characteristics of the fleece, and in weight. At one year old the Tunis-Natives weigh on the average 105½ pounds, while the natives or common sheep, weigh 90 pounds.

MORE ABOUT MILCH GOATS.

We have in late issues done the fair thing by the most recent claimant for dairy fashion, the improved milch goat, and those who have become interested in the statements by California breeders will no doubt like to read farther. A recent Consular Report says that there have been numerous inquiries through the St. Gall consulate recently concerning Toggenburger goats and their importation from Switzerland into the United States, which leads Consul R. E. Mansfield to supply the following information:

This special milk-producing breed of goats comes from the canton of St. Gall, where they pasture upon the scant vegetation of the mountains and little valleys and thrive in the high altitudes. They are of medium size, of gray color, and rather long coat. The females are hornless, while the males have sharp curved horns. They produce their first offspring when one year old, sometimes younger. They occasionally breed twice a year, not infrequently producing twin kids, but frequent breeding impairs the strength of the animals and renders them less valuable for milking purposes.

The goats become milk producers after the birth of the first offspring, but do not attain their greatest capacity as milkers until about three years old. A good milk animal of the Toggenburg breed will produce from 150 to 200 gallons of milk in a year, some of them exceeding that figure. The milk is said to be especially desirable as food for children and for the manufacture of cheese.

Like most animals of their class, the Toggenburgers thrive where the ordinary animal would starve, which reduces the cost of maintenance to the minimum. Ordinary hill pasture during the summer, and bran, ground corn, or oil cakes, with a little fodder in the winter, is the feed usually provided for them in Switzerland. In order to obtain a plentiful supply of milk, they should be well housed in cold weather.

The goats are of a contented nature and mild disposition and are tractable, even the males seldom being vicious. They are hardy and will withstand almost any kind of changeable or severe climate. One experienced man can care for 40 or 50 animals in the winter when stabled, and double that number when on pasture. The flesh of the young goats makes good food. A kid from six weeks to two months old will produce from 12 to 20 pounds of meat, which is tender and brings good prices in the Swiss market.

COST AND METHODS OF SHIPMENT.—The price of milch goats varies according to age, quality, size, and the season when purchased. The best time to purchase is in the autumn when they are taken off pasture. The average price per head is as follows: Females, one to two years, $8.50 per head; two years and over, $10 per head; males, one to three years, $10 to $20 per head. The cost of exportation from Switzerland to the United States is about $29 per head.

In Switzerland goats do not take the place of cows as milk animals except in districts where there is insufficient pasturage for cows and where grain and fodder are very scarce and expensive. The fact that goats are prolific animals, sometimes producing two or more offsprings in one year, does not increase their value accordingly, for the reason that after the animals are a few months old the flesh is not desirable for food.

The chief obstacle in the way of importing Swiss goats into the United States is tne strict quarantine regulations maintained as a precaution against the introduction of the infectious foot-and-mouth disease. Dr. A. D. Melvin, chief of the Bureau of Animal Industry, makes the following statement in regard to the importation into this country of goats from Switzerland:

So long as foot-and-mouth disease exists among domestic animals in Switzerland it is not considered advisable by the Department of Agriculture to permit the importation into the United States of animals from Switzerland. Whenever that disease is finally eradicated the department will be pleased to arrange for the importation of live stock from Switzerland.

HOW TO GET EVEN WITH A BULL.

Mr. E. J. Bell gives the Denver Field his way of lying low and getting even with a bull. He says:

We first began to farm on the plains with the noble animal, the horse. We found it impossible to make a horse do the heavy plowing and in order to lessen its burden we bought a traction engine and then we believed our troubles were at an end. Not understanding the true management of the engine we found a little later that our troubles had just begun. It was the misrepresentation of the agents, who led us to believe that it would do ten times as much as it would do. Just at this time a friend told me it was economy to use old style oxen and so we started in and bought up oxen. This country was too modern for that class of work, so it became necessary for us to do business. So we turned in and bought all the old bulls in the country and the first step in making them useful for our purpose was to yoke them to a sled and let them break themselves.

One of my neighbors, a cattleman, sent word that he had a bull for sale. He put a very low price on him and I went up to see it. He said: "He is broke to lead and is well trained," but I didn't comprehend what that meant. I took him down home and yoked him up and put him in the sled but I soon saw he had a disposition like his former owner, so I stood a little clear of him. But when I came along in the yard I saw the chain was unhooked, so I stepped up to hook the chain and when I woke up I was eighteen feet from the sled. I examined myself for my nose and face and I thought it was gone and the next thing I discovered was two teeth missing.

So I got up and went to town to see a doctor. The doctor said, "Your nose and face are all right. You don't need a doctor, you need a dentist." So I went over to the dentist, who said: "You are in bad shape, Mr. Bell." I said, I am aware of that. "Just as soon as the impression of that bull's foot gets out of your mouth and I can take an impression with plaster paris, I will make you another set of teeth," said he.

The boys wanted to know if I wanted the critter killed. I said, I don't know wnat to do with him, but I will tell you what we did with him. We put him in between a leader and a wheeler. He was the most obstinate animal I ever saw, but if you have any kickers in your part of

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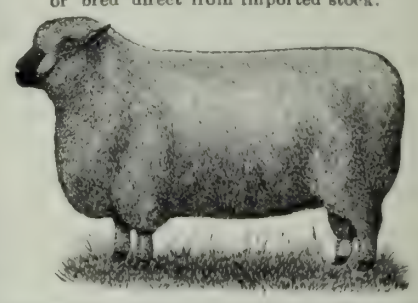
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JOHN LYNCH, breeder of Registered Shorthorns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

BULLS AND COWS FOR SALE—Shorthorne t Durhams. Address E. S. Driver, Antelope, Cal.

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BLUE BLOODED, ROUGH COATED SCOTCH COLLIE PUPPIES, perfectly marked in suble and white; stockworkers a specialty.
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the country that you don't know what to do with, send them over and I will make them leaders and wheelers and send them back in the fall, C. O. D.

THE GREAT PROBLEM OF DRAINAGE IN THE SAN JOAQUIN.

(Continued from page 329).

It is evident from the above that approximately 200,000 acres of land surrounding Fresno should be included in one drainage district. The drainage canals would extend from near Clovis at the head of the district to the discharge point in Fresno slough, a distance of over 30 miles. Of this distance, however, the last 10 miles would be outside the district and would be traversed only by the main discharge canal. It would be useless to attempt to plan a drainage system for this area until a complete and accurate survey is made, for until such information is at hand it would be impossible to arrive at a correct conclusion as to where the canals and laterals would necessarily be placed to serve the best purpose. It is probable that three main canals would be necessary to serve the country; one running in a southwesterly direction from near Clovis past the north side of the city of Fresno and serving also the country west of Fresno, and then running south to near the town of Raisin; a second canal commencing at the eastern boundary of the district and running west through the alkali belt south of Fresno and joining the first lateral near the town of Raisin; and a third running along the south side of the district, probably through the sand swales west of Selma and joining the other two canals. From the junction of the three canals a main discharge canal should be constructed to Fresno slough. The three main laterals would not be apt to carry an equal quantity of water because the middle lateral would doubtless have to carry the storm and waste water from the city of Fresno in addition to the drainage water from a considerable territory. These canals should be constructed so deep that the surface of the water in the canal when carrying the maximum flow should be at least seven feet below the surface of the land. Such a depth would be necessary in order that smaller laterals could have a gravity discharge into the main and still have the desired depth at all points. These smaller canals would be fed by tile systems laid in the fields, vineyards, and orchards in such a manner as to thoroughly drain all the land not influenced by the open canals. All surplus flow from the irrigation canals would be run through waste ways into the drain canals, thus doing away with one source of waterlogging.

The general slope of the country around Fresno is to the southwest, the grade being five to eight feet per mile in the district east of Fresno, about five feet per mile in the district south and southwest of Fresno, and about four feet per mile between the lower end of the district and Fresno slough. This slope is in excess of the grade necessary for the drainage canals and will doubtless permit of economical adjustment in the location of canals. It will permit also of a great saving in the main discharge canal from the foot of the district to Fresno slough, for since no drainage action will be required of the last 10 miles of canal the grade can be diminished and the cut gradually lessened until the minimum cost of excavation will be met in a surface canal to the slough.

As stated previously, a drainage system for this country would have to prevent a daily rise of 0.025 foot in the water table. Since the free-water capacity of this soil is 25 per cent of its volume, a drainage system should have sufficient capacity to remove 0.00625 foot per day. Assuming the area of the proposed district to be 200,000 acres, an average maximum daily flow of 1250 acre-feet, or approximately 638 cubic feet per second, will have to be carried by the drains during the early months of the year. It would not be necessary for the system to be of a uniform size to carry this amount, because the flow would gradually increase from a zero mark at the extreme upper end of the district to the full flow at the lower end of the district.

The cost of a proper drainage system can only be guessed at until surveys are made, and even then the estimates will necessarily be comparatively rough, because of the unknown difficulties to be encountered in excavating hardpan, caving of banks in the loose soil, and the flow of quicksand lying under the hardpan. Another doubtful factor is the readiness with which rights of way can be obtained for the canals, and the cost of the same. The acreage included in the district will have much to do with the unit cost of the work. An extensive excavation will offset the first cost of the dredges and other necessary machinery, and the per acre cost of the discharge canal from the district boundary to the slough will be lower for a larger area. The cost of excavating with the small dredges used in the Modesto and Turlock districts, where the soil conditions are similar to those of the Fresno district, has been at times as low as 3.5 cents per cubic yard, and it is reasonable to suppose that the larger dredges necessary for work on canals of the size demanded for the Fresno drainage would give even a less cost.

The following estimate of the cost of construction of a drainage system for an area of 200,000 acres is quite liberal in dimensions and costs and makes allowance for the presence of hardpan and other unforeseen expense:

APPROXIMATE COST OF DRAINAGE SYSTEM.

Excavation of main canal: Length, 60 miles, depth, 8 feet, average width, 30 feet, at 10 cents per cubic yard	$ 300,000
Main discharge canal: Length, 10 miles, depth and width varying, complete	25,000
Bridges, roads, and other structures	50,000
Tile drains and small laterals for 200,000 acres	1,200,000
Organization, management, and engineering—estimated 10 per cent of total cost	200,000
Rights of way and unforseen expenses	225,000
Total	$2,000,000
Average cost per acre	10

Even should the cost reach $15 per acre, the benefits to be derived from draining the country around Fresno would be worth several times this amount.

The result of drainage throughout the world has shown it to be one of the most profitable investments which can be made to improve the land.

[The report also discusses in detail conditions in the Modesto-Turlock district, and outlines the investigation needed to develop a system of drainage for that district.—EDITOR].

An interesting series of tests to ascertain the value of gum tree timber for furniture and other purposes is being made at Newark, Alameda county, by United States Government officials. Both the red and blue varieties are being subjected to the test in order to ascertain their seasoning qualities and also as to the best method of seasoning the wood. Each month the timber, which was cut last spring, is weighed, both with the bark left on and with the bark stripped.

According to Otto Scholtz of Chico, a plant can be built at moderate cost to make vast quantities of delicious syrup from wine grapes. He claims for the syrup that it will be far above the average because it retains the grape flavor. By using grapes for this purpose, Mr. Scholtz says the grower would be sure of from $12 to $14 per ton.

The Stockton Vineyards Co. has added 900 acres of land to their holdings in the South San Joaquin district. The new acreage will be placed under irrigation, as the company has found that the yield this season on other lands under water was much better both in quality and quantity.

It would seem that vinegar making was a paying industry. The Petaluma vinegar factory is anxiously looking for apples as orders for vinegar are heavy and unless more fruit can be secured it will not be able to manufacture the quantity needed.

The twelfth semi-annual meeting of the Counties Promotion Committee will be held at Visalia, Saturday, November 13. The principal subject to be discussed will be "Horticulture in California."

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will exhaust even the richest soils unless replenished by the use of fertilizers.

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From one acre up. Improved or un-improved, $100 acre up. One-fifth or less down, balance long time. On the electric line. Rural mail, School, near town. See my ad in Sunday's Examiner. Send stamp for list. Write to Sebastopol. Office: Hessel Station, Between Petaluma and Sebastopol.

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Perfectly simple, safe and cheap. Burns distillate, furnishes steady, free flame, and easy to manage as brooder heater or stove. Write for details.

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PRICES:

1½ inch 25 for $1.00; 50 for $1.50; 100 for $2.00; 1000 for $15.00.
2 inch 25 for $1.25; 50 for $1.75; 100 for $2.50; 1000 for $17.50.
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Do you want a Chicken Ranch where Chicken Ranches Pay?

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C. R. WINFIELD,

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The Poultry Yard.

THE MOLTING SEASON.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

Feathers flying in the air and bunched in fence corners; a daily drop in the egg yield and a corresponding rise in egg quotations, are signs conclusive that biddy is getting herself a new suit. This is a pretty exhaustive form of dressmaking, and a more general knowledge of the laws governing the molting of fowl and of their requirements would be greatly to the advantage of poultry and poultry keepers.

That fowls "shed" once a year or oftener, the poultry keeper is well aware and he is quite sure that they are longer than necessary about the job, while with the usual hen perversity they hit upon the very time when eggs is eggs. And small is the consideration the "loafers" are likely to get. One cause of the rank injustice meted out to molting hens comes through assertions too common in the poultry press to the effect that the right kind of hens will lay through the molt; also that from six to eight weeks are sufficient time for the process. The conclusion naturally follows that hens which not only refuse to lay during the molt but fail to make good after a two months' lay-off are not worth their keep. Through the experiments conducted for the past two years at the Cornell Station, poultrymen now have something definite on the subject. The average time in the general flock for completing the molt was found to be 95 days, the yearlings molting in 82 days, the two-year-old in 101 days, and the three-year-old in 104 days. When it is considered that the hens at the station were kept under good conditions and fed suitable rations for feather-making, one can hardly expect the hen in the ordinary poultry yard to make nearly so good time. These facts should make the poultry keeper more patient and just with his molters. If he wants his hens to get through the molt as soon as may be and put in a profitable laying season, he must make the conditions the best possible for them instead of neglecting and berating them for their worthlessness.

Though molting is a natural function and seems a simple process for the hen of strong vitality under fair conditions, it is a critical period for the hen weak of constitution, ill-conditioned or run down. All kinds of diseases may be developed in such weakened fowls about the time they go into the molt. In the late summer and early autumn there will be ailing fowls and a percentage of loss in even the best conditioned yard. The poultry keeper should watch his flock closely at this season and cull out the birds which begin to show a lack of stamina, and market all hens to be disposed of as soon as they begin to drop feathers freely. Give the fowls to be retained extra care; allow a larger proportion of meat in the mash and add linseed meal, about one-fourth the amount of the bran used in the mash; in addition to the salt with which the mash should always be seasoned put in some finely chopped red pepper pods. Pen the molters by themselves and away from male birds, and see to it that their quarters are free of insect pests. Green feed and nitrogenous or meat foods are the principal requirements of molting fowl and they usually have little appetite for other kinds of feed. The kind of food they crave is the kind they need; supply it liberally. This is the only rational method of hastening the molt.

It is not good policy to dispose of the vigorous yearling hens, especially those of the laying breeds. With good care and feed they will lay almost as many eggs as in their pullet year; the eggs will be larger and for breeding purposes will be at their best.

The most disheartening time for the egg farmer is apt to be after his hens have completed the molt. There is usually considerable time after the hen is fully feathered before she gets down to business, and the earlier she molts the longer this time is likely to be. In vain her owner listens for her cheerful cackle while eggs are 50 and 60 cents per dozen, but not till the bottom drops out of the market along in January or February does she make a deposit. This long rest after the molt is nature's intent. The hen is recouping and awaiting the quickening influences of spring. It is likewise often due to fowls not being properly nourished through the molt. The hen is exhausted or she is overfat from having to depend upon carbonaceous foods where nitrogenous material was required. To shorten this period of non-production and secure the winter egg we must supply some of the quickening influences used by Mother Nature. We must make the hen comfortable and encourage her to scratch, give plenty of meat and green feed—bugs and tender grass is what the spring provides—and it is thus that we may get the winter egg.

Poultry Notes.

AN EGG-LAYING COMPETITION. — The poultrymen of Washington are agitating the subject of a contest similar to the one held in Australia to be held at some central point in the northwest. Replying to a letter asking his supervision in case the effort proves successful, Prof. James Dryden, of the Oregon Agricultural College, says: "I believe a contest such as you speak of would be one of the most popular things that could be done to boost the poultry industry in this country. The question of finances is probably the most serious. I haven't the least doubt that the money would be forthcoming if the matter was properly laid before the people interested in the different States, but that will take time and work. I am willing to give my services to it, and possibly some money, but if we undertake the work here and it fails I don't want it to be because of 'insufficient capital.' In taking a year to prepare, raising funds, agreeing on methods of procedure, keeping the matter before the people throughout the year, we would be doing good work and stimulating an interest in the industry as a whole, and could begin next year with a well conceived plan."

VALUE OF SUCH COMPETITIONS.—In his official report, Prof. Laurie, in charge of the noted Australian contest at Roseworthy Agricultural College, writes: "The widespread interest in our laying competitions is resulting in a general spread of knowledge on the subject. The world-wide celebrity of our laying records shows that these competitions serve as a fine advertisement for the State. A few years ago the opinion generally held by poultry breeders was to the effect that no practical results would accrue from the continuation of egg-laying competitions. It was stated that all breeders knew that laying was a question of strain rather than breed. Later experience, however, has shown that these competitions are of great educational value, and are doing good work in a manner not generally anticipated. It may also be stated that whereas a few breeders and authorities may be quite convinced that laying is a matter of strain only and not of breed, it still remains that the average poultry breeder is not convinced of that fact. Two years ago it was thought that the days of laying competitions, in this State at least, were numbered. That the reverse is the case may be gathered from the fact that for the 1909-10 competition, to start April 1, 1909, there are 115 pens entered as against 56 in that now under review. Further than this, I know of many breeders who are even now preparing for next breeding season to produce competitors in the 1910-11 test. To compete in a test such as is conducted at this Experiment Station, a breeder must hatch and rear a fair number of chickens in order to have sufficient pullets from which to select his team and to retain a few of equal quality, age, etc., for emergencies. To have any chance of success, not only must the pullets be of a good laying strain, but, in addition, they must be hatched at the right time and fed and housed to the best advantage. Pullets which are too forward, and have laid a number of eggs before being forwarded to the competition will probably suffer a check and go into a heavy molt—in any case they will have laid a number of eggs for which they will get no credit. Then if they are late hatched, or badly fed, they will not be ready at the appointed date, and will lose valuable time before making a start. Our best average performances are of such a character that no breeder, however good his birds, can risk delays of this sort. At the present time there are many breeders who are learning the proper methods of feeding and rearing, and also the importance of exercise and rigid culling in the production of high-class layers. To bred from a hen, and in turn from her progeny, because the old hen was a great layer is not the common rule here. Our best breeders make constitution and stamina points of equal value with mere egg production. In such yards the process of selection for breeding is rigid and continuous. No weaklings, no poor doers, no sleepy inactive birds are permitted to survive. These breeders know that without stamina, constitution and vigor the progress of the strain and its egg production will be uncertain. The greatest care is taken in selecting the sexes to keep them characteristic, and to have them of the best. The methods of those breeders who are making good records are becoming known and adopted by hundreds of others, to the general benefit of the poultry industry."

It will be remembered that Australia is on the other side of the equator and that April the 1st corresponds with October the 1st on our side. Our competition would begin at the latter date. The Pacific Coast has the climate and we believe the hens. If we have the breeders who will work together for an egg-laying competition, we can give Australia a run for her world's egg-laying record.

A MOTHERLY BIRD.—R. S. Himes, of Melrose, reports a kindly deed of one of his Plymouth Rock hens. This hen was lamed while foraging in the stableyard and he placed her in the garden enclosure, where there was a mother hen with a brood of young chicks. The night that Mr. Himes forgot to close the coop of his hen and chicks was the one that a varmint happened along. It snatched off the brooding hen and vamosed before he got to the seat of trouble, thus leaving the chicks motherless. To his great surprise the lame hen which was roosting near gathered the yapping orphans under her and continued to brood and care for them as if they were her own clutch.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

COTTONWOOD FARM, Pleasant Grove, Cal. Bees, Chickens, Geese, Hares, Pigeons, Turkeys.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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But whisper it today.
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May haunt you if you wait?
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Before it is too late.

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The letters never sent,
The long forgotten messages,
The wealth of love unspent—
For these some hearts are breaking,
For these some loved ones wait;
So show them that you care for them
Before it is too late.

Pulling the Wrong Straw.

"Oh, Gregg, there must be a lot of wild flowers under those trees yonder."

"Oh, Lucretia, there must be a lot of pickerel in the creek back of those same trees."

"What a tease you are. And what a pity you didn't bring your rod and line and things."

"I might try a spool of thread and a bent pin if you happen to have those articles about you."

Both laughed and the girl looked wistfully toward the spot she had indicated.

It was a little patch of wood with great boulders looming between the lofty pine trees. Beyond it a narrow stream tumbled down a rocky declivity, and so into a quiet channel at the bottom of a ravine with steep bushy banks.

"I'm just hankering, my very soul is yearning for a few Johnny-jump-ups," said the girl.

"All right. We'll meander over there," her companion replied. "I reckon the auto will be safe enough here by the roadside. We shall be late at your sister's house very likely, but if they attempt to blame me for it, I can exonerate myself by telling them that you tempted me."

"Oh, that's a foregone conclusion. Women have been doomed to bear the sinner's burden ever since the tragedy of Eden."

They scaled the low stone fence and started across a strip of pasture which divided the highway and the wood.

"I'll shift the burden to my own shoulders; I'll bear all the burdens of every sort, size and degree as long as we both live if you'll trust me with the job, Lucretia."

"Don't be foolish, dear boy."

"Is there another fellow in the case? Is it Ben Ainslie or Andy Montrey?"

"Both—neither—or, I can't choose between them because both are so—so—so delightful."

"If you can't choose between them it's evident you don't love either."

"Oh, well, that doesn't matter. A girl ought to marry the man who loves her best, whether she cares for him or not, don't you know."

"That is the selfish woman's creed, and you are not selfish."

"Oh, am I not, though? I'm the most selfish, sordid, greedy creature on earth."

"I'll risk it. And I love you more dearly and more faithfully than either of those two other chaps."

"Ah—um—assertion isn't proof, dear boy."

"Well, love is like religion, dear girl; it can't exist without faith."

But they had reached the edge of the little wood, and at that juncture Lucretia espied a slope which was all agleam with the gold and azure of wild violets.

Love and lovers were put entirely out of her mind by the sight of the coveted flowers.

She dropped on her knees among the scented blossoms, and for a moment Gregg stood looking at her in silence.

Then a sudden idea seemed to flash through his brain, for with a start he began to rummage his coat pockets.

Presently he unearthed a small box containing a fishing line and a number of ordinary hooks.

"I thought I had it about me somewhere. I'm lucky that I didn't happen to meet the kid for whom I bought it," he remarked to himself.

With his jack-knife he cut a long elastic branch from a hickory sapling, and trimmed it bare of twigs. Then he overturned a large stone and collected a quantity of earth worms for bait. And so in a few minutes he had equipped himself for angling in the old-fashioned style.

"I don't want any spools of thread and crooked pins from you now," he called to Lucretia, "and I'll bet you the kisses that I'll catch a pickerel."

"I don't gamble for kisses, thank you," said Lucretia, pouting. "But I d like to go with you, though."

"All right. Come along," said he, chuckling.

It needed only a few seconds to reach the steep bank of the creek; and they stopped on a projecting point of turfy ground where they could look straight down into the pools and shallows some thirty feet below them.

"How will you get down to the water?" Lucretia asked as she stared dubiously at the bushy wall, which seemed almost perpendicular.

"I might turn a couple of somersaults; I don't perceive any quicker method," he answered.

Just then they heard some person talking, and they looked down to see two young men lounging on a grassy rock at the water's edge directly beneath them, and resting apparently after a day's angling.

Lucretia and her companion exchanged a curious smile.

For the two anglers below were Ben Ainslie and Andy Montrey.

The conversation of the latter was distinctly audible to the other two who were standing on the edge of the bank above.

"We mustn't let a woman spoil our friendship, old chum," Ainslie was saying.

"No woman's love is worth a man's friendship, old chap," Montrey replied scornfully.

"It's queer," Ainslie resumed as he lighted a cigar, "that we never before suspected each other of dangling after the same frock."

"I wouldn't have suspected it now," Montrey rejoined, "if you hadn't been so crazy about getting down here with her sister's house party. And I tell you, old chap, it rattled me for a minute."

Lucretia's cheeks flamed a sudden scarlet, and she stepped hastily back from the edge of the bank.

Gregg shook his head at her with a wink of fun, and held her fast.

"Let me loose, I won't listen," she protested angrily.

"Put your fingers in your ears then," said Gregg, grinning and holding her yet more tightly.

"You're a—a—a—" she began furiously.

"A brute," he finished cheerfully as she stammered and paused.

They had missed some of the interesting dialogue during that little digression.

"We want to settle it without any unpleasant feeling," Ainslie was saying now.

"I have a capital idea, old chap," said Montrey. "We'll draw lots for the lady. Here are some scattered straws which will be just the thing. The one who draws the short straw resigns the adorable Lucretia."

"I'll agree to that. Let's shake, chummy," the other responded.

They shook hands. Then they arranged the fateful straws, and each drew one.

Montrey was the loser.

"That settles it. I'll hike back to town by the earliest train in the morning," Montrey declared.

"You needn't be discouraged," the other said generously. "The lady may not care for me, and you'll get your chance after all."

Lucretia wrenched herself loose from her companion's relentless hold and started indignantly away.

With a chuckle, Gregg followed her.

He had forgotten hook and rod; he no longer remembered that there were big pickerel swimming uncaught in the shallows below.

Lucretia went straight through the wood and across the pasture.

She had climbed into the automobile when Gregg overtook her.

Neither spoke until they had traveled some little distance along the green country road.

"You haven't brought your violets, Lucretia," he ventured to remark at length.

"I have brought some knowledge which will be more profitable to me, though," she replied crossly.

"Surely you're not displeased with those two excellent young men?" Gregg queried in a solemn voice. "Can a man do anything grander or more heroic than to resign his beloved to his friend? Didn't you desire a proof of love, rather than the mere valueless assertion? And can a lover prove it by a more sublimely unique method than by drawing lots—by pulling straws?"

"I don't propose to let anybody put me on a level with a raffle prize or a lottery ticket," she retorted furiously. "And those two impu—— Well, they both pulled the wrong straw—that's all."

Gregg was too wise to smile. There was a long silence before he dared to utter a syllable farther.

"Why don't you center your affections on a nice unassuming fellow like me, Lucretia? Can't you learn to love me after awhile?" he asked at length.

She flashed a lightning glance at him from under her lashes.

"I've loved you always, you horrid, grinning tease. But, oh, George, won't you please drive back to the woods so I can get my violets?" she answered.

"I'll do anything on earth for you, sweet. And I'm eternally grateful to those other chaps who pulled straws for my benefit," Gregg remarked with a wink and a hug.—*Alice Dale.*

All Profit.

"No use of talking," drawled the freckled youth on the roadside fence, "thar' certainly is money in cattle."

"In the stock raising business, young man?" asked the tourist.

"No, not exactly, but an automobile ran over that spotted calf a few minutes ago and the man with the big spectacles over his eyes got out and handed me a $5 note.

"Five dollars? That's not so much for a good sized calf."

"Yes, but, mister, the calf wasn't mine. Now, if I can only stand in front of another calf while he gets run over I'll be right in it, be gosh."—Chicago News.

"You must onjoy seeing nature in all its beauty," said the boarder.

"Well," answered Farmer Corntossel, "I hear you folks talkin' 'bout the beauty of nature, an' I try to git enthusiastic along with you. But I want to tell you that viewin' nature on a winter mornin' before sun-up is a good deal like seein' the women folks at breakfast afore they git their hair out o' curl paper."—*Washington Star.*

"When a man talks about luck," said Uncle Eben, "he nearly allus means hard luck. 'Cause when he's prosperous he's gwinter take all de credit foh his own smahtness."—Washington Star.

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THE MARKETS.

San Francisco, Oct. 6, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

A fair movement is taking place in the local market, with a good inquiry from the milling interests, and shipments from the Northern grain centers are arriving steadily. Several foreign cargoes have cleared from Northern ports in the last week. California Club and Sonora are bringing a little better prices, but white Australian is quoted lower. Northern bluestem is steadily held, but other grades are lower.

California Club	$1.70	@1.75
Sonora	1.75	@1.82½
White Australian	1.80	@1.90
Northern Club	1.60	@1.62½
Northern Bluestem	1.80	@1.82½
Russian Red	1.57½	@1.60
Turkey Red	1.72½	@1.77½

BARLEY.

Prices remain as last quoted on all grades. Shipping grain continues to move fairly well in the interior, with occasional cargoes leaving for foreign ports, but the local market shows no great activity on either feed or brewing grain. The arrivals have been moderate.

Brewing	$1.37½	@1.40
Shipping	1.40	@1.42½
Chevalier	Nominal	
Good to Choice Feed, per ctl.	1.35	@1.37½
Common Feed	1.30	@1.32½

OATS.

Arrivals have been quite large of late, and on some grades considerable pressure to sell has developed. The immediate requirements here are small, and so far there has been little speculative demand. The market is accordingly rather weak, and while reds and blacks are still held at former quotations, both white and gray oats are 5 cents lower.

White, per ctl.	$1.55	@1.60
New Red, choice	1.60	@1.70
Common	1.50	@1.60
Red, seed	1.90	@2.10
Black	2.35	@2.70
Gray	1.55	@1.60

CORN.

Arrivals of this grain for the last month have been very light locally, and the stock on hand is extremely small, but in view of the limited nature of the current demand there is no scarcity. Prices are unchanged on local grades, but the Western grades in bulk are quoted a little higher.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.68
Mixed, in bulk		1.66
White, in bulk		1.73

RYE.

No business of any consequence is being done in this grain, but a few small transactions have been reported at the quoted range of prices. Western grain is a little higher than formerly quoted, but is less strongly held than local grain.

Rye, per ctl.	$1.80	@1.85

BEANS.

The rains of the past week have interrupted the bean harvest, and shipments to this market have been very light. Reports from the valley indicate extensive damage to the crop in some districts, but local dealers believe that the injury will be confined to small lots. It is expected, however, to cause the marketing of numerous lots of low-grade beans. Dealers still report an extensive inquiry for shipment, without much business as yet, owing to the reluctance of outside buyers to pay the prevailing prices. Reports of a large harvest in the East also tend to depress the market. The supply on hand is much lower than usual at this time of year, but very large arrivals are looked for in the next few weeks.

Bayos, per ctl.	$3.60	@3.75
Blackeyes	3.75	@3.90
Cranberry Beans	3.25	@3.50
Garvanos	2.60	@2.80
Horse Beans	1.50	@2.25
Small Whites	4.00	@4.25
Large Whites	3.00	@3.25
Limas	4.00	@4.10
Pea	Nominal	
Pink	3.00	@3.20
Red	Nominal	
Red Kidneys	3.65	@3.85

SEEDS.

Prices show little change, though some descriptions are a little stronger, and the entire market is firm. The demand is beginning to increase, and quite an active movement is anticipated during the next few months.

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb		4 c
Canary	4¼	@ 4½c
Flaxseed		4 c
Hemp	3¾	@ 4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

Millmen report trade of about average proportions, but business has for some time been confined almost entirely to local requirements, and so far the large consumers are not buying much in advance. It is believed in many quarters, however, that prices will not go much lower, and that there will be a marked advance later in the season.

Cal. Family Extras	$6.20	@6.60
Bakers' Extras	6.20	@6.60
Superfine	5.10	@5.30
Oregon and Washington	5.30	@5.50

HAY.

Quotations have undergone no change whatever in the last week. The arrivals have been much smaller than last week, the decrease amounting to almost 2000 tons. The total September arrivals, however, were almost as large as for August. The stock unstored has been pretty well cleaned up, but liberal quantities are being shipped forward from the country, in view of a strong demand for the better grades. The local consumption has increased considerably in the last few weeks, and the tone of the market is becoming more satisfactory.

Choice Wheat, per ton	$18.00	@20.00
Other Grade Wheat	12.00	@17.00
Wheat and Oats	13.50	@16.50
Tame Oat	13.50	@17.00
Barley	10.00	@13.00
Wild Oat	10.00	@12.50
Alfalfa	9.00	@12.50
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 70c

MILLSTUFFS.

The leading millstuffs are coming in from the north in sufficient quantities to supply the deficiency in the local market, and prices on these lines are unchanged, the demand remaining about as before. Owing to the continued easiness of feed barley, rolled barley is lower, and cracked corn and corn meal also show some decline. Mixed feeds are held at higher prices.

Alfalfa Meal, or mealfalfa, per ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	25.00	@26.00
Corn Meal	38.00	@39.00
Cracked Corn	39.00	@40.00
Middlings	36.50	@37.50
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	39.50	@41.00
Rolled Barley	29.00	@30.00
Shorts	31.50	@33.00

VEGETABLES.

There is a rather better feeling in onions, as arrivals have been moderate and some the the surplus stock has been moved off, bringing better prices. Miscellaneous lines are in better demand than last week, and arrivals are beginning to decline, causing a stronger feeling in prices. Green corn is considerably higher, as is okra, while string beans show a slight advance. Green peppers, cucumbers and summer squash are held at former rates. The egg plant coming in is mostly poor, and finds little demand at low prices. Tomatoes are being rushed to market on account of the rains, and are even lower than before, the canners taking up most of the surplus. Turnips are fairly plentiful and lower.

Onions—New yellow, per ctl.	70	@ 80c
Garlic, per lb.	4	@ 5c
Green Peas, per lb	3	@ 5c
String Beans, per lb	3	@ 5c
Lima Beans, per lb	5	@ 6c
Tomatoes, per box	25	@ 50c
Green Peppers, per box	50	@ 75c
Green Corn, per sack	1.25	@ 1.75
Summer Squash, large box	50	@ 75c
Turnips, per sack		1.00
Cucumbers, large box	50	@ 75c
Pickle Cucumbers, per box	75c	@ 1.00
Egg Plant, per box	35	@ 60c
Okra, per box	60	@ 75c

POULTRY.

Four cars of Western stock have come in this week, keeping the market well supplied, and only the best offerings of local poultry have received any attention. The demand has been fairly good, however, and while there is a little easier tendency in some lines, prices are pretty well maintained. Small hens and roosters are a little lower. Moderate shipments of turkeys continue to arrive, but find only a limited market at the quotations.

Broilers	$ 4.50	@ 5.00
Small Broilers	3.00	@ 4.00
Fryers	5.50	@ 6.50
Hens, extra	8.00	@10.00
Hens, per doz	6.50	@ 7.00
Small Hens	4.50	@ 5.00
Old Roosters		4.50
Young Roosters	7.00	@ 7.50
Young Roosters, full grown	8.00	@10.00
Pigeons		1.25
Squabs		2.50
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50
Spring Turkeys, per lb	24	@ 26c
Gobblers, live	18	@ 21c

BUTTER.

The firmness on butter continues, with general scarcity of upper-grade stock in the hands of receivers, and extras have advanced steadily since last report, standing now 3 cents higher than last week. Firsts and seconds are firm and in good demand, though these grades have not advanced recently. Packing stock is no longer quoted. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb	35½c
Firsts	30 c
Seconds	28½c

EGGS.

The advance on the upper grades this week has been quite marked, and dealers report a general scarcity of extras. Arrivals have been very light, and the market is kept well cleaned up, the price having advanced 4½ cents. Firsts show a still greater advance, amounting to 9 cents, and are in strong demand owing to the scarcity of extras.

California (extras), per doz	48 c
Firsts	43 c
Seconds	30 c
Firsts	43 c

CHEESE.

An easier tendency has developed in local flats, which find no heavy demand at the moment and are selling at slightly lower prices for both fancy and firsts. Local Y. A.'s, however, are higher. Oregon and Eastern cheese is in about average supply, and unchanged as to price.

Fancy California Flats, per lb.	15 c
Firsts	14½c
New Young Americas, fancy	16½c
Oregon Flats	16 c
Oregon Young Americas	17 c
N. Y., fancy	18½c

POTATOES.

According to Oregon estimates, the crop there is heavy and prices for the season are likely to be low. Arrivals from that source in this market have so far been moderate, and while the Oregon stock is quoted a little lower prices on local descriptions are well sustained.

Potatoes—River Whites	60	@ 80c
Salinas Burbanks	$ 1.25	@ 1.50
Oregon Burbanks	1.10	@ 1.15
Sweet Potatoes, ctl.	1.50	@ 1.65

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FRESH FRUITS.

Prunes and plums are no longer coming in, and the market has been about cleaned up. Peaches are still arriving, but not in any quantity, and only the best lots find any market. Figs will also be out of the market shortly. Few cantaloupes are now to be had, and watermelons have been pressed for sale at irregular prices, though nutmegs are still to be had at a slight advance. Blackberries are also about out, though raspberries and strawberries are selling at good prices. Several lots of Cape Cod cranberries have arrived, and are held at quotations. Grapes are in better demand, and bring higher prices in spite of more or less damage. Fancy apples are quite strong, but common fruit is weak. Bartlett pears are higher, and Winter Nelis are offered at firm prices. Quinces and pomegranates are unchanged.

Melons, Nutmeg, per box	50	@ 85c
Raspberries, per chest	4.00	@ 5.00
Cranberries, per bbl.	9.50	@10.00
Strawberries	2.50	@ 4.00
Huckleberries, per lb	7½	@ 10c
Grapes, per crate	40	@ 75c
Lug boxes	60c	@ 1.25
Wine Grapes, per ton	9.00	@15.00
Apples—		
Fancy, per box	1.00	@ 1.50
Common	50	@ 90c
Figs, per box	50c	@ 1.00
Peaches, per box	40	@ 75c
Pears—Bartletts, No. 1, box	1.75	@ 1.85
Winter Nelis	1.00	@ 1.25
Other varieties	50c	@ 1.00
Quinces, per box	50	@ 75c
Pomegranates, small box	50	@ 75c

CITRUS FRUITS.

Valencia oranges are higher, and arrivals are very moderate. The navel shipments are expected to begin earlier than usual. Grape fruit is higher, and limes have also advanced, but lemons show no change since last report.

Choice Lemons	$ 3.00	@ 3.50
Fancy Lemons	4.00	@ 5.00
Standard	1.50	@ 2.50
Limes	6.00	@ 6.50
Oranges, Valencias	2.25	@ 3.50
Grape Fruit	2.50	@ 3.50

DRIED FRUITS.

The general condition of the market shows comparatively little change, most descriptions of fruits remaining quite firm and in good demand. The packers are actively in the market for peaches, which show something of an upward tendency, though prices show no further advance. Prunes are also somewhat firmer, and it is reported that there have been considerable losses in some sections on account of the rain. The Eastern market is active and firm. Spot fruit is said to be very scarce in the East, with more active buying by jobbing interests in nearly all lines. Locally, apples continue fairly active. Raisins are still in a very uncertain position, with little strength in any market, and Eastern buyers generally continue to hold off until they have more assurance of the stability of prices. Local packers are buying to some extent, but are acting very conservatively. No definite information has yet been received regarding the extent of damage by the rains.

Evaporated Apples, per lb		7½c
Figs, black, new crop		2 c
Figs, white, new crop		2¼c
Apricots, new crop	8½	@ 9 c
Peaches, new crop	4½	@ 4¾ c
Prunes, 4-size basis	2¼	@ 2½c
Pears	6	@ 8 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2	@ 2¼c
Thompson Seedless		2 c
Seedless Sultanas		1¾c
London Layers, 3 crown	85	@ 95c

NUTS.

The walnut harvest is now actively under way, and dealers are anxious to obtain the new stock, as the market has been practically bare for some time. Most of the new crop has been secured by the larger dealers, and will be brought forward as soon as possible. The supply is expected to meet with ready sale in the Coast markets. New almonds are now moving freely, and stock in growers' hands has been about cleaned up.

Almonds (new crop)—	
Nonpareils	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7½c

HONEY.

Conditions show little change in the local market, the movement being very light. While there is a fair demand, most dealers consider the prices too high, though sales of comb have been reported at slightly above the former quotation. The prices given are current in the local market, those obtainable by growers being generally lower.

Comb	10	@14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

Hops remain very firm locally, with a further advance reported, and prices have advanced sharply in foreign markets. The market, however, is still comparatively slow here, as a large proportion of the crop has been taken out of growers' hands, and dealers are holding out for top prices.

Hops, Old, per lb	12	@16 c
New crop	20	@25 c

WOOL.

Some of the northern clip is now being marketed, and offerings of good quality are held at fairly firm prices. The local buyers, however, are taking only a moderate interest in the fall clip, and southern stock is for the most part neglected.

Fall clip, Northern Free	12	@15 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

Dressed meats show no change since last report. Live cows and heifers, and live wethers are a little higher, with a steady market. Hogs are unchanged, and show less weakness than for some time past. A heavy demand for sheep is reported in the northern part of the State, with light stocks on hand and high prices asked for choice stock.

Beef: Steers, per lb	6½	@ 7½c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal	7½	@10½c
Mutton: Wethers	8	@ 9 c
Ewes	7½	@ 8 c
Lambs	9½	@10½c
Hogs, dressed	9	@11½c

LIVESTOCK.

Steers: No. 1	4	@ 4½c
No. 2		3¾c
Cows and Heifers: No. 1	3⅜	@ 3½c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5¼c
Medium		4¾c
Heavy	4	@ 4¼c
Sheep: Wethers	4½	@ 4¾c
Ewes		3¾c
Lambs	5¼	@ 5½c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs.		7¼c
250 to 325 lbs.		6¾c
Common Hogs, lb	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., October 5.—The shipments keep up to the 30 car a day mark for oranges and the prices East are about the same as for some time. The strength or weakness manifested from day to day are due wholly to local conditions and there has been no general change in conditions either way. This probably will not last long. If shipments do not decrease materially, the prospects are that when the new Floridas begin to come in the poorer quality Valencias will be neglected entirely and only the very best sell at good figures. Asking prices out here are just that same as for the past two months, and with very few orders, the holders of the best stock preferring to play the auction rather than sell for that money, and as the poor stock gets very few offers at any price, it also must take a chance in the East.

New crop navels are coming along finely in the north and sizes are larger than at this time last year. The crop is conceded to be small per tree, but the increased acreage may bring up the total output enough so that the entire output will be larger than for last year. The opening prices last year on the first cars was $2.50, with an occasional car selling up to $2.75. The price quickly dropped to $2.00 a box and went lower before the season closed.

Southern navels are larger than common and it now looks as though the season would be earlier than last year. Faint traces of color are to be seen on the na-

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vels in the earlier districts and the average diameter of the fruit is about two inches and a quarter at this writing. The growers are taking 2c. a pound for fruit delivered at the packing house for Christmas shipment, but the shippers say that their ideas are too high and that such a price would not be warranted except, perhaps, on Christmas cars from the Redlands-Highland section.

There are not enough lemons in California to make a market, but such few cars as are being sold, are bringing $4.00 a box, f. o. b., for fresh cut stock. Growers are claiming that the coming lemon crop will be lighter than that of last year.

The citrus fruit shipments to date have been 31,265 cars of oranges and 6036 cars of lemons. To same time last season the output was 24,352 cars of oranges and 4635 cars of lemons.

Deciduous Market Report.

According to the reports by the California Fruit Distributors at Sacramento, the shipments of fruit to Eastern markets for the season is nearing the end. Up to October 5th there had been shipped 11,620 cars, as against 9967 cars to same date last year. The price of grapes last week was lower in the East, though the market was getting in better shape.

WEEKLY LETTER.

Sacramento, Cal., October 5.—The following gives the number of cars of deciduous fruits shipped to all points by all members of this company for the week (7 days), ending Monday night, October 4, 1909.

Pears, 28 cars: The shipment of this fruit has been somewhat more than was anticipated one week ago, but there is practically nothing left in this line at the present time still to go forward.

Grapes, 413¾ cars: The grape shipment shows a further decline over last week. The major portion of the crop has now been sent forward; there are considerable quantities, however, yet to go, and of the very best quality that we have had during the season. Cornichon grapes are maturing nicely, and will be in splendid shipping condition in 10 days or two weeks. The Emperors are also doing well, and there will be a good supply of this favorite shipping grape which will be available after Tokays are done. The quality of the Emperor grape promises to be better this year than for several seasons.

Weather: Further rains fell during the latter part of last week, and on Saturday night and Sunday we had the heaviest fall of the season. This has had the effect of retarding picking, and it will be several days before the volume of shipments is as great as it has been in the past. In some sections considerable damage has resulted, and it will probably have the effect of materially shortening up the shipments. Cornichons and Emperors escaped without injury.

PUBLISHER'S DEPARTMENT.

The Capital City Business College, of Sacramento, is a regular advertiser in the PACIFIC RURAL PRESS. We can commend it always.

B. C. Kinley, manager of the Rose Mound Nursery, of Santa Rosa, Cal., has been at Los Angeles and Fresno the past week, on a business trip.

Charles Gloeckner, of Sebastopol, Cal., the live real estate man, whose specialty is farm and ranch properties, has an advertisement in the PACIFIC RURAL PRESS.

H. F. Arenberg, of Petaluma, has placed on the market a practical little device, a combined brooder-heater or cabin stove, fed by one of Arenberg's oil burners. The idea is a splendid one, and in point of economy and good service, can not be gainsaid.

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In response to our advertisement in last week's paper we have received several letters asking for territory to work for subscriptions. We want many more of our friends to represent us in securing subscriptions. Write us at once.

C. R. Winfield, real estate agent at Petaluma, Cal., who has located hundreds of prosperous egg farmers in that vicinity, has recently fitted up elaborate offices in the Ayers' block, that city, and is preparing for a prospective rush in the chicken ranch business the coming fall and winter.

Ralph Routledge, manager of the Routledge Seed Co., of Portland, has within the past year built up a splendid business in wholesaling and retailing nursery stock, seeds, etc. He is a wide-awake young man, and knows all details in the business. The success of the Routledge Co. is due wholly to his keen business sense and industry.

H. E. Boyrie, formerly of Seattle, who, for five years represented Charles C. Moore & Co., in the northwest, has purchased control of the Western Gas & Power Co., whose plant is located at West Oakland. Mr. Boyrie has taken charge of this work, and will so manage the business as to greatly increase and extend the sale of the lighting machines of this company throughout the entire Coast. Mr. Boyrie is a hard worker and thrifty young man, and that he will succeed goes without saying.

In a letter received from Frankenheimer Bros., of Stockton, our attention was called to the fact that the picture of the prize bull that we printed on our first page last week as belonging the the Howard Cattle Company, represented Bampton Hero, and is now at the head of their herd at their ranch nine miles northeast of Oakdale, in Stanislaus county. The animal in question is a very fine one, and worthy to be at the head of a good herd, and the Frankenheimer Bros. are to be congratulated upon acquiring him.

A large colony of Bohemians have bought land near Klamath Lake, and more are expected next season. The average size farm purchased was 60 acres.

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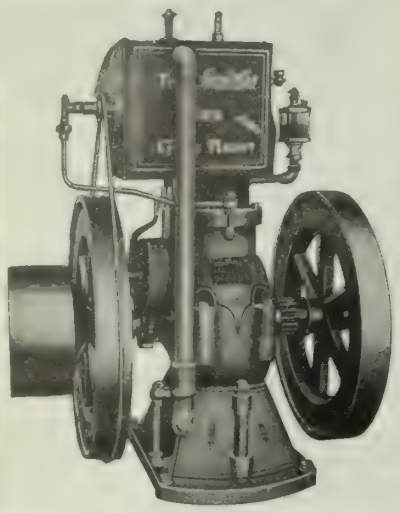
FARM BOOKS.

The following list of books are kept in stock and are for sale at the Pacific Rural Press officce:

	Price.
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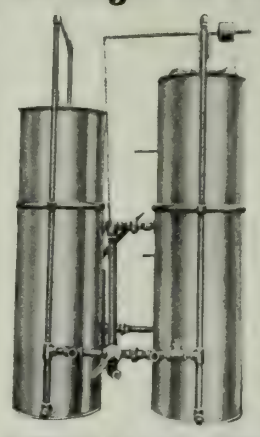
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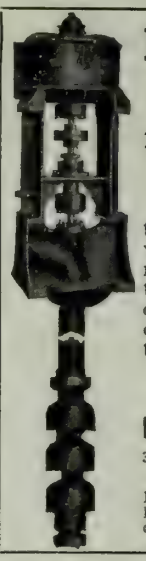
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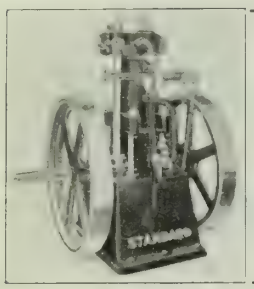
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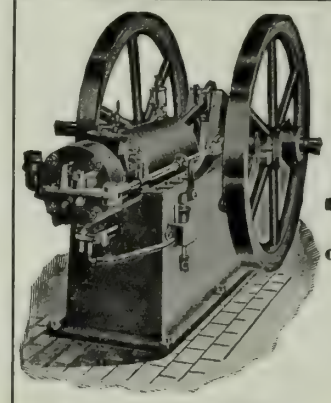
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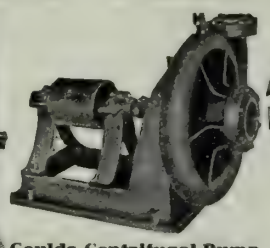
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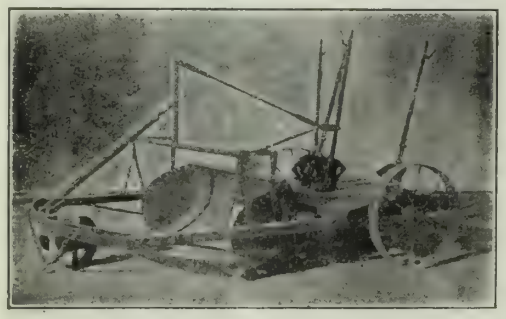
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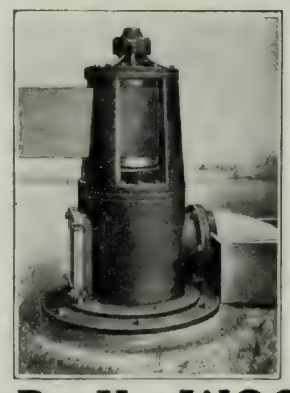
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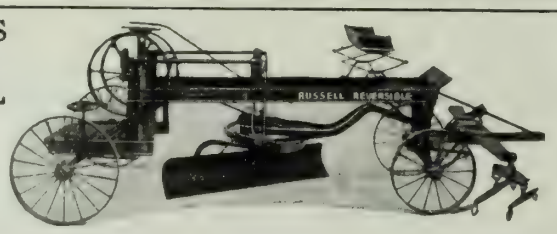
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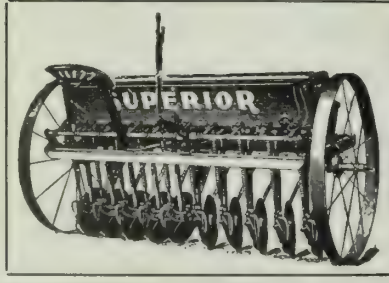
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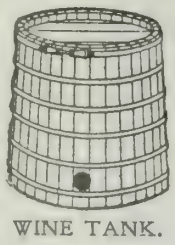
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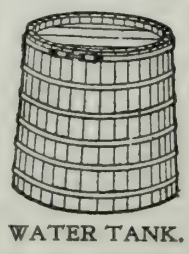
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 16. SAN FRANCISCO, SATURDAY, OCTOBER 16, 1909. Thirty-ninth Year.

Grape Vinegar.

Written for the PACIFIC RURAL PRESS
By Prof. F. T. BIOLETTI.

Vinegar can be made from a large number of different materials; from anything, in fact, containing sugar that will ferment or alcohol that will acetify.

The quality of the vinegar made from various sources, however, varies very much. The vinegar of the highest quality is that made from grapes, next come those made from cider and malt, and last those made from distilled alcohol. As a matter of fact nearly all the vinegar made both in America and Europe is of the last kind. If carefully made from pure alcohol it is simply a dilute solution of acetic acid, without any of the agreeable flavors which give the value to the other vinegars. It can, however, be made much more cheaply than the others, and most of the so-called wine and cider vinegar which have been sold in the past are nothing but alcohol vinegar artificially colored and flavored.

The pure food laws should prevent this species of brand, and incidently open a profitable avenue for the disposal of a considerable part of our surplus grapes.

Many consumers now know the superiority of real grape or wine vinegar, and the rest will learn if dealers are prevented from foisting on them an inferior imitation. Vinegar can be made from grapes at about the same price as wine. The process is somewhat more expensive, but a ton of grapes will make about twice as much vinegar as wine. It should be possible, therefore, to put a first-class grape vinegar on the market for from 25 to 30 cents per gallon.



It Seems Too Bad to Make Vinegar of These!

While good grape vinegar is the best that can be made, all grape vinegar is not equally good. Some of it is made from spoiled wine, and this is usually inferior. Good vinegar can be made from good wine, but as the latter is already a merchantable product it is not often used for this purpose.

The best and most economical way of making vinegar is to make it directly from the grapes. For this purpose any good, ripe grapes may be used. Many table grape culls are excellent material. Green or moldy grapes will not make the best vinegar.

Method of Making Grape Vinegar.

The manufacture of vinegar consists of two distinct processes: (1) Fermentation; (2) acetification. These processes must be kept rigidly distinct. A failure to do this results in loss of material and an inferior product. The method described here is one suitable for making vinegar on a small scale; say one or two hundred gallons. It can easily be modified for a larger or smaller scale if the principles are well understood.

Separation of the Juice.—Many connoisseurs think that the best vinegar is made by fermenting the crushed grapes before separating the juice. This, however, yields a red or dark colored vinegar which is not generally marketable. Such vinegar can be decolorized with charcoal, but this injures the flavor, and it is then no better, if as good, as white vinegar.

The usual method is to crush the grapes thoroughly by means of a roller or apple crusher into the basket of a small screw press. The juice which runs off freely and that pressed out are placed in fifty gallon barrels. The solid pomace left in the press is then broken up and treated with hot water and pressed again, the liquid being added to the juice in the barrels.

The quantity of hot water to use will depend on the sweetness of the grapes. Enough should be used to dilute the juice in the barrels to about 16% of sugar as measured with an ordinary Balling saccharometer such as is used in every winery. This means about 6 gallons of hot water to every 100 pounds of grapes (weighed before pressing) if the juice shows 24% Balling, 4½ gallons for 22%, 3 gallons for 20% and 1½ gallon for 18%.

Fermentation.—About 40 gallons may be placed in an ordinary barrel. If the barrels are filled nearer than 4 or 5 inches from the top the juice will ferment over.

The best temperature for fermentation is between 70° and 80° F. The grapes will usually be cooler than this, but the hot water used in pressing will bring up the temperature, which in these small barrels can thus be safely raised to 90° F. If possible, it should not be below 70° F.

The barrels should be placed where they will keep warm; if possible in a room where the temperature does not fall below 70° F. Fermentation will take place spontaneously, but it is much better to start it by adding yeast. Bakers' or brewers' yeast will not do. They are too weak and will give undesirable flavors. A little fermenting grape juice from a winery will do, but the best results will be obtained by getting a culture of pure yeast from the Agricultural Experiment Station at Berkeley. About half a gallon of vigorously fermenting grape juice is sufficient for each barrel.

Fermentation should continue until all the sugar in the juice has been changed into alcohol and carbonic acid gas. This is tested by the complete disappearance of the sweet taste, and should take about one to two weeks. As soon as the fermentation is over and gas ceases to come off, the barrels must be filled up completely and the bung hole covered to keep out the air. It is not safe at first to put the bung in tight, or the pressure of the gas which is still being formed in small quantities may burst the barrel. A small bag of clean sand is a good covering for the bung hole.

The barrels should be filled up regularly about once a week with fermented juice kept in bottles or demijohns. At the end of about three or four weeks the bungs may be driven in tight. The liquid is then left to settle until it becomes nearly clear, which requires three or four weeks more.

Acetification.—At the end of from six to eight weeks from the time the grapes were crushed the barrels will contain a clear liquid and a thick sediment. The liquid is wine in which alcohol replaces the sugar of the grape juice. The sediment is the yeast, dust and impurities of the juice. The clear liquid should now be drawn off the sediment and placed in clean casks. It may be kept here for several months or may be made into vinegar immediately.

The acetification may take place in barrels of the same kind as those used for fermentation. Barrels which have been used for fermentation may be used for acetification, but the converse should never be attempted. A very small amount of vinegar will stop fermentation, and unless we first get a complete fermentation of the sugar we cannot change it into vinegar, so that some of our

(*Continued on Page 245.*)

Pacific Rural Press

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FRANK HONEYWELL - - - - - Business Manager
GEORGE RILEY - - - - - - Advertising Manager

California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Oct. 12, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.10	1.47	2.31	76	44
Red Bluff	00	.74	1.32	92	54
Sacramento	00	1.14	.69	84	52
San Francisco	00	1.63	.63	86	50
San Jose	00	1.42	.53	90	44
Fresno	00	.54	.56	88	50
Independence	00	.32	.54	80	42
San Luis Obispo	00	.52	.73	96	52
Los Angeles	00	.30	.22	94	54
San Diego	00	.02	.22	70	54

The Week.

Natural conditions affecting agriculture continue as outlined last week, except that sunshine has increased in amounts and fervency and late crops endangered by showers have largely escaped the menace. Grapes are being gathered in good condition and table grape shipments have gone forward with much confidence in realizing better prices than recently secured. Wine grapes are going to the wineries in fine shape, and in the case of the fine claret varieties in the old valleys north of the bay some fair prices are being secured. We hear of a few sales at $15 per ton f. o. b. cars and $16 at the winery. These are living prices and are paid by wine makers who know the quality of their product from such grapes and the price they can get from it, but they are naturally careful to contract only for amounts which they can handle with such assurance. We are quite glad that this old light dry wine district is receiving this distinctive recognition. It has been rather eclipsed of recent years by the glory of the grape interests in the great interior valleys and is entitled to the demonstration that an eclipse need not be a total or permanent obscuration. These valleys north of the bay have been rather neglected of late by the glamour of investment in the development of the great valley, but their pristine glory will return through a renewal of recognition of the fact that they are parts of the suburban district of the coming greater San Francisco and the newer life of these valleys will be like the old, but more abundant. Twenty-five years ago they were the choice for week-end residence of the wealthy and for many small farmers whose pretty cottages encircled the villas of the rich or winked one eye each at their lavish expenditures, from their porches on the hillside above them. More recently many of the rich have yielded to the lure of the broad valley of the Sierra uplands and have given less thought to the north bay country and small farming has found less satisfactory market in San Francisco, for which supplies come now from more remote districts than formerly. And so the beautiful valleys of Napa, Sonoma and Marin have perhaps not smiled as temptingly as they were wont and rural home makers have gone farther and have done worse.

We are firm in the conviction that these lovely valleys will rise again to important place in the home councils of the metropolis, and to greater profit also in small farming upon a more intensive basis than the elders knew. They are unsurpassed for natural beauty. Their wooded hillsides and dimpled vales are unique in the bay district, for though other slopes of the district have forests and canyons, they are not quite the same in aspect and content, nor do they come so near to life and heart. The scenery south of the bay has greater depths and widths; more perhaps to admire and less to love. Therefore we believe that the metropolitan of the future will revive the passion of his grandfather for the north-bay district, not because it was nearest by the old fashioned method of approach, by slough and wet-tailed boat, but because it is nearer by better means of transit and dearer for its own sake besides. And then we believe the region will rise to its own through the extension of its railway system northward along the coast—to Humboldt bay and beyond. In this rapid age everyone likes to be on the way to somewhere; no matter where, but on the way. The north-bay section has been on the side in recent State development. It will now come to the center and reclining in its groves of redwood, oak and fir, or deep in its little ravines, listening to the music of tossing waters faintly sounding through the coppices of manzanita and toyon, the new generation of suburbanites will delight in the consciousness that the world is looking, though it cannot see him in his retirement. This fact, as well as the multiplied means of escaping to and from the world will give this region new standing in the line of desirabilities and investments and will lift values to a better ratio with other valuations than it has for some time commanded.

We have hopes also of the notable agricultural advancement of the region by more intensive farming. Hundreds of little streams are running to waste whose waters should be diverted to adjacent deep-loamed mesas. A scant cut of grain hay or a film of wild pasture is now shaved from lands which would carry heavy alfalfa for small bands of farm-kept stock. Poor withering rainfall gardens are yielding but effigies of the esculents and small fruits which could be brought to full lusciousness by the flow from undeveloped springs or from brooks which murmur their lack of appreciation through tangles of rank weeds or impenetrable shrubbery. Orchards are burning crisp red or yellow leaves on sun-baked slopes and benches which should be carrying broad and verdant foliage to properly ripen late fruits and form fruit buds to ensure annual bearing. All this will come in the near future, and the effort will be borne upon the shoulders of a new generation of men. Thousands of young men who should have been encouraged to achieve the rehabilitation of the farming of the district have not seen the opportunity and have deserted their best chances for dependencies in city life. The turn will come; other young men are being educated for just these openings and will know how to use them. Hail to the new life of the north-bay counties and the new men and women who will live it!

Well, indeed, we never though of being led aside into such a rhapsody by thought of good prices for a few grapes in the Sonoma valley. But people have been led into rhapsodies before by the products of grapes, if not by thoughts of them, and we must atone for the lapse by the assumption of a soberer state of mind.

If there is anything calculated to bring a Californian to a sober thought it is this indescribably wretched business of the raise in the freight rates on lemons. The facts about it and the indignation of the lemon growers have been given in previous issues in this journal; the sting of it remains and rankles deep. We cannot believe that the traffic managers of our great coast railways could have either conceived or proposed this great economic iniquity. Not only their sincere interest in developing coast industries, but their wisdom in public affairs would have restrained them from it. They must have some wicked partners in the Transcontinental Association who neither fear God nor regard men in their grasp for all the traffic will bear. To advance lemon freights to a parity with orange freights is a vain effort to compare things which are essentially unlike in producing and commercial development. It is upon this very ground that the increased tariff protection on lemons was granted by Congress. The orange industry is great, and though it has its problems and plenty of them, it is not struggling for the very beginnings of life as is the lemon. By reason of the peculiar and greater problems of lemon growing and marketing, protection is still on the edge of establishment. California has not only lost money in lemons, but it has lost more than it has made—we were about to say that the State has lost more on lemons that it has made on oranges, but that is, of course, an exaggeration. And yet, when one thinks of the third of a century's effort with the lemon and all the disappointment and loss which men and women have drawn from their persistent efforts to attain in California what clearly cannot be done in any other part of the continental United States, it seems that hardly any form of comparative statement could be an exaggeration. The reward and recompense for this labor was decreed by Congress after a fair and full inquiry which demonstrated the worth of the claim for additional encouragement and it is promptly cornered by the greedy grasp of transportation; with blind greed, such as we used to shudder at when the phrase "all the traffic will bear" was coined. Blind because ordinary business sense would teach a man that the time to jump a creditor is not when he is promised help and not yet received it. Broader sense, quite common, thank God, in business, would indicate that a creditor should be allowed to make an effort to be free if he can get help to do it. Still broader sense, which we had begun to believe might be coming to influence transportation management, would be that transportation would be content to get its reward from the success of the industry and the increase of traffic when these were realized. The contrary policy, by which transportation is to grasp the tariff and appropriate to itself the help which the American people planned to give the lemon growers is too monstrous to calmly contemplate or discuss.

But, bad as this is, it is not, to our mind, the worst of it. The action of the Transcontinental Association is likely to turn the whole policy of protection, by which American industries are so notably advancing, over to its enemies. Help for a struggling industry is the claim; help for an exacting servant of that industry is the result. Can anyone think of a more deadly missile in the hands of the free-trader than the fact that the proceeds of protection go at once, in fact go in advance, to a monopoly or trust of transportation. They have already claimed that this has been largely the case and that protection was not a boon but a deception to the producer. They now have a fact which they will shout from end to end of the country, and California, one of the greatest advocates of a general protection policy, cannot deny the truth of the statement. Thus it appears to us that this is not at all a question of squeezing a California lemon; it is a body blow at the protective policy itself, and we do not see how it can be answered. We can, however, see how it will be fought, and that will be through the broadening and strengthening of railway regulation by

the Interstate Commerce Commission or some other body to be created by Congress for the purpose. The declarations of great railway men of their public spirit and their services to industry have been exerting a strong influence during the last few years. All that they have gained in this regard they have lost or will quickly lose by the attitude of their representatives in this single matter. It is because of all these things, which seem to us to involve destruction to the lemon interest of California and to the whole policy of protection, upon which California progress largely depends, that we cannot conceive how those particular companies which have termini in this State can possibly favor or support it.

Returning now to the grapes north of the bay which have proven to be a very suggestive theme, it is interesting to note another sign of life in the fact that living pictures are to be shown to the world of California grape industry. At the Asti colony last week a corps of photographers appeared and made photographs showing everything from the cultivation of the vineyard, the grapes on the vine, the grapes being harvested, piled on wagons to be taken to the winery, placed on the endless elevator to be conveyed to the crusher, the juice pouring into the fermenting tanks, and then the finished and clarified product as it goes to the table to be used. It is proposed to have these finished so they can be used in a moving picture machine, and then they will be shown all over the State and adjoining States.

But there are other grapes than those north of the bay, and, as we intimated at the beginning, the table grapes of the interior are entering the home stretch of the shipping season. It is announced from the grape district of San Joaquin county that the greater portion of the Tokays have been shipped, and the picking of Cornichons and Emperors has just commenced. They are very fine and the rain, if anything, benefited them. The rain stopped the shipments and allowed the market in the East to get well cleared up. The shippers are of the opinion that there well be far better prices, and the owners of the late varieties expect to make larger profits than they would had there not been any rain.

Queries and Replies.

Killing Bermuda Grass with Chemicals.

To the Editor: Can you suggest any way in which to rid a lawn heavily set in Bermuda grass? The owner wishes to make a blue grass lawn of it. The soil is heavy adobe, but has been coated to a depth of several inches with black mould and sand. We are now enjoying our rainy season, but will have no rain in the spring. What season will be best to give treatment? Would salt, copper-sulphate or arsenite of soda be of any use, and, if so, which would you advise? Abundant water is available for washing the chemical out of soil after treatment, if that be possible. Can you give any data as to the probable cost per square rod of complete extermination?—M. P. J., New Mexico.

All the chemicals will kill Bermuda grass or any other plant if you use enough of them, and when you get enough to kill Bermuda grass you probably will not find any other plant that will grow on the place for several years—we do not know how many. Probably common salt would wash out sooner than the other killers you mention, because it is so readily soluable in water. In the case of your friend we should advise him not to dream of a blue grass lawn in that place, but rather to make a virtue of the Bermuda. It is not the worst lawn in the world, and if the old frost-bitten stems are scraped off clean in the spring, the summer growth is fine. Bermuda does not resent scraping but comes the fresher for it. In fact, you can slice off the old surface smoothly with a sharp spade and thus get rid of all old growth of stems and dried leaves which make too many Bermuda lawns uneven and unsightly. If, however, you must have something else, dig deeply, pull out all the roots you can, and sow alfalfa. It will come nearer to keeping down Bermuda than any other plant known to us, but it will be there all the same; now and forever.

Starting Huckleberries.

To the Editor: Please inform me if huckleberries can be transplanted or grown from seed. I have tried both, but not successfully.—Gardener, Mendocino county.

Huckleberry plants can be transplanted all right when soil conditions are right in the spring; in fact, most plants are secured by transplanting from wild growth. They are not very difficult to start from the seed if you proceed in the right way. The best way is to take shallow boxes, about four inches deep, half full of gravel, the gravel being covered with a layer of moss upon which fibrous soil, such as you get from grass roots, is mixed with fine sand. Press this all down firmly, scatter the seed, which has been carefully washed from the fruit, upon the smooth surface and press it in. Then cover with a light covering of moss and keep moist, in a place where the temperature will run from about 60 to 75 degrees. When the seedlings begin to appear, the top cover of moss can be removed and fine composts sprinkled upon the surface. Plants can be taken to open ground at about a year old.

Distance Immaterial.

To the Editor: I have heard the claim that if you take buds or scions from one tree and bud or graft them into another the fruit will be different if the bud or graft is placed two feet from the ground from the fruit you would get by budding four inches from the ground. Is that right?—Amateur, Los Angeles.

Buds taken from one tree will produce the same fruit when they are made to grow upon another stock, and it makes no difference whatever whether they are made to grow near the ground or far from it,—if they grow well and bear fruit in both situations the fruit will be of exactly the same kind as the tree from which the buds were taken. This is a common fact in horticultural experience and should not be questioned by any intelligent person.

Indian Hemp.

To the Editor: We have an enquiry from New York for "Cannabis Indica," and we have failed to find any of this article through the wholesale druggists of this city. We are told that this herb is grown in northern California somewhere, and we will be obliged if you can afford us any particulars as to where it can be obtained and for what purposes it is used.—Merchant, San Francisco.

The plant is chiefly grown for its fiber, under the name of Indian hemp, and is not a wild plant in this State. The flowering tops of the plant are used for medicinal purposes, the seed is otherwise used, and the inner bark of the stem furnishes the hemp fiber. The earliest large scale production in northern California was close to the town of Biggs, on the Feather river. Since the abandonment of the crop in that locality the plant has been grown along the Sacremento river, and a shipment of 150 tons of the fiber was made by sea from this port last week.

Red Clover Rather than Alfalfa.

To the Editor: We are sending you by express today a sample of soil in which we contemplate planting alfalfa, and desire to know if it lacks any mineral or vegetable ingredient necessary to make it ideal for the purpose? It is taken from a mountain meadow at an elevation of about 3500 feet, and the field has been sown to barley annually for seven years with one exception. It is pretty wet in the spring, and it is generally towards the latter part of May before we can get upon it to work it. The surface dries up into clods in the summer time. If it is lacking in anything that would contribute to maintainance of a good stand of alfalfa, will you kindly inform us what it is?—Farmer, Tulare county.

We have no idea that alfalfa will succeed on such soil as your sample presents, not because the soil is so heavy, for we are learning to grow alfalfa on pretty heavy clay, but there is practically no hope for alfalfa if the clay is saturated with water at the time the plant should be making its growth. You should, customarily, be cutting hay before the date you mention as being safe to put teams on this land, and before that, there ought to have been weeks of favorable condition for the plant to grow.

Alfalfa has a fleshy root which is very subject to decay if there is any standing water during the time when it ought to be growing. We presume the land could be vastly improved by under-drainage, if you care to undertake that, and might then be suitable for alfalfa, but in its present condition we would not advise you to sow alfalfa, but to use red clover instead. This Eastern red clover has a fibrous and not a fleshy root, and will succeed very well on the surface of land which has too much water below. It does especially well in the foothills if it has plenty of water.

Almonds and Walnuts.

To the Editor: A recent article in your paper on the San Jose Mayette walnut inspires me to ask your opinion in regard to planting the same here. The soil is a deep, well drained, red, sandy loam. Compare walnuts with almonds as a desirable and profitable crop. Please answer through the PACIFIC RURAL PRESS.—E. E. Long, Marysville.

Almonds and walnuts are very different in requirements. The almond needs a light, deep soil, and thrives with less moisture than a walnut. To be profitable it must not lose its fruit through the liability of its early bloom and growth to frost. The walnut starts later and escapes some frosts thereby. It needs a deep, rich and a moister soil than an almond, and on the California black walnut roots can endure some excess of moisture better than on its own seedling root. The soil you mention ought to carry both trees well; if the moisture holds well late enough in the season the walnut as well as the almond; if there is doubt about this the almond will do better than the walnut unless you run into the frost trouble. The San Jose Mayette is promising to try; no one can tell just what it will do until tried. The presumption is in its favor because of its behavior beside other varieties in the San Jose district. There is some trouble with sunburn on fruit and foliage in the interior valley. We do not know that the San Jose Mayette has made a record under such conditions. As for the relative profitability of almonds and walnuts, all things considered, walnuts are ahead.

Peach Seedlings and Budding.

To the Editor: Will you please give the proper way of treating peach pits which are intended for planting next spring; also the best time to bud the young trees.—Subscriber, Fresno county.

A handy way on a small scale is to put the pits in sand in rather shallow boxes (say 6 or 8 inches deep) with holes in the bottom for drainage; keep the boxes in a shady place and keep the sand moist but not wet. Conditions would be ready to plant out in nursery rows in February or March, according to soils and locations. The seedlings may be budded from June to August, according to the slipping of the bark and the possession of good buds to use from the current summer's growth of the trees from which you desire to take them.

Horticulture.

MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.

To the Editor: The first meeting of this historic society ever held in Canada occurred at St. Catherines, September 14, 15, 16 and 17. This conference was notable for the fine display of fruit exhibited in the spacious armory at St. Catherines under the auspicies of the local horticultural associations. It was notable also for the large delegations present from distant States, especially the Gulf States and the northwestern group. Florida was represented by 11 members of the State Horticultural Society, while Minnesota and Wisconsin were each represented by goodly delegations. The meeting was also notable for the attractive and instructive excursions arranged and splendidly carried out by the local committees. These excursions, which occupied the afternoons of the 16th, 17th, and the entire day of the 18th, carried the visitors through the magnificient and intensively cultivated fruit lands of the Niagara district, and to the grounds of the Ontario Agricultural College, where guests were warmly welcomed by President Creetman, and had the opportunity of inspecting one of the most completely equipped and best manned agricultural colleges in the country.

Leading Features of the Program.—It was conceded by all persons present that at no time in the previous history of the Society had there been gotten together such a valuable and timely set of papers. Many of these gave the latest and most up-to-date information on questions of great practical importance to the fruit grower at the present moment. Prominent in this class were papers on the summer use of the sulphur sprays. A group of addresses on this subject by Messrs. Wallace, of Cornell University, W. M. Scott, of the United States Department of Agriculture, J. P. Stewart, of the Pennsylvania State College, gave an epitome of the season's experience and showed quite conclusively that the lime sulphur in the self-boiled form is a specific against the leading fungus diseases of the apple and the pear. The extensive experiments reported for the first time by Mr. W. M. Scott, as conducted in the Hale Orchard's Company, Fort Valley, Ga., proved this very conclusively. The experiments of the Cornell Experiment Station, represented by Mr. Wallace, showed its efficiency in preventing apple diseases, while Mr. Stewart's studies bore upon the chemistry and the best means of preparing the spray. These papers will be given in full in the Society's report which is now being prepared for the press.

Another important set of papers dealt with the adaptations of varieties of apples to soil and climate. In this array a considerable mass of data was brought out. The subject was discussed by Colonel G. B. Brackett, Division of Pomology, Washington, D. C.; C. H. Wilder, Bureau of Soils; Robert Brodie, practical orchardist, Montreal, Canada; and H. P. Gould, in charge of field investigations of the apple in the United States Department of Agriculture.

Co-operative Marketing.—A splendid presentation of the advantages and limitations of the box package as compared with the barrel was given by Director S. W. Fletcher, of the Virginia Experiment Station. In this address Professor Fletcher showed that the box package was, undeniably, the package for fine fruits destined for export as well as for consumption in the market. There would probably always be a class of fruit grown which might better be handled in barrels than in boxes. Mr. W. H. Reid, of New Jersey, presented the experience of a local vegetable exchange in handling potatoes of a single New Jersey community. The paper described in detail the method of organizing and conducting a grocers' exchange. In fact it was a leaf from the book of his own experience. It showed the marvelous possibilities of co-operation in this connection.

Sub-Tropical Fruits.—This division of fruit culture received well merited attention by several papers presented by members from the Gulf and southwestern States. One of the notable addresses was a paper by Mr. G. L. Taber, Glen Saint Mary, Fla., on the present status of *citrus trifoliata* as a stock for the orange. The writer clearly defined the good and weak points of this plant as a stock, and showed that its greatest value lay in extending the range of orange culture northward by using the Satsuma orange on this stock. He was of the opinion that large areas in southeastern Texas and Louisiana might be utilized for orange culture if this stock were employed. For dry soils and in the best orange sections the stock was not to be recommended.

The subject of pecan culture was admirably treated by H. H. Hume, Glen Saint Mary, Fla., and S. H. James, of Mound, La. Both papers treated the possibilities of pecan culture in a sensible, reasonable manner. The glamour and romantic possibilities may be said to have been peeled off and the great future of the industry sketched without exaggeration or prophesy. Both believed that there was a great future for pecan culture in the southwest, and that when the propagated varieties came into the market, the demand for the improved nut would increase very rapidly.

On the questions of orchard management, valuable papers were given by F. T. Shutt, chemist, Dominion Experimental Farms, Ottawa; Professor W. R. Lazanby, Ohio, and Professor F. C. Sears, of Massachusetts. Mr. Shutt's experiments emphasized the necessity of using cover crops for the purpose of stimulating the proper ripening of the tree in the autumn in order that it might go through the winter without injury. He showed that the cover crop reduced the amount of moisture in the soil, but that on the other hand there was more moisture in cover crop soil, ordinarily, than in bare, uncultivated soil. On the ground of being a preventative to root injury in winter, the cover crop was a valuable factor in orchard management.

A paper of great interest and much value on 30 years' experience in grape growing in the Niagara district, was that presented by Murray Pettit, of Winona. In this paper Mr. Pettit sketched the development of the grape industry in the province and showed its present condition. He recommended a list of varieties of greatest commercial value at the present time and gave these in the order of their merit. It was curious to note that the Champion, a variety though handsome in appearance, exceedingly low in quality, was a prominent member of the first six recommended.

Resolutions.—A resolution was passed favoring the enactment of a law for the control of manufactured insecticides and fungicides. This is simply in the line of the pure food law which means that the purchaser should know what he is buying, and calls upon the manufacturer to state the composition of the article offered for sale.

A resolution was also passed, and a committee appointed to further its enactment, for the making of a law providing for inspection of imported nursery stock and the quarantine of such stock when found to be infested with dangerous insects or fungus pest.

A strong invitation was presented by the Florida delegation to hold the next session of the Society in that State. The matter was referred to the executive committee.

Officers were elected as follows for the next biennial period: L. A. Goodman, president, Kansas City, Mo.; John Craig, secretary, Ithaca, N. Y.; L. R. Taft, treasurer, Agricultural College, Mich.; T. V. Munson, first vice-president, Denison, Texas; C. L. Watrous, chairman executive committee, Des Moines, Iowa.

Wilder Medals Awarded.—The Committee on Awards, Chairman, W. A. Taylor, Division of Pomology, Washington, D. C., awarded medals to the Dominion Experiment Farms, Ottawa, for a collection of northern fruits, including a number of promising hybrid apples, crosses made by the former Dominion Horticulturist, John Craig, present secretary of the Pomological Society. These were crosses between the McMahon White and Scott's Winter. Messrs. Ellwanger and Barry, Rochester, N. Y., silver medal for a collection of apples, pears and grapes. A. P. Stevenson, Nelson, Manitoba, silver medal for a noteworthy collection of 15 varieties of apples grown on his own grounds at Nelson, Manitoba. Burlington Fruit Growers' Association, Burlington, Ontario, for district collection of fruits, silver medal. Indian Head Experimental Farm, Saskatchewan, silver medal for collection of hybrid apples grown in that section. Bronze medals were awarded as follows: W. K. Munson, Grand Rapids, Mich., exhibit of King grape; R. B. Whyte, exhibit of English gooseberries in bottles; Albert Pay, exhibit of fruit grown on one farm; St. Catherines Cold Storage Company, exhibit of package fruit.

John Craig,
Secretary.

Cornell University, Ithaca, N. Y.

Citrus Fruits.

CULTURAL NOTES.

Written for the Pacific Rural Press
By Mr. Edgar Wright, of Los Angeles.

It has been my theory that there would come a time when some man in California would produce a grapefruit that would class with the oranges raised by Chapman and the lemons of the Limoneira Company, of Santa Paula, and Leffingwell, of Whittier. This is only a theory, but I do believe that somewhere and some time the man will be found who will make his grapefruit as well-known as any of the brands of oranges or lemons packed by the leaders as cited above. Of what variety or in what section of the country these grapefruit will be grown I do not know, but I do believe that some leader will come forth and blaze the way to the end that California grapefruit will be in demand in the summer season at least.

This week I talked with a man, who, though a Californian of 21 years standing, was at one time a resident of and closely indentified with the citrus fruit business in Florida. We will call this man Mr. Palmdale, chiefly because it is not his name, but near enough. He says that when he came to this State, from Florida, he brought several varieties of citrus fruit stock with him and that with his grapefruit, in particular, he had great success. He tells me that he raised what he called the "Thursby" grapefruit, a variety that was originated on the Thursby orchard in Florida, and which is also known as the Triumph and the Imperial. It is a seedling and he describes it as a flattened round fruit, running largely to 28s to 64s, and while he has nothing against the seedless varieties he prefers this seedling for its pleasant sharp flavor and juiciness.

I will say right here that Mr. Palmdale somewhat discouraged my theories for a grapefruit future in California by claiming, or rather reluctantly admitting, that the Florida grapefruit was, and always will be, superior to that grown in California. I asked him for his reason and he had but one, and that was that the grapefruit is more of a tropical fruit than either the orange or the lemon, requiring a warmer climate to give it the right amount of juiciness and the proper flavor. He also said that the thin skin of the Florida grapefruit is a climatic condition, that the thicker skin of the California fruit is nature's protection against the cold of our winters.

I wonder if this is wholly right. It sounds plausible, but did this man know? I will have to admit that so far Florida has the best of it so far as prices received is concerned, and that is surely the best thing to go by, but even admitting this feature is no argument against my theory that some man is going to make a success of California grapefruit culture. In fact, the better prices the Florida fruit brings, the better for the man out here who can succeed in coming the nearest to raising a grapefruit that will compare with the Florida variety. Our fruit comes in after the bulk of the Florida stock is out of the market, and so would not be a direct competitor to the early stock, and if the right man would concentrate on grapefruit, selecting the right soil in the right place, carefully handling and packing, and above all advertise, he has a future before him I fully believe.

While most of us Californians candidly admit that Florida grapefruit must be the better of the two because of the price difference in the two products, I notice that Florida people are never willing to admit the superiority of the California navel over the Florida grown orange. The best orange in the world they call it. Yet if the price received is any criterion, it is not the best, for it does not and never has brought as good prices on the same market as the California grown orange. Some say that it is sweeter and I am not going to dispute that statement, but I do know that it does not bring the price and that is the final test. I

have no doubt but that it will be said that the California orange men had a better system of marketing, that Florida fruit has been slaughtered in the past, and that with an organization, such as has been formed this past year, the results will be different and that the Florida orange will come to its own.

Perhaps so, I hope so, for the better prices the Florida stock bring the better our navels will sell. One reason I think I can give for the difference in the selling price, and will cite two different sources of information, both gathered within the past year, but referring to a time separated by 20 years. The Florida orange will not keep, and here is my authority for saying so, two cases out of dozens that have come to my notice.

A year ago last December I received a letter from a Buffalo jobber which read, as near as I now remember it, as follows: "Let me know when your California navels are sweet and in good condition. A few cars are now on the market, but I want to wait until the navels are right before buying heavily. I am now handling Floridas, but just as soon as navels arrive in good shape I will drop the Florida deal altogether for they will not keep. My purchases of Florida stock have been very light and it is a hand to mouth proposition with me. I just supply immediate wants, as I do not dare to stock up with Florida oranges."

The other case happened 21 years ago. I was telling you that Mr. Palmdale came West to California from Florida at that time, and that he brought a stock of Florida citrus trees with him. He had obtained from the railroad company the privilege of watering this stock at New Orleans, San Antonio, and Tucson. At San Antonio he stopped off for four days and in his walks around the city he got acquainted with a dealer who was handling both Florida and California oranges at the same time. Up to this time Mr. Palmdale had never seen a California navel and was interested in knowing how the dealer regarded them, and asked him. The dealer replied that from that time on he was going to push the California orange, and when asked why, he replied that the Florida orange would not keep, and he could not afford to handle it. That is reason enough. The Florida orange will find a market, it is true, but the dealer will never pay fancy prices for a product that will melt on his hands when he can buy a hardy orange that will stay with him until he can sell it.

I asked Mr. Palmdale regarding the best locality for grapefruit, and he said that he did not know that one spot was favored above another. His success, and he claims that he did have success in raising grapefruit years ago, was attained near San Diego, and while he has since gone into other lines he still thinks that if he had kept at it he would have made a name for himself and for his grapefruit. He says, himself, that while valencias and lemons do better near the Coast and navels in the interior, he does not positively know that any one spot is better for grapefruit than another. I asked him about the cultivation of the grapefruit and he said that it in no way differed from that of the orange or lemon, and that the same amount of fertilizer was necessary and the same amount of water.

Regarding the growth of the Florida grapefruit tree, Mr. Palmdale told me something I surely did not know, and that was, that it grew larger than any other variety of the citrus family, and that he has seen trees in Polk county, Florida, and they are, no doubt, living yet unless killed by the frost of 1895, that were 40 years old, and two feet in diameter at the base of the trunk. That would be small for a sequoia, but its mighty big for a fruit tree, and I remember we never did have them as big as that back in Missouri.

Somewhere near the interior foothills, where the days are hot and the nights warm, or rather not too cold, I believe fine grapefruit can be raised that will make name and fortune for the grower. He must do some experimenting, breeding for thin skin, the sharp acrid flavor with little pith and lots of juice. When such fruit can be grown, careful culture, honest handling and packing and judicious advertising will do the rest.

I always sympathize with the human who wants to get ahead, the boy or girl who wants education, the mechanic or artisan who is eager to improve or the farmer who is willing and anxious to try for better things. A letter came to me this week which appealed to me as a voice from the wilderness, the cry of a soul struggling for better things and I thought the writer was worthy of encouragement. The letter was written in a better than the average handwriting, the spelling and punctuation were good. I give it verbatim:

"Dear Sir: I am very glad to write you, but I know it is disrespectfullness to write you without man's introduction, nor a bowing acquaintance, beside I meet on the PACIFIC RURAL PRESS.

"I am a Japanese, as you can guess with my letter, and I want to study and learn about horticulture, especially citrus fruits in southern California. But I have no acquaintance in southern California, therefore, if you can, will you tell me where is the best place to study and learn about citrus fruits, especially about orange culture, moreover, if you admit, will you introduce me to a famous orange culturist.

"I desire to work at his orchard, if you would introduce me, and I will learn while I am working." Yours respectfully, etc.

I wrote this ambitious Japanese that I would do all I could for him, and had no doubt that I could find a place for him somewhere in southern California. I have written to a famous culturist and am now awaiting his reply.

Viticulture.

GRAPE VINEGAR.

(*Continued From Page 241.*)

sugar remains unchanged and wasted. The fermentation of vinegar takes place more rapidly at high temperature than at low, and it is best to keep the acetification room warm—about 70° F. Vinegar can be made at a lower temperature, but it will take much longer.

The change into vinegar will occur spontaneously if the proper conditions exist, but it is best to use a starter if possible. A starter can be taken from an old vinegar barrel, or can be prepared by exposing a wide-mouthed vessel, such as a tumbler, half filled with the fermented liquid in a warm place for a few days. This vessel should be allowed to stand without disturbing until a fine film forms on the top. This film consists of vinegar germs, which act only on the surface in full contact with the air. When the film is well formed and the liquid gives off a strong vinegar smell it may be used to inoculate the liquid in the barrels.

The barrels should be arranged in such a way as to allow a wide surface of wine for the formation of the film and free access of oxygen (air) to enable it to do its work.

With these objects in view the barrels should be only partly filled. Filling half-full gives the largest amount of surface, but if space is limited and time plentiful the barrels may be filled from two-thirds to three-fourths full. A hole about 1½ inches in diameter should be bored in the head of the barrel, about an inch above the point where the surface of the liquid will be. This hole and the bung hole on top should be left open to allow free circulation of air, but may be protected with mosquito netting to prevent the entrance of flies. A wooden spigot near the bottom is necessary to permit the examination of the liquid without disturbing the surface film.

As soon as the liquid is placed in these acetification barrels the starter is added. It is a good practice to add about 10% of vinegar to the liquid at the start. This will tend to prevent the growth of anything but the vinegar germs.

The barrels should be firmly fixed with wedges and should not be disturbed. Any breaking of the surface film causes some of it to sink to the bottom. The germs when submerged change completely in character and in their action on the liquid. They form the gelatinous mass known as "mother of vinegar." In this form, instead of attacking the alcohol and forming vinegar, they attack the vinegar and destroy it.

Under the most favorable conditions the acetification will be complete in four or five weeks, but if the temperature is low or the exposed surface restricted it may take an equal number of months or even longer.

In any case a time comes when nearly all the alcohol has been changed into acetic acid and the process is finished. If the barrels are left after this, the vinegar deteriorates. The gelatinous form of the vinegar germs increases in quantity and attacks the acetic acid, which is changed into carbonic acid gas. Finally all the acetic acid may be destroyed and the barrel will contain nothing but water. The end of the process is determined by taking samples from the spigot from time to time.

As soon as the vinegar is finished it should be drawn off the sediment which is formed and kept in a cool place in full, tightly bunged barrels, exactly as is done with wine. It can be used immediately, but improves greatly in quality if it can be kept for some time. If it is cloudy it may be filtered. If it is to be bottled it should be pasteurized and fined with isinglas.

Outline of Process.

Fermentation:

Crushing the grapes.
Pressing the juice from the crushed grapes.
Dilution to 16% Balling in fermentation casks.
Warming to 85° F.
Addition of yeast starter.
Fermentation, filling up, settling.
Racking of the clear liquid.
Filtering (if necessary) into acetification casks.

Acetification:

Addition of vinegar and starter.
Acetification.
Racking off the clear liquid into full barrels.
Filtering and pasteurizing.
Fining.
Bottling.

Notes.

The fermentation and acetification should take place in different rooms.

Great care should be taken to prevent the infection of the fermenting liquid by vinegar-sour barrels or vinegar flies.

No metal should be used in handling vinegar. Buckets and tubs should be of wood. Ordinary metal pumps and filters cannot be used. Barrel hoops may be protected with varnish and paraffine.

The Field.

A BEAN PROBLEM.

To the Editor: I desire a little information in regard to a crop of small white beans of about 37 acres which I planted this year. This land is in the central part of the State, about 25 miles inland from the Coast. It is a rich sediment sandy loam, was irrigated in April, well-plowed from 7 to 10 and 12 inches deep, was well harrowed, clod-mashed, disc harrowed and what I should judge, put in first-class shape. The beans were planted about the 5th to 8th of May, and some a little later; they were cultivated once after coming up. The vines made a vigorous growth and blossomed well, but did not set. Some vines have nothing at all, some have a few and some have a fairly good set of pods. Some of the vines were still blossoming in August and had a rich, healthy color, and some vines were losing the bottom leaves, while the top of the vine looks quite healthy. One experienced man told me that I plowed the land too deep, saying bean land should not be plowed more than six inches deep. Is there any theory in this? I do not think this land is too far inland, as I saw a very heavy crop of beans on identically the same land and location two years ago. Can you tell me where the trouble lies? Any information you can send me will be thankfully received, as I desire to attempt another patch next year.—Subscriber, Santa Clara county.

[There is often trouble with beans setting pods from the blossom when the temperature runs high during the blooming period. Just why some set so much better than the others we cannot tell.

As to the growth of the plant, if the plowing was involved and the vines on the deep plowed land did not do as well as the others, it would be owing to the land not having settled sufficiently after the deep plowing to carry moisture from the lower strata to the plant, while the beans on the shallow plowed land would take moisture readily from the upper part of the undisturbed soil which they could readily reach.

Your siutation may not be too far inland for a good product when the season is favorable, but if

there should come a hot norther at the time for setting the pods, the plants might continue to grow, as you say, without producing, or would produce later in the season if a frost did not injure the plant. This being so, one might get very different results in different years, because of the presence or absence of certain disturbing conditions. Land which it is desired to plow deeply for beans should be plowed deeply early in the season, and should be allowed to settle with winter rains, and then be worked shallow in the spring for planting.—EDITOR.]

AGRICULTURAL REVIEW.

COMBINED POULTRY AND PIGEON SHOW.

The sixth annual exhibition of the Alameda County Poultry Association and the fourth annual exhibition of the California Pigeon Club will be held in Oakland, Cal., at the Piedmont Pavilion, November 23 to 28. Much interest is being taken in this event on account of the excellent show hall, which will give ample room to handle an exhibition of 3000 birds single-decked and with broad aisles.

Henry Berrar, the well known poultry judge will place awards and W. F. Whitman and C. B. Jennings of Oakland will judge the fancy and utility pigeons, respectively.

Handsome trophy cups, cash prizes and ribbons will be competed for. The following officers have charge of the joint show: James Stansfield, president; W. E. Gibson, vice-president; Malcolm Lamond, treasurer; William T. Frost, secretary; W. C. Wheeler, superintendent.

The premium list giving awards in full will be mailed to those interested, upon request, by the secretary, William T. Frost, 1915 Thirteenth avenue, Oakland, Cal. Entries close November 12.

MILLION DOLLAR RAISIN COMPANY.

The million dollar corporation proposed by I. Tielman to handle the crop of raisins, commencing with next year, was formally launched at a big meeting of growers held at Fresno last Saturday. Bylaws were adopted, a board of directors of fifteen was chosen and a contract for growers to sign was agreed upon. Besides the board of directors chosen, a committee of five growers is to be appointed to devise ways and means for the disposal of this season's crop of raisins.

The directors chosen were: S. L. Heisinger, Selma and Kingsburg; Wiley M. Giffen, Fresno; B. M. Hopper, Parlier and Del Rey; Frank Wilson, Dinuba; Lucius Powers, Centerville and Sanger; Phil Scott, Temperance Colony; George Feaver, Jr., Fowler; R. Frisselle, West Park; Chris Jorgensen, Madison; N. H. Nishkian, Fresno; Milo Rowell, Fresno; J. E. Dickinson, Fresno. The remaining two members of the board of directors to be selected by the thirteen present members.

The contract to be signed by growers provides for the handling of the crop for five years, beginning next year, and that 50,000 acres of grapes in central California be pledged to be marketed by the new company.

NEW PRODUCTS AT IMPERIAL.

In the Imperial valley several farm products are being tried out this year which now look to be successful. The one which has the largest acreage in an experimental way is Egyptian cotton, and as this crop is now being gathered the results prove that cotton can be successfully grown there. Another crop which is coming to maturity is broom corn, which in several places through the valley gives a big yield. Millet has also made good there this season. One field of 35 acres, which was sown on land after a crop of barley had been harvested, gave a yield of 73 tons. In water district No. 6 hundreds of acres of new land will be seeded to barley and alfalfa. A new alfalfa mill is to be built by John Detlefs on his place near Holtville. Thirty acres will be set out to cabbage on the Morris place near El Centro this month. The plants come from the Coachella valley.

STATE GRANGE OFFICERS.

At the meeting of the State Grange held at Petaluma last week the following officers were elected: Master, E. P. Pettit, San Jose; overseer, F. H. Stiles, Tulare; lecturer, F. H. Babcock, San Jose; steward, W. H. Stuart, Danville; assistant steward, George Schlmeyer, Elk Grove; chaplain, Mrs. Caroline F. Emery, Oakland; treasurer, Joseph Holmes, Sacramento; secretary, Emily L. Burnham, Healdsburg; gate keeper, Cornelius Van Keppell, Santa Rosa. The next meeting of the State Grange will be held at Napa, and an effort is to be made to secure the National Grange meeting for California next year.

LIVE STOCK MEN MAY ORGANIZE.

State Veterinarian Dr. Charles Keane has sent out letters to live stock men of the State asking them to meet in convention at San Francisco, October 22, for the purpose of organizing a Live Stock Sanitary Association. Dr. Keane says the purpose of the association is to bring live stock men and veterinarians of the State into closer touch with each other, to secure co-operation in the work before them, and the discussion of sanitary and hygienic topics. It is expected to be productive of great benefits to the live stock interests of the State, individually and collectively.

Horticultural Notes.

The Pioneer Fruit Company announces that it will build a fruit packing house at Loomis, Placer county, and have it in readiness to handle next year's crop.

According to W. E. Sprott, manager of the Tulare County Fruit Exchange, that section will ship about its usual amount of oranges the coming season—about 2500 car loads.

The crop of Tokay grapes has been about all harvested and the picking of Cornichons and Emperors has commenced. These latter varieties are reported as being very fine this year.

The citrus growers of Oroville, Butte county, report a good and early crop this fall. It is believed the season will be much better than last year, when the yield netted growers $275 per acre.

The El Cajon valley of San Diego county, has shipped 110 cars of citrus fruit during the past season, most of which were lemons. The fruit has netted the growers from 1¼ to 2 cents per pound.

Now that the irrigation problem has been solved by drilling wells for irrigating in the Ducor section, Tulare county, the Reid Development Company will plant fully 200 acres to citrus fruit the coming season.

The largest apple orchard of southern Missouri, comprising 2000 acres, located near Springfield and owned by Haseltine Bros., has a big crop this year, approximating 25,000 barrels and worth nearly $100,000.

The fruit growers of the El Cajon valley, San Diego county, have formed an association for the "improvement of horticulture and agriculture, the highways, home adornment and mutual interests of its members."

Acting under the provisions of the new law relating to county horticultural commissioners, examinations will be held by the State board next month at the following places and dates: Auburn, Placer county, November 10th; Nevada City, Nevada county, November 12th; Oroville,

WHOSE "AD" IS THIS?

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Name and reputation are just as important in buying seed as in banking.

One Customer Says
"I have used your seeds for six years without one failure."
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For over a decade the leading seedsmen of the Pacific Northwest.

GRAFTED WALNUTS

Best stock in the State; every tree guaranteed; no seedlings.

Well Hardened EUCALYPTUS Trees.

"Those we got from you did very well, but what we obtained from ———— practically all died; they were too tender to start with." (Extract from a letter received from a Sacramento planter.)

New Fruits, and all the best older varieties; ornamental and general nursery stock.

PEDIGREED PRUNES!

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200,000 SOUR ORANGE STOCK

For 1910 spring planting. Every plant from Genuine Selected Florida Sour Seed. **Also sweet stock. Don't** buy uncertain and inferior grown plants. This is nursery gospel. **Don't** waste time and money on inferior stock when you can get the best in Southern California for the same price. **Don't** take my word for it: come and see my plants in seed-bed and nursery and be convinced. Plants are 8 to 20 inches now and several months yet to grow. **Contract Now, Get the Best and Save Money.**

See Them at 232 So. Marengo Ave., Alhambra, California — Chas. S. McMillan, Citrus Nurseryman

SEED GRAIN

Recleaned Red Oats
Bluestem Wheat
Pure White Australian Wheat.
Choice Common and Chevalier Barley

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GREENBANK

Powdered Caustic Soda and Pure Potash
Best Tree Wash.
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Butte county, November 16th; Yuba City, Sutter county, November 17th; Marysville, Yuba county, November 17th; Visalia, Tulare county, November 23d; Hanford, Kings county, November 24th; Fresno, Fresno county, November 25th.

Knut Knutson, a fruit grower of Turlock, last week shipped a carload of first-class dried fruit to the Mississippi valley and will retail it to farmers there. The car consisted of peaches, apricots, prunes and honey, and the owner expects to find a ready market.

The first examination for County Horticultural Commissioner, under the new law, was held at Los Angeles last week, when eight candidates for the position took the examination. From the list of successful candidates the supervisors will select the Commissioner and two of the others may be chosen as deputies. The fruit growers in that county have asked the supervisors to allow them a voice in choosing the Commissioner before the appointment is made.

Eastern buyers are credited with making heavy purchases of apples at Watsonville during the past few weeks. The price of 90 cents per box is now freely paid and may go higher. The Austrian fruit men of the valley are supposed to have secured nearly 85 per cent of the crop. The Newton pippins will, it is estimated, total about 1000 cars and will be mostly shipped East. Usually the greater part of the crop of Bellefleurs are sent to Los Angeles and southwestern markets, but this year big shipments are being made to Montana and the northwest.

General Agriculture.

A meeting of delegates from county farmers' unions has been called for Fresno, November 8, to form a State union. The membership of the unions in California now numbers over 5000.

The Hacienda Ranch Company, of Angiola, Kings county, will seed 9000 acres of land in that vicinity to wheat this winter. Seeding to commence about December 1st. Several other parties will put out large acreages there this winter—some of them seeding 5000 acres and more.

Hops are still going higher. Last week a Sonoma county grower reported selling his crop at 25 cents per pound. At Utica, N. Y., the price to growers last week ranged around 32 to 33½ cents, and in one instance a sale was made at 35 cents. The buyers report the crop about all purchased from growers and prices paid better than for many years.

In the western provinces of Canada 6,252,960 acres of government lands have been homesteaded by settlers during the past year. Of the 39,000 families who have moved to the new farms more than 10,000 were from the United States, nearly the same number were from eastern Canada, 5640 were from England and the balance includes representatives from all nations.

The Lima Bean Growers' Association, with headquarters at Oxnard, has offered to buy every pound of this season's crop raised in Ventura, Santa Barbara, Orange and Los Angeles counties, at $3.75 per 100 pounds. The association believes that if the crop is handled right that the whole crop can be sold at a fair price and force the independent buyers from their position of bearing the market.

The crop reporting board of the U. S. Department of Agriculture estimates that the average condition of the corn crop of the country on October 1, was 73.8 per cent, as compared with 77.8 a year ago, and 79.2, the average for 10 years on the same date. The spring and winter wheat crop is estimated at 724,768,000 bushels, as compared with 664,602,000 bushels last year. The average quality of all wheat is 90.4, compared with 89.4 last year.

Stock and Dairy Notes.

Articles of incorporation for a new creamery at Cayucos, San Luis Obispo county were filed last week. Capital stock is $20,000.

Messrs. Machado and Newman, two dairymen of Newman, were at Gridley last week looking over the big Reyman ranch near there, with the view of securing and making a big dairy ranch of it.

Dairymen of Kings county are doing well this year. J. P. Wilkinson, of Ex-

(*Continued on Page 251.*)



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ANYWHERE
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Our Fruit Trees are all budded or grafted from our own tested Orchards. Therefore purchasers are certain to get the varieties they order.
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No Irrigation. Write for catalogue.
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On Fruit Trees
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for poultry and stock for sale at lowest market rates.
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Cereal Crops.

DESIRABLE POINTS IN A WHEAT VARIETY.

Prof. G. W. Shaw, the cereal expert of the Agricultural Department of the State University, has been making extended investigations into the characteristics of wheat desirable for the State. In the summing up of the results several factors have been considered, such as manner of growth, tenacity, days to mature, character of head, rust resistance and heavy yielding plants. The investigations have been carried on with extreme care in the several experimental stations for many months. It is with the object of providing better grain and thus doing away with the necessity of importing large quantities of grain from other States that the work is being carried on. While wheat farming is not carried on as extensively as formerly, it is far from being a decadent industry and Prof. Shaw believes that it is destined for all time to be an important factor in the general wealth of California.

FIGHT AGAINST WEEDS.—Prof. Shaw in a bulletin states: The manner of autumn growth (that is, whether the growth is upright or spreading), is of unusual importance under the present condition of the grain fields as to weeds. Until the farms are in a much cleaner condition than at the present time no wheat is likely to meet with favor unless it will make a reasonably good fight for life among weeds. This factor is not so important in the case of wheats used on summer-fallow land, but in many instances even in this case it is of some importance, because the continued use of the combined harvester, coupled with generally careless methods, has so seriously scattered the weeds in the grain fields as to make even the summer-fallow land exceedingly foul. In such fields the plants that have a low-spreading growth in the fall and winter have but little chance against the weeds in the grain fields as to make them hold their own in the State, despite their low milling qualities.

"This rapid upright growtn enables them to successfully keep ahead of the weeds and finally win the race. With the farms becoming smaller and being given greater care this factor will not be as important. Generally speaking, however, these same spreading varieties require early planting, and for this reason under the conditions of precipitation which hold in large grain-growing sections of the State it is difficult to get them planted, except on summer-fallow land, sufficiently early to have them under favorable conditions for good yield. They must be growing by December 1st to be under even fair conditions, and it is seldom, indeed, except on summer-fallow land, that it would be possible to seed by that date. They will be one of the greatest obstacles in the introduction of these wheats into this State.

"Our present idea is that they are not well suited to the climatic conditions which obtain in this State generally, unless it be in those parts of the State where limited areas of wneat are grown by irrigation, where a late summer or early fall irrigation can be given the land, thus enabling the land to be put into condition earlier than otherwise would be possible.

"Earliness, as measured by days to mature, is also an important point for consideration in the selection of grains for use in California. The wheats should be such as can be planted as late as possible and will have a rapid growth and mature early, before the exceedingly hot weather comes on in the summer. Further, earliness is a great factor in enabling the wheats, and grains in general, to withstand rust attacks, which are very severe in certain seasons. This is extremely important for wheats grown in the Coast counties, for in that region rust is an omnipresent difficulty, owing to the more moist atmosphere. Further, the early wheats are not as apt to be injured by drought as the later maturing varieties.

HAY OR GRAIN.—"Bearing upon this last matter the character of the head as to awns is of greater importance than in most places, because it is a custom here, and one which the fickleness of the climate renders almost necessary, for farmers to be governed largely by the character of the season as to whether the crop is allowed to mature its grain or whether it is cut for hay. If the season seems to be unpropitious for the maturing of a fair crop of grain it will be cut before maturity for hay. Thus, an awnless variety is much preferable.

"The tenacity with which the chaff holds the grain is also an especially important factor in California, where the combined harvester is so extensively used. Grain frequently stands in the field for a month to six weeks after it is mature, and under the heavy winds which prevail in the San Joaquin valley, and certain parts of the Sacramento valley, unless the chaff is very tenacious of the berry there is serious loss. With the use of the self-binder instead of the combined harvester this loses something of its significance, but it will always be a factor of importance. The wheats which have survived in the struggle for existence here have been of this character, and it is one of the principal points in which the Little Club variety appeals to the farmer, and outweighs the undesirable points of this wheat.

"The importance of high-yielding plants is too evident to need any discussion. No other characteristic of a plant is so important, and most of those mentioned above have a bearing upon this quality."

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FARROWING SOWS AND PIGS.

Written for the PACIFIC RURAL PRESS
By Mr. PAUL P. PARKER.

The weight of the porker as we see him on the market is determined the first six weeks after farrowing. Pigs poorly nourished when young will show the effects when ready for the butcher, no matter how well finished and fattened. The food the young pig receives goes toward building up the bone and muscle, and unless enough nutriment is given, the framework of the pig is stunted and his future capacity for carrying meat and fat is considerably lessened. Often this starvation of the little pigs can't be helped as the sow is unable to furnish enough milk. It can be avoided, however, by selling the sows which are poor milkers and only breeding the sows which have proved themselves good mothers. Of course when young sows are being bred for the first time, the only basis of their possible capabilities is their ancestry. Since "like breeds like," it is advisable to use only those sows which had good, prolific mothers. Occasionally this doen't hold true, but in the majority of cases it is a safe plan to follow. Large litters and plenty of milk make hog raising profitable. Sows farrowing only four or five pigs should be fattened and sold because it is an easy matter to get prolific sows. Eight pigs at a litter is a good average and sufficient to make hog raising profitable.

Certain sex characteristics are found in a good brood sow. The forehead should be smooth and broad between the eyes, and a fairly long capacious body. Depth of chest and abdomen are especially important, as sows of this type are generally good feeders and good feeders are usually good milkers. A prolific sow with no milk is as bad to have in a herd as one which is sterile, because the results are the same. The young of a poor milker are so impoverished that when they do not die of starvation, they are so weak that they cannot resist the many ailments which small pigs are heir to. Many hog raisers require twelve well developed teats on breeding sows, so that every pig in a large litter stands a better chance of getting milk.

Defects in the sow can be corrected by breeding to a boar with strong qualities where the sow is weak. For instance, if the sow has weak legs and has difficulty in walking, she should be bred to a boar with strong, compact feet, or if the sow has a sway back use a boar with a straight or even an arched back. In this way a uniform herd can be obtained, a factor which every hog raiser should consider. Where a herd is uniform in size and color, buyers often overlook a few thin hogs in the lot, but where large, small and imperfect animals are mixed together the minimum price is sure to result.

Two litters a year can be raised easily on the Pacific coast. This is due to the mild climate and abundance of green feed. Those pigs farrowed in the autumn should thrive and progress as rapidly as those born in the spring. It is best to breed the young sows when they are eight months old, because if they are allowed to go too long without breeding they often get "shy" of boars. Sows can be bred until about the fifth year, then they should be fattened and sold. There are some sows, however, who are prolific until eight or nine years old. It is an easy matter to tell when a sow is losing her fecundity by keeping a record of her litters, and if they show a decline she should be sold. A sow that has been prolific may for some unknown reason have a small litter, and she should be given another chance, as it often happens the next litter is very large.

When it is possible the boar and sows should be about the same age. Where there is a difference in the age it is preferable to have an old sow and a young boar rather than the reverse of this. It often happens where farmers have not enough sows to keep a boar they will rent or borrow one from the neighbors. In this case it is better to breed to the old sows which have given good litters than take any chance with an untried gilt.

After a sow has been bred it takes about 112 days for her to farrow. During this time she can be turned out on the pasture with the other hogs. If there are horses or cows in the pasture it is best to place the pregnant sows in a separate enclosure about a month previous to farrowing. This is best accomplished by fencing off one corner with portable hog-tight fence. Every one raising hogs should have these portable fences to separate the pasture. When the sows are in this enclosure it is much easier to feed them, as they need a change of feed. This should be done very gradually, however, otherwise many of the little pigs will die at birth. The pregnant sows should be given plenty of green feed and a slop made of bran, shorts or ground barley. Corn or wheat should not be given at this time, as it is fattening and heats up the body. The green grass will keep the sows from becoming constipated. A few days before farrowing place the sow in a pen by herself, where she will not be disturbed. Many hog raisers favor very small pens for farrowing; in fact, so small that the sow has difficulty in turning around. This is done to prevent the sow from walking about and crushing the little pigs. Very little bedding should be used, as the pigs get covered up in it and are stepped upon by the mother. Another safeguard for the pigs is to place a rail or fender on the side of the pen not occupied by the feeding troughs. This fender is about eight inches from the floor and about a foot from the wall. The little pigs will soon learn to get behind the rail when the mother com mences to move around, and save them selves from being crushed.

The sow should be fed very lightly the day previous to farrowing. She needs no assistance when she farrows, although an occasional look does no harm, especially if she has a tendency to crush her young or eat them. If it is found necessary to go in to the pen, care should be exercised so as not to excite the sow, as she is easily aroused at this time.

Green food, such as alfalfa, skimmed milk and the slop of some grain is a good diet the first week. It is easy to overfeed the sow the first few days, so the feed should be watched carefully. Overfeeding is disastrous to the little pigs, killing them with the scours. Shorts, oats or barley should now be added gradually in connection with the skimmed milk. The first month of a young pig's life is the most critical and important in its career, so special attention should be given them. As the pigs grow older keep increasing the amount of grain fed with the alfalfa and skimmed milk, because their systems crave all the milk they can get.

The pigs will commence nibbling their mother's food when about three weeks old. In order to encourage them in this practice and get them accustomed to heavy food, scatter soaked wheat or barley on the floor of the pen. After they have become familiar with the grain turn them out on the pasture, where they will learn to graze; besides following their mother around the pasture will give them exercise. Never keep little pigs confined in pens, because the exercise and sunshine is almost as necessary as food for building up the bone and muscle.

The pasture for the sow and her litter should be apart from the other hogs until the younger pigs have gained sufficient strength to take care of themselves. In this pasture a pen should be built exclusively for the little pigs. This is done by making the opening to the pen large enough to admit the pigs, but too small for the sows to enter. The troughs should be very shallow, so that there is no danger of the little fellows drowning themselves. A thick slop of shorts and skimmed milk is a good diet at this period, which, along with the green grass, soon builds up the little bodies. When the pigs are allowed to graze in the pasture with the sows they wean themselves in six to eight weeks. When weaned in this manner the change to heavier foods is so gradual there never is any danger of sickness resulting from a sudden change of diet.

A young pig should only be given enough grain to furnish material for bone and muscle, because too much will scour them and they will lose many pounds in weight. Grains with hulls, such as oats and barley, should not be fed in any quantity to young pigs until they are at least three months old, because the rough hulls disorders the young pig's tender stomach. Alfalfa, skimmed milk, or any green feed mixed with some grain is the diet for young pigs, although many successful hog raisers feed the pigs only alfalfa and skimmed milk until they are four months old. They then commence giving them barley, wheat or corn until they are ready for the market.

If the sow is fed properly while suckling the pigs, she should be in good condition by weaning time so that it is an easy matter to fatten her for the butcher, or breed her the first time she comes in heat.

NATIONAL MOHAIR ASSOCIATION.

To the Editor: At a meeting of Angora Goat Breeders, held at Silver City, New Mexico, September 23d, there was perfected the National Mohair Growers' Association, its object being the establishing of a central warehouse and selling agency for the marketing of the American clip of mohair.

The following officers were elected:

President, U. S. Grant, Dallas, Ore.;

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A meeting of the executive board will be held at San Antonio, Tex., on November 8th, at which time the location of the central warehouse will be selected, and other matters of importance discussed relative to the marketing of the mohair, full report of which will be published later. Further information, copy of by-laws, etc., can be had by addressing the secretary or any member of the board.

BREEDER.

San Jose.

MODERN SILO CONSTRUCTION.

During the summer of 1908 a bulletin on the above subject was published by the Agricultural Engineering section of the Iowa Experiment Station. The demand for this bulletin was so great that the supply was exhausted within three months after is was received from the printer. In order to supply the requests which have been coming in ever since, a revised edition has been printed. This contains practically the same material as was given in the first edition, with the addition of a few notes which were necessary in order to bring the discussion up to date. The most important addition is a description of the first year's experience with the new tile silo which was erected at the Station last summer.

Any farmer who intends to erect a silo will find Bulletin No. 100, "Modern Silo Construction," a very valuable help in deciding on the type and size of silo to build. A great many practical hints on the details of construction are also given. Copies of the revised edition of this bulletin can be obtained free by applying to C. F. Curtiss, Director Iowa Experiment Station, Ames, Iowa.

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AGRICULTURAL REVIEW.

(*Continued From Page 247.*)

celsior, reports that for the summer his herd of mixed grades, fed on alfalfa and salt grass, averaged $7 worth of milk at the creamery per month.

According to a statement made before the State Grange last week by F. A. Snow, the cash receipts for poultry and eggs for 1908 by Petaluma poultrymen, was $2,116,604. This amount, of course, does not include all of Sonoma county, nor does it take into consideration the value of poultry and eggs consumed at home which were not marketed. With the big production of eggs and poultry in the State, yet hen fruit is shipped in from the central States by the carload.

Miscellaneous.

J. W. Browning and wife, who own 10,000 acres of tule land in Sutter county, have filed a petition with the Board of Supervisors there to include the tract in a reclamation district.

Messrs. F. D. Kendall and T. B. Robinson of Hanford have purchased a large number of pumpkins and this week commenced the season's work of manufacturing pumpkin flour.

The annual Fresno county fair and stock show will be held at Fresno next week, commencing October 18th. Considerable interest is manifested in the butter and dairy tests to be held.

Robert S. Webb, an expert in eucalyptus growing left last week for Australia, where he will gather 1000 pounds of seed of several varieties of eucalypts which will be planted on land owned by the Los Angeles aqueduct, and in San Luis Obispo county. One hundred pounds of seed will supply 1000 acres of land.

A test in pre-cooling ten refrigerator cars loaded with grapes was tried out at Roseville last Saturday. In two hours' time the temperature of the fruit in the cars was reduced from 66 to 40 degrees. This means that grapes will not be picked to ship while half green. That now the fruit will be landed in the markets in better condition and having a better flavor.

The California Canneries Company have issued a circular giving out the information that the canneries of this State find at the end of the season that they have made very light packs, that the market is pretty well cleaned up, and that, unlike last year, there will be little carry-over stock. At the opening of this season the canneries had on hand a heavy stock of last year's pack, which caused them to offer a low price for fruit, the consequence being that the fresh fruit was largely shipped East.

By a decision handed down in the United States Circuit Court of Appeals last week, Timothy Carroll, of Anaheim, wins a fight against the Clarks, owners of the Los Alamitos sugar factory, to compel them to pay him royalties on his patent beet dump. This decision will doubtless mean a fortune for Mr. Carroll, as other sugar companies have been using his patent dump and will now have to pay him a royalty. Mr. Carroll is the pioneer nurseryman of Orange county, and has considerable land near Anaheim which is being farmed in an up-to-date manner.

A LIVE STOCK EXPERT ON THE TARIFF COMMISSION.

The Payne tariff bill authorizes the appointment by the President of a board of tariff experts to assist in the execution of the new law and secure information to be utilized in future revision of the tariff. President Taft has announced the appointment of the commission as follows:

Prof. Henry C. Emery, of Yale University, who will act as chairman of the board; B. Reynolds, of Massachusetts, at present assistant secretary of the treasury, in charge of the customs division, and Alvin H. Sanders, of Chicago, editor and proprietor of the Breeder's Gazette. Mr. Sanders is thoroughly known and appreciated in the West and his appointment will give wide satisfaction.



"Bob—Did you hear about Jim Kline?

"Well, Jim's nephew came out from Chicago this summer to 'rusticate', as he called it, and he asked his Uncle Jim if there were many mosquitoes around here.

"'Well, no,' says Jim real thoughtfully, 'Not if you come at the right time of year.'

"And that roof I used to have on the corn-crib there was pretty much like that—It never leaked if you happened under it at the *right time*.

"But if you didn't want to get your new Sunday suit wet, it wouldn't have paid to hunt for shelter under that roof when it was raining.

"Well, I knew it leaked—but it didn't make much difference in the summer when the crib was empty. I was always too busy in the fall and spring to attend to it, and in the winter when the crib was full was a poor time to put on a new roof. So I was fool enough to let it go a little too long.

"That roof kept getting worse and worse, and first thing I knew I had a lot of spoiled and mildewed corn there on the East half of the crib where the roof was worst. Guess I lost about three hundred bushel that way; rotted so it wasn't even fit to feed the pigs.

"So I come to then—that taught me a lesson. I lost a whole lot more than the cost of a good roof.

"But I've learned by experience—cost me a good deal, too—and by reading the papers—and by keeping an eye on the different kinds of roofing tried around here.

"And you see I've got Rex Flintkote Roofing on that crib now—

"So I know this year's crop of corn will keep sound and dry. I stopped right in the middle of my fall-plowing to put that roof on, too—decided that it was just as important to *keep* a crop as it was to raise it.

"You see I've got Rex Flintkote Roofing on my barn, too—built the barn after I did the crib. Wasn't satisfied with the crib-roof—didn't want shingles—so I made up my mind to make sure of a good roof. It pays, you know—look at all the stuff you've got in a barn—hay and all that—all easily spoiled under a leaky roof. Horses hard to keep in good condition, too, unless they're under a warm and dry roof.

"I looked through the farm papers. Came across a Rex Flintkote Roofing ad.—looked good to me—sent for free sample—tried it with live coals of fire—proved it wouldn't catch—tried it every which way. That looked to me like mighty fair-and-square proof that Rex Flintkote Roofing would stand the racket better than anything else I could get. So I put it on.

"Another thing—you've generally got to hire a carpenter to put on shingles—and an expert to lay tin or tar-and-gravel—

"But anyone can lay Rex Flintkote—any farmer or his hired man. Do it when other work's slack—all you need is a hammer and a little ordinary common sense. Everything else comes in the roll.

"It's made of a long-fibre felt—and thoroughly saturated with some kind of indestructible mineral waterproofing compound. Every little pore is filled up tight with this compound—so neither the hot sun or the rain or snow, or anything at all, can get at it. You know these things soon eat the life out of other roofing materials.

"Yes, you can get Rex Flintkote at most any dealers. Look for the Boy trademark—or write the manufacturers—they'll tell you. And they'll send you free samples to test the way I told you I did—And a mighty good little book about roofing, too. Just write to

J. A. & W. BIRD & COMPANY, 91 India Street, Boston, Mass."

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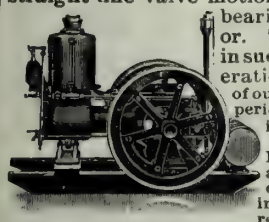
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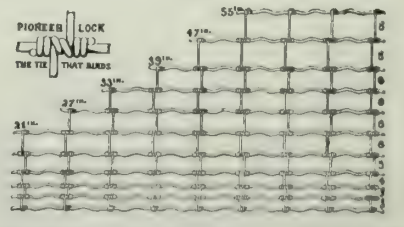
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The Poultry Yard.

A CHAPTER OF QUESTIONS AND ANSWERS.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

CONCERNING POULTRY HOUSE FLOORS.—D. N., of Santa Cruz, writes: "I note in one of our poultry papers the editor in giving instruction in building poultry houses in California, says that board floors are not needed. This would be considerable saving, but I don't want to make any mistake in the houses I am about to build, so ask your opinion. I have gained much practical information from the PACIFIC RURAL PRESS, and will be largely guided by your answer to my question, for which I thank you in advance."

The board floor is an essential part of the California poultry house. No matter how well drained the location or well banked the house, the water will seep in through gopher runs during our long winter rains, with the resultant dampness so injurious to fowl. Again, there is no security for young stock without tight board floors. Rats will make their burrows under dirt floors, and weasels, skunks, etc., will scratch under when the heavy rains soften and loosen the banking. I know of a poultry plant in San Pablo valley that lost hundreds of dollars through the fatal mistake of using dirt floors. The owner was a novice who had "read up," but knew nothing further on the subject. He built a brooder house some 100 feet in length and 15 feet in width, and a number of colony houses. They were fairly well built in other respects but had only packed earth floors even in the large brooder house. Rats? I should say rats! Three 360-egg Cyphers incubators hatched the chicks for them, and the slaughter was simply appalling. The rats were fairly glutted. When the chickens that escaped the early carnage were put in the colony weaning houses, the bloody work still went on, and half-grown pullets were devoured nightly in spite of the warfare on the rats. The owner early saw that he must put in tight board floors but, having already spent all of his available cash, he simply couldn't afford it. When he did finally get them in, on account of the buildings being made so low, the floors could be raised only a few inches above the ground, and the rats and other such varmints located under them and could not be got at.

Among some of my own tragic early experiences in poultry raising in California, is the loss of 40 three-month-old pullets in one night from weasels that got under the siding of a colony house when the banking was loosened by the first heavy rain. Yes, tight board floors are needed in our poultry houses, and they should be set up 18 inches or more from the ground, so that a dog, cat or even a person may get under them and keep the quarters clean and free from varmints. This also preserves the boards and prevents dampness.

It happens that many of our instructors in poultry culture are from the East where the dirt floor often proves satisfactory. A person may be past master in the art of poultry raising in the East, still he needs to take a post graduate course in practical poultry raising on a large scale in California before he can be a safe guide to our poultrymen.

LAMENESS IN FOWLS.—We have had several inquiries as to the cause of fowls being afflicted with lameness. One poultry raiser in San Joaquin valley reports that six of her April hatched pullets are so afflicted, also that they are very thin though their appetite is fairly good. Another case that has come under our personal observation, is of two young hens that became lame just as they began to molt. It was thought that they had sprained their thighs as they seemed all right in other respects. They were placed in another yard but they did not improve as to the lameness and one of them became unable to walk when she was killed and it was noted that she was exceedingly thin, as was the other one that was kept until she had completed her molt; but the leanness and lameness continued though she was quite energetic and industrious about getting around. She was finally killed and was found to have almost no blood.

When such cases of lameness and emaciation occur they may be considered certain symptoms of some organic disease in the fowl. These symptoms are present in liver complaint but more especially do they belong to tuberculosis. The following points of interest in connection with this subject are taken from the bulletin, "Tuberculosis in Fowl," by Dr. Ward, veterinarian of the Agricultural College at Berkeley, after a careful study of this disease among the fowls of the Coast.

"Tuberculosis in fowls is a serious pest in Europe but seems to have been rare in America, or at least has not been frequently reported. The disease exists extensively among many large poultry ranches, but seldom kills enough fowls at any one time to excite the alarm of the owner. There seems to be no noticeable symptoms until the disease has progressed far enough to cause emaciation and weakness. In such cases the breast muscles are found to be wasted away and the light weight is very noticeable. Lameness often occurs, and poultrymen usually refer to such fowls as affected with rheumatism. This conclusion is not justified, for in a number of such cases the writer has been able to find tuberculosis of the joints, which would account for the lameness. In most cases the liver is affected, the lungs are very rarely affected. Tuberculosis is an infectious disease caused by organisms known as tubercle bacteria. The presence of tubercular growths in the walls of the intestines and in the liver suggests that the bacteria enter the body with the food. The rarity with which tuberculosis occurs in the lungs of the fowl would indicate that infection by inhalation occurs rarely if at all. The practice of feeding soft food from the ground affords the best opportunity for infection through the droppings. There is no known remedy for the cure of tuberculosis in the fowl. Affected birds should be killed as soon as the existence of the disease is recognized. It is useless to attempt treatment."

Our experience and observation incline us to the belief that consumption, whether the real tuberculosis we cannot say, is sometimes developed in fowls of weak constitution just as they come to the molt after a long period of egg-production, independent of any source of infection, as in the case of the two hens mentioned. A rigid culling out of all slow-growing, stunted, weakly chicks, and fowls of weak constitution and fragile build would make poultry keeping a much more profitable and certain business.

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Greatest Known Spray or Wash for Scale: San Jose, Black, Red, Purple and Brown. Also a sure thing for Mildew, Gum Disease, Red Spider, Canker Worm, Moss, Caterpillars, Lice, Coddling Moth, and all Insects and Bugs that infest plant life; without injury to the plants, and with positive benefit to the soil. Scalefoe has long been the leading Spray or Wash in many sections of the country, wherever introduced. Also kills Lice and Mites on Poultry.

Gallon can, 85 cents; 5 gallon can, $3.75. If not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us within 300 miles. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Guaranteed as represented or money back. Circular with many testimonials.

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LOS ANGELES.



"LET THE HEN DO THE WORK"

HAVE YOU USED

KILLUM?

The Home Circle.

A Fellow's Mother.

"A fellow's mother," said Fred, the wise,
With his rosy cheeks and his merry eyes,
"Knows what to do if a fellow gets hurt
By a thump or a bruise or a fall in the dirt.

A fellow's mother has bags and strings,
Rags and buttons, and lots of things;
No matter how busy she is, she'll stop
To see how well he can spin his top.

"She does not care—not much, I mean,
If a fellow's face is not always clean;
And if his trousers are torn at the knee
She can put in a patch that you'd never see.

"A fellow's mother is never mad,
But only sorry if he is bad;
And I tell you this, if you're only true,
She'll always forgive you, whate'er you do.

"I'm sure of this," said Fred, the wise,
With a manly look in his laughing eyes,
"I'll mind my mother, quick, every day,
A fellow's a baby that don't obey."

—*Junior Post Express.*

Portola Festival.

The Portola Festival which is to take place in San Francisco next week, commencing the 19th, is planned to be the biggest thing of its kind ever attempted in the State. It is expected that all loyal Californians will make a great effort to be present, not only to enjoy the many attractions that will be in evidence but to show their confidence in and loyalty to the metropolis of the State.

It will be a fine opportunity to observe how well the city has rallied from the disastrous fire and earthquake.

Don Gaspar de Portola, for whom this festival was named, was the first Governor of California and the discoverer of San Francisco bay. He came to this country to carry out the order for the expulsion of the Jesuits issued by King Charles III of Spain. After his arrival in San Diego in 1767 and the capture of the mission of San Jose Cabo, he planned an expedition northward in search of Monterey bay.

This expedition, which was not successful, was followed by several others, and on one of these the bay of San Francisco was seen. This event was recorded in the journal of Father Crisp, and has been generally accepted as the first notice of the bay of San Francisco. However, there have been some authorities who claim that that honor belongs to others than Don Gaspar de Portola. But that will in no wise affect the entertainment that will be offered to all visitors in the form of balloon races and polo matches, aquatic sports, fine decorations, superb illuminations and the presence of foreign battleships in the harbor.

Pansy Culture.

All flower lovers who have not already planted pansy seed should do so now. Fill shallow boxes with a sandy loam and scatter the seed evenly over the surface; then cover lightly with soil. Care must be taken to keep them moist but not soggy. When plants are large enough to be transplanted, plant them in some tolerably sunny locality, as they will make early spring blooms. A generous use of fertilizer is necessary until they are blooming freely.

Wanted Buttons.

Three doctors were operating on a man for appendicitis, says Success. After the operation was completed one of the doctors missed a small sponge. The patient was reopened, the sponge found within, and the man sewed up again. Immediately the second doctor missed a needle. Again the patient was opened and closed. Then the third doctor missed a pair of scissors. "Gentlemen," said the victim, as they were about to open him up again, "for heaven's sake, if you're going to keep this up, put buttons on me."—Detroit Free Press.

Recipes.

Most of the fruit canning is over with for the summer, and how rich we all feel to know there is a generous supply of good things for the winter in the cellar or on the pantry shelves. However, there are still pickles, both sweet and sour, to be thought of, and every family has their own particular likes and dislikes in this respect. Here is a chili sauce recipe that is used by a good cook in Oakland that some of our readers may like to try:

CHILI SAUCE.—Twelve large ripe tomatoes, pared, two large onions, four long green peppers, one tablespoon salt, four tablespoons sugar, two teacups vinegar; spices to taste. Chop onions and peppers fine, put all in granite kettle and let simmer about four hours.

PICKLED STRING BEANS.—Boil till tender in salted water and drain perfectly dry. Fill glass jars and cover with hot vinegar, flavored as you please, and seal up while hot. This makes a very palatable pickle for midwinter.

KEEP THE MOUTH SHUT.—An important safeguard is to teach children always to breathe through the nostrils—sleeping or waking, walking or running. Explain the necessity of the habit in terms they can understand, and make them remember and practice it. Have them walk rapidly with the lips tightly closed. Increase the distance and speed daily. When a boy or girl can walk fast or run three hundred yards, breathing only through the nose, and repeat the performance three times a day, there need be small fear of chronic nasal catarrh. Never neglect a cold in the head. It is usually considered one of the least of human ills, but is often a slow match leading to disaster.

SPRAINS.—Sprains require prompt and thorough attention. Soak the affected part in hot water for twenty to thirty minutes. The water should be maintained at as high a temperature as is possible by the addition of very hot water at frequent intervals. Afterward an elastic bandage should be applied to the affected joint in such a way as to prevent swelling on the outside of the bandage. The foot should be elevated for a few hours, until the tendency to inflammation has subsided. After the first twenty-four hours very gentle rubbing of the limb may be employed. The rubbing movement should be in a direction from the injured part toward the heart.

Putting It Up to Billie.

The wagons of the greatest "show on earth" passed up the avenue at daybreak. Their incessant rumble soon awakened ten-year-old Billie and his five-year-old brother, Robert. Their mother feigned sleep as the two white-robed figures crept past her bed into the hall, on the way to investigate. Robert struggled manfully with the unaccustomed task of putting on his clothes. "Wait for me, Billie," his mother heard him beg. "You'll get ahead of me."

"Get mother to help you," counseled Billie, who was having troubles of his own.

Mother started to the rescue, and then paused as she heard the voice of her younger, guarded but anxious and insistent:

"You ask her, Billie. You've known her longer than I have."—Everybody's Magazine.

Flower Imitates Insects.

Orchid imitations are a puzzle to flower scholars. The whole appearance of the flower is suggestive of some insect, sometimes to quite a remarkable degree. It does not seem easy to find any real purpose that could be served by this resemblance, yet no one imagines that it can be accidental.

Any one who knew of the bee orchid, a native of Europe, and came upon it for the first time would at once recognize it. It seems to be a large velvety brown backed bee variegated with yellow. The two lateral petals might serve for the wings of the insect.

In the centre of the lip of the fly orchid there is a small bluish spot like the body of a fly. The two lateral petals are slender and curiously like the antennæ of an insect. The whole illusion is complete and suggests to the casual glance that a few flies are hanging on the stem of some plant which has cast its flowers.—Chicago Tribune.

Out of the Question.

"Here is something very elegant," says the salesman, piloting the lady through the display of beds. "This is our latest design in twin beds, and is one of the most popular things we sell. I would suggest that you cannot do better than to buy them."

"Twin beds?" replied the lady. "They are pretty, but—but we haven't twins!"—Chicago Post.

Breakfast a la Mode.

"John, I believe the new girl has stolen the whisk broom; I left it on the dining-room table last night."

"I guess the joke's on me, Mary; it was not quite light when I got up this morning, and I thought you had left shredded wheat biscuits out for my breakfast."—Houston Post.

Sheigh DeLaynes (reading)—Say, DeCann, here's a sientis' wot sez dat in 3,372,439 years dere won't be no coal lef'. Wot'l we do den?

DeCann Hooper (eating)—Dere y' go 'gain, worryin' bout sum t'ing wot's nun o' yer biz. Duz yer fren—th' dillytanty sientis'—put fort' enny gems o' t'ought as t' wen th' supply uv mince pie 'n coal roas' beef'l be egsaustid?—Chicago Record-Herald.

Sillicus—We are told there is plenty of room at the top. I wonder why it is.

Cynicus—I suppose most of the people who get there fall off.—Philadelphia Record.

"Life is full of ups and down," queried the Wise Guy, "Yes, most of us have to keep down expenses to keep up appearances," replied the Simple Mug.—Philadelphia Record.

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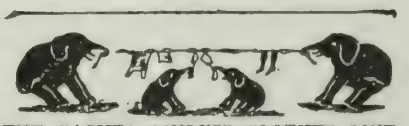
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MAIN OFFICE—333-4-5-6 ARCADE BLDG., SEATTLE, WASH.

THE MARKETS.

San Francisco, Oct. 13, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The market is more active locally, the milling grades being in strong demand and moving quite freely. The movement to shipping points is becoming more general in the North. Spot wheat is very firm, with an upward tendency in prices, Sonora and white Australian being higher.

California Club	$1.70	@1.75
Sonora	1.80	@1.90
White Australian	1.82½	@1.92½
Northern Club	1.60	@1.65
Northern Bluestem	1.80	@1.82½
Russian Red	1.60	@1.62½
Turkey Red	1.72½	@1.77½

BARLEY.

The demand here has remained very light, and there is no movement of any consequence, though shipping grain continues in fair demand. The market is stronger, however, both for spot and future barley, feed being quoted up to $1.40 again. Shipping grain is held at top quotation, and brewing is also higher.

Brewing	$1.42½
Shipping	1.42½
Chevalier	Nominal
Good to Choice Feed, per ctl.	1.37½@1.40
Common Feed	1.30 @1.32½

OATS.

Very heavy offerings are coming out in the North, and supplies on hand locally are comparatively large. The market has been rather easy, but the demand is now improving, and former prices are still maintained. Seed oats are moving quite freely in some quarters, but feed grades are by no means active.

New Red, choice	1.60	@1.70
Common	1.50	@1.60
Red, seed	1.90	@2.10
Black	2.35	@2.70
Gray	1.55	@1.60

CORN.

Prices show no change whatever since last week, and those quoted are little more than nominal, as there have been no arrivals of any consequence and little movement is taking place. Supplies are very light and mostly held by one firm.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk.		1.68
Mixed, in bulk		1.66
White, in bulk		1.73

RYE.

Rye is in small demand at present, and while there is some inquiry buyers are generally unwilling to pay the prices asked. The small supplies available are very firmly held at the former figures.

Rye, per ctl. $1.80 @1.85

BEANS.

According to all reports, damage by the rain was comparatively light, owing to the good weather which followed, and harvesting has been actively resumed in all districts. A few lots have been offered here which show some damage, but the quantity of such stock is thought to be small. The market here shows no very decided change, though a few lines are higher. There is, however, a downward tendency in white beans, colored beans holding very steady on account of small arrivals. Blackeyes are firm, with a good demand for early shipment. Limas show no change whatever. They are very strongly held by many growers, and in view of the controversy in regard to market conditions are not yet moving in a large way.

Bayos, per ctl.	$3.60	@3.75
Blackeyes	3.75	@3.90
Cranberry Beans	3.25	@3.50
Garvanos	2.60	@3.00
Horse Beans	1.50	@2.25
Small Whites	4.00	@4.25
Large Whites	3.15	@3.35
Limas	4.00	@4.10
Pea	Nominal	
Pink	3.15	@3.30
Red	Nominal	
Red Kidneys	3.65	@3.85

SEEDS.

A sharp increase in the demand is reported during the last two weeks, and the market is now fairly active. No shortage is reported, but supplies are not excessive, and the market in general is firm at the last quotations.

Alfalfa, per lb.	17½@18 c
Broomcorn Seed, per ton	$20.00@25.00
Brown Mustard, per lb	4 c
Canary	4¼@4½c
Flaxseed	4 c
Hemp	3¾@4¼c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

There is little inquiry except for the regular local trade, but the movement has increased greatly within the last few weeks. With continued firmness in the wheat market, millmen believe that the next change in flour will be upward, and large orders are accordingly being placed by dealers and large consumers.

Cal. Family Extras	$6.20	@6.60
Bakers' Extras	6.20	@6.60
Superfine	5.10	@5.30
Oregon and Washington	5.30	@5.50

HAY.

The weeks' arrivals show another reduction, the total being unusually small. The Government contract for 10,000 tons has finally been let in the North, notwithstanding the lower prices ruling in this market, but there has nevertheless been a much stronger tone to the local market. Choice varieties are especially firm, and a large demand is expected during the remainder of the season. The medium and lower grades are said to be still slow, and alfalfa is lower, while stock hay is quite weak. All better grades, however, including wild oat, are higher, and some of the choicer lines occasionally sell above the present quotations.

Choice Wheat, per ton	$19.00@21.00
Other Grade Wheat	13.00@18.50
Wheat and Oats	14.00@16.50
Tame Oat	14.00@17.00
Barley	10.00@13.50
Wild Oat	10.00@13.00
Alfalfa	9.00@12.00
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

General conditions remain about as before, with quotations unchanged. The California market is taking up all the local output of the principal lines, and no difficulty is found in disposing of large arrivals from the North. Rolled barley is firm at the recent decline, and other descriptions are unchanged.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Corn Meal	38.00@39.00
Cracked Corn	39.00@40.00
Middlings	36.50@37.50
Mixed Feeds	28.00@32.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	29.00@30.00
Shorts	31.50@33.00

VEGETABLES.

Onions remain firm, with a fair demand, but prices show no advance, as the supply is plentiful. The variety of miscellaneous vegetables is becoming more limited, as some of the summer descriptions are about out of the market. Green corn is hardly worth quoting, though some poor stock is still arriving from Alameda county. Tomatoes are still pressed for sale, with prices as weak as before. Supplies in other lines are not so large as a few weeks ago, but with only a moderate demand prices are comparatively low on nearly everything. String beans, summer squash, egg plant, okra and cucumbers have declined in the past week, while no advance is quoted on any line.

Onions—New yellow, per ctl.	70@	80c
Garlic, per lb.	4@	5c
Green Peas, per lb	3@	5c
String Beans, per lb	2@	5c
Lima Beans, per lb	5@	6c
Tomatoes, per box	25@	50c
Summer Squash, large box	50@	65c
Turnips, per sack		1.00
Cucumbers, large box	50@	65c
Egg Plant, per box	30@	50c
Okra, per box	50@	75c

POULTRY.

The demand for poultry has been rather slow for several days past, and while quotations show no decline, prices are inclined to weakness and expected to go lower. Quite a lot of Eastern stock was held over from last week, and with three cars coming in for the opening the market was rather overstocked. Local poultry is in small supply, and only the best of it receives any attention. The demand for turkeys is still small.

Broilers	$ 4.50@	5.00
Small Broilers	3.00@	4.00
Fryers	5.50@	6.50
Hens, extra	8.00@	10.00
Hens, per doz	6.50@	7.00
Small Hens	4.50@	5.00
Old Roosters		4.50
Young Roosters	7.00@	7.50
Young Roosters, full grown	8.00@	10.00
Pigeons		1.25
Squabs		2.50
Ducks	5.00@	8.00
Geese, per pair	2.00@	2.50
Spring Turkeys, per lb	24@	26c
Gobblers, live	18@	21c

BUTTER.

The market is in good condition for sellers, as a further advance has taken place in the upper grades. There has been a little fluctuation, due to a rather large arrival, but the stock has cleaned up readily, placing extras 2 cents above the last quotation. Firsts are also a cent higher. Local storage stock is now coming out of the icehouses in considerable quantities, and is selling freely at the quotations. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	37½c
Firsts	31 c
Seconds	28½c
California Storage (extras)	30 c

EGGS.

The upward movement in eggs continues, with a further advance in extras nearly every day. This grade has been extremely scarce, the arrivals being entirely inadequate for the current demand, and trading on firsts has accordingly been quite active, causing an advance of 3 cents. Storage goods are also in fair demand at the quotations given.

California (extras), per doz	56½c
Firsts	46 c
Seconds	30 c
Thirds	24 c
California Storage (extras)	31 c

CHEESE.

Cheese has been firmer again this week, as there has been considerable inquiry for shipment to other markets, taking up all the surplus on hand. The fancy grade of both local flats and Y. A.'s is higher, though firsts are unchanged. Oregon and Eastern lines are firm at former prices.

Fancy California Flats, per lb.	16 c
Firsts	14½c
New Young Americas, fancy	17 c
Oregon Flats	16 c
Oregon Young Americas	17 c
N. Y., fancy	18½c

POTATOES.

A fair movement is reported, but arrivals are quite liberal from all producing districts tributary to this market, and prices are accordingly easy, all lines being a little lower.

Potatoes—River Whites	60@	75c
Salinas Burbanks	$ 1.25@	1.40
Oregon Burbanks	1.00@	1.10
Sweet Potatoes, ctl.	1.50@	1.65

FRESH FRUITS.

Buying is rather irregular and in small quantities, and the market generally is in rather poor condition, with about the last of several lines coming in. The only description dropped since last week, however, are Bartlett pears and figs, which are not offered in sufficient quantities to quote. Plenty of watermelons are to be had, but they are mostly poor and very cheap. Berries are higher. There is still a fair demand for nutmeg melons, prices on which are firmly held. Peaches are higher, with few to be had. Grapes are rather slow, most of the stock being in poor condition, though attractive lots find a ready market. Common apples are easy, but first-class stock is in strong demand both for local trade and for shipment.

Melons, Nutmeg, per box	50@	85c
Raspberries, per chest	5.00@	6.00
Cranberries, per bbl	9.50@	10.00
Strawberries	3.00@	4.00
Huckleberries, per lb	8@	10c
Grapes, per crate	50@	75c
Lug boxes	50c@	1.00
Wine Grapes, per ton	9.00@	15.00
Apples—		
Fancy, per box	1.00@	1.50
Common	40@	90c
Peaches, per box	60@	85c
Pears—		
Winter Nelis	1.00@	1.25
Other varieties	50c@	1.00
Quinces, per box	50@	75c
Pomegranates, small box	50@	75c

CITRUS FRUITS.

The growers' market shows very little change, remaining active on most lines of fruit, with an upward tendency in some descriptions. Peaches are quite firm, and growers' stocks have been pretty well cleaned up in some districts. Apricots are closely cleaned up, and prices are higher in the Eastern markets, though the local quotations are unchanged. Evaporated apples are beginning to move in fair volume, and prices are strongly held, though some stock is offered below the former quotation. Prunes show constantly increasing firmness and the packers are taking all they can get at the present price. Large sizes are said to be very closely cleaned up, and hardly anything is being offered as freely as a few weeks ago. Raisins are still unchanged, and some lots have been reported sold at lower prices than the ruling quotations. Eastern buyers are still holding off, but some conservative buying is being done by local interests, as a large demand is expected within the next month. The market, however, is still very weak and uncertain.

Choice Lemons	$ 3.00@	3.50
Fancy Lemons	4.00@	4.50
Standard	1.50@	2.50
Limes	6.00@	6.50
Oranges, Valencias	2.00@	3.00
Grape Fruit	2.50@	3.00

DRIED FRUITS.

A few days of warm weather brought a better demand for citrus fruits, but the movement is not very active, and some reductions are noted. Valencia oranges are lower again and grape fruit is hard to sell at the top figure. Fancy lemons are also a little easier.

Evaporated Apples, per lb	7 @	7½c
Figs, black, new crop		2 c
Figs, white, new crop		2¼c
Apricots, new crop	8½@	9 c
Peaches, new crop	4½@	4¾c
Prunes, 4-size basis	2¼@	2½c
Pears	6 @	8 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox	2 @	2¼c
Thompson Seedless		2 c
Seedless Sultanas		1¾c
London Layers, 3 crown	85@	95c

NUTS.

Walnuts are reported closely cleaned up since the opening of prices by the southern association, and there is a good demand for the new nuts locally, as the market has been bare for some time. Ungraded nuts have been sold by private parties at about 9½ cents, but association figures are well maintained. New almonds are coming forward freely and find a ready market.

Almonds (new crop)—	
Nonparells	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7½c

HONEY.

The market is still very dull on most grades, both here and in producing districts, though a large part of the crop has been shipped. First-class honey is scarce here, but amber grades are plentiful and find hardly any demand.

Comb	10	@14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½@	4 c

HOPS.

Prices show no further change, and the local market is quiet, though there have been some good sized sales to Eastern brewers lately. Dealers are holding firmly and most of the growers have disposed of their crops.

Hops, Old, per lb	12	@16 c
New crop	20	@25 c

WOOL

The better lots of the fall clip are in fairly good demand and firm, and all the fall wools are strongly held by growers, though buyers show very little interest in defective wools, and on the whole the market is quiet.

Fall clip, Northern Free	12	@15 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½@	8½c

MEAT.

The market shows little change, either in prices or conditions. Pork remains fairly steady, while mutton is firm.

Beef: Steers, per lb	6½@	7½c
Cows	5½@	6½c
Heifers	5½@	6½c
Veal	7½@	10½c
Mutton: Wethers	8 @	9 c
Ewes	7½@	8 c
Lambs	9½@	10½c
Hogs, dressed	9 @	11½c

LIVESTOCK.

Steers: No. 1	4 @	4½c
No. 2		3¾c
Cows and Heifers: No. 1	3⅜@	3½c
No. 2		3 c
Bulls and Stags	1¾@	2 c
Calves: Light		5¼c
Medium		4¾c
Heavy	4 @	4¼c
Sheep: Wethers	4½@	4¾c
Ewes		3¾c
Lambs	5¼@	5½c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs		7¼c
250 to 325 lbs		6¾c
Common Hogs, lb	4½@	5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., October 12.—The Valencia market is still quite steady and the prices received at the Monday auction sale were very good and about on par with the average for the past two months. The sales were held and over before the blizzard weather of Monday had struck, which was fortunate as it would, no doubt, have affected the demand had it been raging in the forenoon.

The demand for Valencias is very light at this end, and as has been the case for some time, the fruit is being rolled to be sold on the delivered basis, either to interior markets or auction points. The output still keeps up to the 30 a day mark and no one seems to know when it will end. From date to the end of October of last year but 110 cars of oranges were shipped. Today the exchange claims to have around 250 cars of oranges on hand unsold, either in California or rolling. Of this amount at least 150 cars must be yet in the State, and if the independent shippers have as many more there are 300 cars that can be counted, and for the 15 shipping days still left in the month, this would mean 20 cars a day. Of course there is no law compelling the shipper to get his stock out by the 31st of October, but as that is the end of the railroad year and the beginning of the shipment of the new navel crop, the shippers have always, heretofore, tried to get all Valencias out by that time.

The shippers report increasing orders for new crop navels from the north and it looks like a good season. Florida fruit has been on the market for some time, but there is nothing like a navel to attract the jobber, and he wants them from the time they start until they finish. First shipments from the north will be about October 25th, which was the day of the first shipment last season. Sizes are better than last year, when they were too small and difficult to handle on that account.

The citrus fruit shipments to date have been 31,434 cars of oranges and 6064 cars of lemons, as against 24,428 cars of oranges and 4702 cars of lemons.

Deciduous Market Report.

Grapes are about all the fruit left to be shipped, though there are a few cars of pears. The California Fruit Distributors, in their weekly letter, say that Eastern market conditions are getting better and an increased price is expected. The crop of Emperor grapes will not be so large as expected, while the Cornichons are showing up good. The fine weather in the fruit districts during the past week has helped the Tokay grapes. Last week the total shipments of grapes were 292 cars, and pears 9 cars.

Eastern prices average as follows:

New York—Tokays, $1.25.

Chicago—Lodi Tokays, 85c.; Florin, $1.10; Malagas, $1; Cornichons, 90c.

Boston—Malagas, $1.10; Cornichons, $1; Tokays, $1.30; Woodbridge, $1.15.

Total shipments of deciduous fruits to October 11th, 12,053 cars, as against 10,491 cars same date last season.

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WHAT COUNTIES GET FROM FOREST RESERVES.

Acting Secretary Willis L. Moore, of the Department of Agriculture at Washington, has forwarded the following communication to Senator George C. Perkins, which is self-explanatory:

"The Agricultural Appropriation Act for 1909, approved May 23, 1908, provides as follows:

"That hereafter 25 per centum of all money received from each forest reserve during any fiscal year, including the year ending June 30, 1908, shall be paid at the end thereof by the Secretary of the Treasury to the State or Territory in which said reserve is situated, to be expended as the State or Territorial Legislature may prescribe for the benefit of the public schools and public roads of the county or counties in which the forest reserve is situated. Provided, that when any forest reserve is in more than one State or Territory or county the distributive share to each from the proceeds of said reserve shall be proportional to its area therein.

RECEIPTS IN CALIFORNIA.—"Pending settlement by the Secretary of the Treasury and determination of the exact distributive share of the State of California, the following report from the records of the forest service will show you the net receipts from the national forests in your State during the fiscal year beginning July 1, 1908, and ending June 30, 1909, and the approximate (but perhaps not the exact), amount due under the terms of the act just quoted:

Angeles	$ 9,433.20
California	7,746.72
Cleveland	3,162.50
Crater*	391.48
Inyo*	10,741.75
Klamath	6,707.16
Lassen	6,361.05
Modoc	11,826.55
Mono*	4,223.29
Monterey	4,491.65
Plumas	29,308.71
San Luis	1,156.60
Santa Barbara	5,580.71
Sequoia	24,685.85
Shasta	7,129.21
Sierra	17,255.23
Siskiyou*	42.32
Stanislaus	14,227.95
Tahoe*	22,894.51
Trinity	4,072.25
Total	$191,438.69
25 per cent	47,859.67

(*Partly in another State. Receipts prorated according to area).

"It gives me great pleasure to notify you of this direct contribution of the national forests to the schools and roads in the counties of your State in which the forests lie."

PUBLISHER'S DEPARTMENT.

The Alfalfa Lands Co., whose offices are on the fourth floor of the Monadnock block, are advertising in the PACIFIC RURAL PRESS. Their announcement can be found on the market page of the PACIFIC RURAL PRESS every week for the next year. The Alfalfa Lands Co. have some exceptionally fine alfalfa lands in San Joaquin county, Cal., and are in a position to sell the property on very favorable terms, and locate farmers in "the garden spot" of the Coast, on easy terms. The Alfalfa Lands Co. is composed of a set of men who understand the details of alfalfa culture, and are capable of advising farmers as to the merits of the country, especially its adaptation to alfalfa culture.

Messrs. Andrews & White, of Petaluma, are manufacturing a brooder and incubator heater, in the PACIFIC RURAL PRESS, a device of their own manufacture, that is so simple in form that it almost works itself, without human aid. We advise the poultrymen to look it up and they will readily see its merits. Andrews & White manufacture other features pertaining to successful poultry incubation, and new devices are being taken up all the time. They are up-to-date boys, both of them.

We take pleasure in directing our readers to an ad. of the Lansing Wheelbarrow Co., which makes its first appearance in this issue. The Ideal Engine which they show, is said to be very high-class, and its simplicity of construction is of greatest value. The fact that ladies are oftentimes the only ones operating the smaller sizes shows their superior efficiency for use in running cream separators, sewing machines, etc. They invite you to send for catalog "A."

Wheeler, Reynolds & Stauffer, of 624 California street, San Francisco, are carrying a stock of carbon bi-sulphide, which is a splendid exterminator of squirrels, gophers, rats, etc. It will prove advantageous to farmers and nurserymen who are being damaged by these pests, to call on the above named firm and ascertain the detail of facts as expressed above. This is a reliable firm, and their recommendation goes a great ways.

James S. Hawkins, secretary and manager of the Standard Gas Engine Co., Oakland, Cal., is touring the East in the interests of his company. Mr. Hawkins will make New York, Baltimore, Washington and New Orleans, returning to San Francisco in about one month.

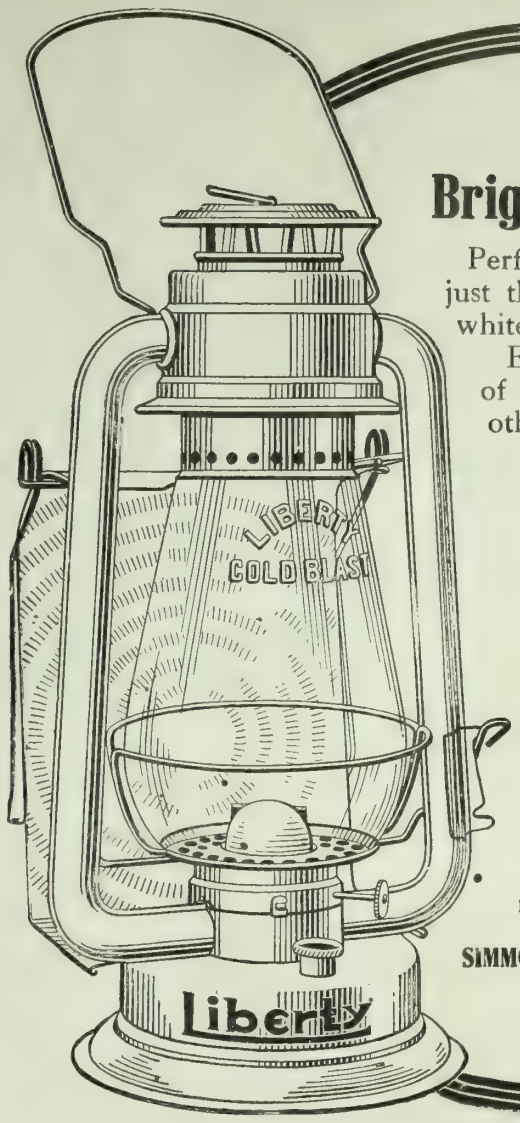
In our horticultural pages we have an advertisement this week from a well known spray pump company. They offer to give free to the first 100 fruit growers a new angle nozzle. Read their ad. and then fill out the blank and send to us.

Mrs. M. E. Sherman, of Fresno, offers two fine young bulls for sale at a very low price. If you are looking for a young bull to head your herd, look up the ad. in this issue.

THE LICE PROBLEM.

From time immemorial the great problem of how to keep poultry and the yard free from lice and vermin has been very perplexing. There have been all kinds of remedies and advice given to one another as to the method each employed in killing lice and still the problem confronts us. Every poultryman is bothered more or less with the question and some probably have tried innumerable ways, but it has remained for the twentieth century to give to the world that which will surely prove a boon to the poultryman and will at the same time relieve a long felt want.

The Killum Company, of Stockton, Cal., are placing upon the market an article, the novelty and value of which cannot be fully realized until used. It is their patented Killum Automatic Poultry Sprinkler, which automatically applies Killum Lice Powder to the fowl. Their motto is, "Let the Hen do the Work," which, in a nutshell means, if you will obtain one of these sprinklers and powder, the fowl will keep herself and yard clear from lice and vermin. Every poultryman should have one.



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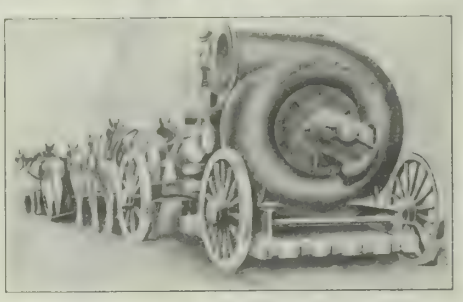
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	Price.
Shepherd's Manual, by Stewart	1.00
The Hop, by Myrick	1.50
Farm Grasses of the U. S., by Spillman	1.00
Animal Breeding, by Shaw	1.50
New Onion Culture, by Greiner	.50
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Cereals in America, by Hunt	1.75
American Grape Growing and Wine Making, by Hussmann	1.50
Broom Corn and Brooms	.50
Solling Crops, by Shaw	1.50
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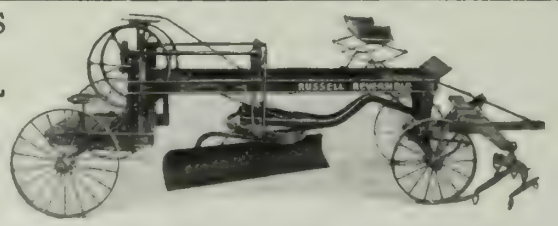


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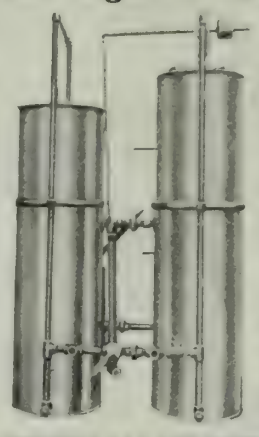
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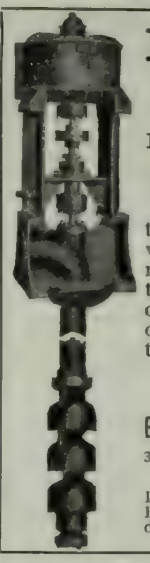
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 17. SAN FRANCISCO, SATURDAY, OCTOBER 23, 1909. Thirty-ninth Year.

A SUGGESTION OF THE ORNAMENTAL.

We use the accompanying beautiful picture to ıforce the suggestion that the ornamental in hor- culture should receive more attention in this tate, where nature does so much to welcome it. he picture shows palms growing in the suburbs of Santa Barbara, where large collections of these plant combinations of stateliness and grace are installed, and where wealth and taste have enriched the flora of the region as in perhaps no other similar area in California. But of course wealth is not needed to secure beauty; taste and effort are the essentials.



View on the Palm Drive, Gillespie Place, Near Santa Barbara.

It is almost trite to say that California conditions are splendidly adapted to the most gratifying results in ornamental horticulture. This fact is most obvious to any expert who reads a list of plants hardy in this region. It is also clear to any appreciative person, be he unskilled in plants, who notes for a moment the wide range of hues and forms which can be seen wherever any attempt has been made to indulge in ornamentals. Our conditions lie in that most happy climatic region known as the sub-tropical, or semi-tropical, where, without losing the charm of the characteristic vegetation of the temperate zone, we add to it a wealth of new forms and colors from the borders of the strictly tropical region, and we draw from even beneath the equator itself plants which thrive there upon certain elevations. It is true, of course, that California cannot afford a home for plants which thrive only in the humid heat of the tropical coasts, but we have little reason to mourn our limitations in this respect. We gain more from our affiliation with ordinary temperate latitudes than we can possibly lose by our unfitness for plants from tropical jungles.

And, while this is true, how little do we ordinarily see which exhibits our appreciation of our peerless adaptations. It is true that here and there in public or private grounds there has been due regard for the acquisition of the most beautiful trees and shrubs, and the most fitting association of them to propose congruous and really beautiful scenic effects; but how often in plantations no regard has been paid at all for selection of plants nor the arrangement of them. Some of our public grounds are as scant of variety as though they were in Alaska, and as stiff and ridiculous in arrangement and trimming as though taste and tone of the beautiful had no part nor lot with us. It is true we have, as a rule, given very little attention to this matter. We have been too busy in industrial affairs to regard the esthetic, but the better time, from a humanitarian point of view, is coming, and we shall then have ornamental horticulture in all parts of the State, locally adapted to ruling conditions.

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GEORGE RILEY - - - - - - Advertising Manager

California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Oct. 19, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.81	2.28	2.85	64	46
Red Bluff	.28	1.02	1.67	88	46
Sacramento	.14	1.28	.94	86	48
San Francisco	.09	1.72	.96	65	50
San Jose	.02	1.44	.74	72	44
Fresno	00	.54	.66	88	44
Independence	00	.32	.63	80	42
San Luis Obispo	00	.52	1.06	70	42
Los Angeles	00	.30	.41	72	54
San Diego	00	.02	.35	66	54

The Week.

Again the San Francisco Bay region belongs to Don Gaspar de Portola, and he owns it more completely than when his only disputants to possession were groups of clam-eating Digger Indians. San Francisco is enfete from end to end, and the blaze of its festal colors is reflected in all suburban towns. Even the waters of the bay itself mirror the gala glories of the shore, not only from its sunlit waves, but from the electrified rigging of the shipping. Spanish colors prevail everywhere, and it may be comforting to the loyal Spanish heart that at the very moment that old Spain is passing through revolutionary pangs and the masses of citizens of the home country are in revolt at the past, in this new land the heroes of Spanish history are being apotheosized. Let it be a token that Spain will live and will rise from her present prostration fitted to endure, because of her alignment with the requirements of a higher civilization and a truer humanitarianism. As for the frolics of the mimic Don Gaspar, which wellnigh banish other duties and recreations from the metropolitan mind this week, we have no thought of indulging in comments upon them. All other journals are indulging freely, and we therefore relieve our readers from the tedium of reiteration. Therefore we shout: Hail Don Gaspar de Portola! Hail and Farewell!!

We trust indulgence in municipal festivities will not restrain our rural readers from participation in assemblies which promise to be more profitable to them, as well as thoroughly enjoyable. A week at the University Farm will yield more than a cycle with Portola. And such a week will open on next Monday morning, to which old and young in rural pursuits are cordially invited. During six days there will be lectures and demonstrations in progress from 8 a. m. to 9 p. m., and they will cover nearly the whole range of farm practices and policies, from the growth of forage plants and maintenance of soil fertility to the distinctive characters and qualities of different kinds of live stock and the handling of animal products, the health and disease of stock, dairy practice, the growth of fruits and the control of plant diseases, etc. There will also be a close inquiry into the principles and policies of rural life and of marketing farm products. All it costs to attend is the price of transportation and of plain living in the hotels and homes of the town of Davis, which adjoins the University Farm. One can stay a day or a week, as he finds it interesting or otherwise. It is a perfectly democratic assembly in all respects. Some excellent local meetings in the interest of better marketing of fruit products are being held by State Commissioner Jeffrey this fall which all should give heed to and watch for announcements in the local papers. The twelfth semi-annual meeting of the Counties Promotion Committee will be held at Visalia on November 13. Horticulture in California will be the theme. All phases of the theme will be treated in a broad way by men who are recognized as being in a position to speak with authority on subjects they will handle. Early in December will come the Annual Fruit Growers' Convention in Watsonville. All these meetings make for edification and social recreation and should be attended as widely as possible.

We urge attendance upon all such assemblies, both to secure the latest information of progress in the industries which enable all to work as producers to better advantage, and because all assemblies work, often unconsciously, toward the end of organization which we conceive to be the greatest need of agriculturists at the present time, as we frequently seize occasion to remark. Nothing but education can lead to effective organization, and apparently the first lesson is to learn how the farm stands among other industrial factors in the recourse to organization. We take this lesson not from Mr. J. J. Hill, who has come to be recognized as a great agricultural teacher, but from another railroad man, Mr. B. F. Yoakum, who is also an artist in hot air for farmers, as Mr. Hill is, but who warms up once in awhile to sublime truths. In a recent address at a farmers' meeting Mr. Yoakum called attention to the fact that the interests of the farmers and railroads are mutual, one needing the other, and urged upon the farmers their need of organization by saying:

"I believe in organization. It is the only way to accomplish good results. This is a nation of organized interests, and under proper management the country is better off because of them. When your products leave you they are taken by the railroads, which are organized. They then go to the manufacturers, who are organized, and when they reach you again as a finished product they come from mercantile organizations. The producers of all this great wealth (and wealth-producing products) represent the only link in the chain that is not strongly and concretely organized."

This is true and striking doctrine. Mr. Yoakum is sincere in his desire for bringing farmers together. His very name proclaims his faith; he would yoke 'em up together, as it were.

And while we are exalting education as a means of advancing agriculture through effective organization of farmers, it may be well to take a glance at education in its potentiality for immediately increasing products so that organization shall have more material to handle. Our second lesson by the steel-rail route is therefore from Mr. J. J. Hill, who recently said this:

"We are too extravagant in America in everything but education. Our schools are educating our children away from the occupation for which they are best fitted. The rudiments of education seem to be neglected for some of the less useful branches. I do not look for a solution of the farm problem through the public schools, because it would take twenty-five or thirty years to work out the problem. The proper way to teach the farmer how to get the best results from the acreage under his control is through the graduates of our State colleges of agriculture. This could be done by sending a number of these graduates to the different agricultural counties, the respective States paying these men for their services. The graduates would show that particular county how to grow thirty bushels of wheat instead of only fifteen, or to produce on one acre what he harvested formerly on two."

If anyone should fear that Mr. Hill is a "college theorist," and therefore prejudiced in favor of the graduate, it should be said that Mr. Hill was born on a farm and went as a boy into business, which crowned him in time as a transportation king. He probably never saw the inside of a college until his experience showed him that agricultural college training produced men who could do things and on the basis of such observation he declares that the services of such men are what agriculture needs for its own uplifting.

But why is it that men in other callings are so anxious that the present prosperity of the farming industries should be continued and increased? Formerly there was no such deep anxiety in such a state of affairs. The explanation is that the production of food for a crowded world is more adequately appreciated than ever before and there is a more realizing sense that general prosperity rests upon an agricultural foundation. Our third lesson in urging organization is not from a railroad man, but from an authority supposed to take even a more sweeping glance at the affairs of men, a writer for a great metropolitan journal. The Outlook says:

"We measure the wealth and strength of the United States too much by its rich banks, its enormous factories, its splendid hospitals, its brilliant theatres, its powerful newspapers, its learned universities. Who has built all these and who maintains them? The farmer. When do railways pass their dividends, when do newspapers lose their subscribers, when do actors play to empty benches, when do doctors fail to collect their bills, when do the universities suffer for funds? When the crops fail. How important it is, then, that we develop the farming interests. Good farming is at the foundation of all national prosperity."

But we are getting too serious for fete week. Something in the line of crowing, cackling and cachination would better embody the spirit of the passing days. And here we have it in a Petaluma proposition, which is to combine with the annual poultry show of the Petaluma Poultry Association a mammoth street fair. The annual poultry show is always well attended and of great interest in Petaluma, where poultry is the principal industry. With the added attractions of the big street fair it is believed it would be one of the greatest celebrations ever held in Petaluma. When it is taken into consideration that almost $6000 in cash for poultry products is received in Petaluma every day in the year, it is easy to understand the importance of the poultry industry to the region. We hope the proposition will make good. It seems proper and likely to be popular.

Queries and Replies.

Alfalfa Questions.

To the Editor: I have about 150 acres in alfalfa and I write to ask a few questions along the lines of alfalfa raising, and general farming. In the first place can you secure an analysis of the soil to determine what fertilizers can be applied to advantage? Second, can alfalfa be kept up to its maximum production, with plenty of water, for an indefinite term of years, provided the stand re-

mains good, or will it need fertilizing after two or three years? I am under the impression that by feeding the ground what alfalfa takes out, that larger crops can be had than where nothing is put back. If this is so, what is the best fertilizer to use? I am told that there are three things most important in all rich soils, viz: potash, nitrogen and phosphoric acid. I am also told that phosphoric acid is the most likely to be depleted in cropped lands, especially as nitrogen is gathered from the air and potash is more or less plentiful in California lands. My soil is by no means poor or worn out, as I get six or seven cuttings per year, averaging about one ton cured hay per cutting, but if there is anyway to make the ground produce more without hurting it, and at a profit, I want to adopt it. My soil is a reddish loam or mesa soil, with a clay sub-soil at from two to three feet from the surface. I am experimenting with an alfalfa disc and also a sub-soiler to use in my alfalfa field and I think they are beneficial, especially in admitting water to greater depth and air to roots of plant.—Farmer, Los Angeles county.

Analysis of soils is chiefly valuable in determining what may be the trouble when soils will not produce satisfactory crops. It is not necessary to analyze soils which produce well and the behavior of the plant itself is a better test of soil fertility than an analysis is.

As for the continued bearing of alfalfa, if the alfalfa is fed upon the place and the manure returned to the soil, the continued fertility of the latter is assured. In fact, it is likely to increase because of the added content of nitrogen which the plant itself secures. If your alfalfa is sold as hay, and removed from the place, the plant may be profitable for many years, but ultimately fertilization must be resorted to, and you are exactly right as to the substances most likely to be needed, You seem to have the right idea about the treatment of an alfalfa field, though the use of a subsoiler is rather a radical recourse, and we would like to know after awhile what you think of it?

In irrigating a clay sub-soil it may be necessary for you to use less water and more frequently than on deep, light loams, for fear that there may be an accumulation of water on top of the clay sub-soil which may injure the alfalfa root. If, however, you find by digging that no such accumulation occurs, water can be freely used without injury to the plant, and the product be proportionally increased up to the capacity of the plant to make use of water. Excessive use of water is wasteful and dangerous.

On Alfalfa.

To the Editor: Is it advisable to plant Turkestan alfalfa in preference to native seed? Do you advise early, medium or late sowing, soil conditions being equal? What is your opinion of a nurse crop?—Reader, Orange county.

Turkestan alfalfa is not yet sufficiently tried to warrant planting it instead of the common variety. It would be interesting to try a little of it to see how it would succeed, but you should make your chief planting of the old variety which has succeeded so well in this State. Sow alfalfa as early as possible if you have no reason to expect heavy frost. The time of sowing depends largely upon local conditions, and your own neighbors could give you best advice as to what time is considered safest. A nurse crop should not be used. It is better to give the alfalfa the full use of the ground, the air and the moisture. This point has been fully demonstrated everywhere that alfalfa has been undertaken in the United States, and it is particularly true in California, where the nurse crop is more likely to rob the young alfalfa.

Dooryard Alfalfa.

To the Editor: Will alfalfa grow on adobe soil? If it will, what is necessary in order to make it grow? If irrigation is necessary, how can it be irrigated on a slope? Must it be done as we irrigate a lawn, by sprinkling? If so, how can we prevent the adobe from cracking so that the water is lost upon it? Will thorough harrowing and cultivating, before the seed is sown, prevent this?—Suburban, San Mateo county.

Adobe soil is not first-class for alfalfa, and yet a fair success can be had if water is applied rather frequently and not in too large amounts. It will work all right by sprinkling if that is convenient to you, and you are to grow only a small piece. On larger slopes irrigation can be done by overflow from contour ditches or furrows. Deep and thorough cultivation should be given before planting the seed, but this will not prevent the soil from cracking afterwards. Cracking can be reduced by the shade which the plant produces and by maintaining a proper degree of moisture in the soil. Water which goes into cracks is not, however, lost as you seem to fear. Alfalfa roots deeply and does not let much water get away from it. In fact it is better, vastly better for alfalfa, to have the water go down into a crack than to have it remain on the surface.

Rather Late for Sorghum Grain.

To the Editor: I would like to trouble you with a question and try to get your advice. I put in some Kaffir corn in the first days of July and watered it twice since. It does not show any signs of heading yet. Do you think there is any chance of getting any kind of a grain crop from it? If not, what do you advise to do with it? I have got about two acres and would like to make some use of it.—Farmer, Yolo county.

There is very little chance for getting any grain from the sorghum which you mention, because it is liable to be cut to the ground by the frost and before that time there is not a sufficient interval for the maturing of the grain. We should cut it as green feed for dairy stock, and if we had no stock or our own, would endeavor to sell it to advantage to someone who is trying to keep up his milk flow while waiting for new grass. Tell him, however, to be careful not to feed much at first if his stock has been on dry feed. Rank sorghum is sometimes dangerous.

Buckwheat and Sunflowers.

To the Editor: Is the sandy soil of southeastern San Joaquin county fitted for buckwheat? I have a small plat of it here just making grain and would like to know its requirements of soil and temperature. I have a very fine lot of sunflower seed: some black and some white. Which variety is the better? The former seems to mature earlier, but of their relative merits and market value, when threshed, are also unknown to me.—Grower, Escalon.

Buckwheat is only grown in California on the river bottoms of the San Joaquin and Sacramento, where there is plenty of soil and atmospheric moisture. Your experiment shows that it may be widely grown, but there is no encouragement to grow buckwheat in California, because the local consumption is very small and there is no reason to think that it can be profitably grown in competition with Eastern buckwheat, which can be readily produced in the localities where it is chiefly used. Sunflowers are grown in California for local poultry feeding, and to a small extent for marketing, but the demand is not great. The Russian, a white seeded variety, or one that is striped white and gray, is the largest and most popular. Neither buckwheat nor sunflowers meet demand enough to warrant large production.

Morning Glory on a Small Scale.

To the Editor: Please give me a hint about how best to rid a piece of sandy land of half a dozen morning glory vines.—Farmer, San Joaquin county.

If you only have a few plants, dig as deeply as you can with a spading fork and pull out all the string-like roots you can find, hunting out and removing every piece you have patience enough to pursue. Put stakes around each place, a little beyond the area where you find roots, and hoe the ground over once a week, just as you see a shoot appearing. It may not show up at all until next spring, but when it does show a single sign, begin to go over the patch with a hoe and keep it up all next summer. Never wait for the shoots to appear after you see the first one, but hoe away just the same, so that you will cut off the shoots before they reach the light, if there are any, and you can have faith to believe that they are coming if you do not see them. You can smother out the plant in this way.

Fruit Trees from Cuttings.

To the Editor: Can orange and lemon trees be successfully grown from cuttings? If so, give me instructions as to manner and time of taking and planting the slips, etc. Also kindly advise me fully as to method and time of rooting quince tree cuttings.—Beginner, San Joaquin county.

Orange and lemon trees can be successfully grown from cuttings, but the percentage of success is too small to make it a good practice. For this reason all trees of this kind are grown from the seed and budded. If you wish to experiment with cuttings, take well matured wood, one to two years old, as large as a lead pencil or a little larger and handle them just as you would hardwood rose cuttings, but do not attempt to root them until late in the spring or during the summer, when the ground is warm. Give partial shade and plenty of water, using a sandy soil in which the water cannot accumulate. Quince cuttings should be made of the same kind of wood and can be put in any time during the dormant season when the ground is not full of cold water. They start with less heat and can, therefore, be planted any time during the winter if the ground is in good condition. Be sure to firm the soil at the base of all cuttings and keep it loose on the surface.

Slow but Encouraging.

To the Editor: I think getting irrigated land into alfalfa or other crops in California is absolutely the slowest kind of agriculture, under the financial conditions of most beginners, that I ever heard of, but after seeing what farmers are making after they get started, as I saw it this summer, I have no more fears of the ultimate outcome, though I think it takes a great love of the soil to keep up the cheer of a delicate collegbred woman, under the conditions of life presented to a beginner in the newly undeveloped parts of the State, and which my sister has been obliged to live through. If these people knew before hand what they were getting into, probably fewer of that class would take to the "vine and fig tree" idea.—Reader, Chicago.

You are right in all your positions, but you reason from exaggerated statements about speed and volume of success which energetic promoters indulge in. If you estimate speed by what is actually done in other parts of the country, an intelligent worker under favorable California conditions can score much greater progress in a year than in any other part of the country known to us, but if you begin without knowledge of farming, except what you get from promotion circulars, you must learn the business before you can succeed, and pay something for your education, both in time and money. We are continually insisting that people cannot turn from other callings and become skillful farmers at once. This can be done neither in California nor elsewhere, and those who get such an idea should choose some other sort of a sun shade. The vine and fig tree are for those who learn how to grow them, and if you keep up your courage and assurance you will arrive in due time.

Horticulture.

NOTES ON PACKING APPLES.

Perhaps no pomological subject is attracting wider attention at the present time than the packing and marketing of apples. There is in the air, for instance, a scheme of nationalizing a standard for apple boxing which does not commend itself to Pacific growers, and against which the Watsonville apple interest has already recorded its protest. It is natural, of course, that the great apples of this Coast should not be served by standards, which fit the lesser apples of Eastern States, and the whole subject of grading and packing thus becomes keenly interesting to our Coast growers.

We find in the Northwestern Horticulturist a carefully prepared compilation of the experience of the upper regions of this Coast, which our readers will be interested and edified by considering, and we shall take such parts of it as seem most pertinent.

Apples should be uniformly sized, the difference in average calliper between the largest and the smallest of one pack should not be more than one-sixth. To a person not familiar with handling apples this way seems unnecessary, but it is very important for more than one reason. In the first place, it is easier to pack a box of apples and make a good and solid pack, where all are nearly one size, than where there are all sizes. The dealer demands uniformity in size on account of retailing in nickles and dimes worth, but most of all does it appeal to the eye of the purchaser. Take two boxes of apples, one of large and one of small ones, the apples in each being uniformly sized and well packed, then take two other boxes of the same variety and quality and of the same sizes, and in the last two the large and the small are mixed and see if most purchasers would not be willing to pay from 10 to 20 per cent more for the ones that are uniformly sized, than the ones that are not. Whatever the purchaser demands, the dealer demands, and that is what the producer must put on the market.

Art as Well as Science.—There is fully as much art as there is science in packing apples, and a few touches in finishing up a box will add greatly to the appearance and attractiveness of it. Take for instance apples that are colored on one side only and lay them into the box without regard as to whether the cheek is turned in or to the outside, and see what a different look they will have when they are laid so that you can see part of the cheek. It is not faking to make the pack look attractive as long as it is not faced with a better grade of apples than what is in the middle. A rough, dirty or poorly put up box does a great deal towards spoiling the appearance of the very best of packs and, on the other hand, a neat box does everything towards improving it. A neat package, uniformly in color and size, a tight and regular pack and a well filled box, is the only way to put apples on the market.

J. A. Fossom, inspector of a fruit association, who describes the methods here related, is of the opinion that the style of designating the pack, or rather the size of the apple, by tier, such as three-tier, four-tier and five-tier is not the best to use. Instead of that the size is designated by the number of apples to the box. This latter system is by far the most practical, as it gives the size more accurately when they are uniform, for instance, 96, 112, 128, and 144 are all four-tier apples. A few have objected to this system on account of having to count the apples, but the apples count themselves, as there are only certain numbers that can be packed, and after one gets familiar with those numbers for packs, he will find it a great advantage to the packer as well as to the dealer.

Box Size and Style.—The so-called Oregon box, $10\frac{1}{2}$ by $11\frac{1}{2}$ by $18\frac{1}{4}$ inches inside measurement, is used more than any other. I will give the number of packs used for it by the association: 32, 36, 41, 45, 50, 60, 72, 80, 88, 96, 112, 120, 128, 132, 150, 175, 188, 200, 210 and 225, 163.

Three styles of packs are being used, the square pack, diagonal pack and orange pack. The box should be placed on an incline, facing the packer, one end from four to eight inches low, then start to pack from the lower end. There is no certain rule as to how the apple should be placed in the box, either stem end up, down, to the side or to the end of the box, nor is it necessary to place them all the same way, as it would be more difficult to make a good pack that way, unless a fancy pack is wanted for display. In this case one can pick the right shaped apples in order to make the pack come out right, but for commercial purpose it would not pay, as not enough more could be realized out of it to make up for the extra time it would take. Place them in the box any way so as to fit tight and fill the box. If any attention is paid to turning the apples so as to make the pack look more attractive, turn the apples that are well colored on one side, but not on the other, so that part of the color side may be seen. It greatly improves the appearance of a box of apples to have them uniform color, and if two apples, both red on one side and green on the other one are turned with the red side out and the other with the green side out, it would not look near so well as when both are turned so that both the red and green can be seen. This is perfectly legitimate as long as the apples in the middle are as well colored and as good in every other way as the ones on the outside.

No Certain Rule.—While there is, as already mentioned, no certain rule as to how the apple should be placed in the box, there is, however, some difference, as the shape as well as the size has a great deal to do with which way they should be laid, whether flatways or edgeways, but that will be discussed later.

By square pack is meant that the apples are laid in straight rows across the box as well as lengthwise, the same number of apples in each tier, and that each apple in one tier is placed on top corresponding apple in the tier below it. The square pack is the most known and seemingly the most simple to beginners, but the other packs are not any harder to make when one is familiar with them. Still the square pack would be almost exclusively used if all sizes and shapes of apples could be packed that way. But as there are very few varieties of apples that will pack square between the 45 and 96 sizes, and between 112 and 200 sizes, other sizes of packs must be resorted to for immediate sizes.

Following are the sizes used mostly in square packs: 36, 45, 50, 96, 112, 128, 144, 175, 200 and 225.

Different Sizes.—Mr. Fossum gives specific directions for packing some of the more common sizes. In the expression, "3x3x4," he means that three apples are placed across the end of the box, there are three layers in the box, and that each row lengthwise of the box contains four apples. In some of the diagonal packs it will be noticed that he uses an expression like this: "3x4x5-4." This means that three apples are across the end of the box, there are three layers, and that one row lengthwise contains five apples and the next one four; if there were four apples across the end of the box, making four rows, then two of the rows would contain five apples each and the other two four each. The different sizes are packed as follows, in the various styles:

36—3x3x4, 12 to the tier, 3 wide, 3 deep and four in length. This size may be packed in a square pack, but the orange pack will generally fit it better.

45—3x3x5, 15 to the tier. In this pack with apples of the Alexander type, from medium to elongated, they should be laid mostly flatways with perhaps four to six in each tier on edge crosswise with the box. Apples enlogated, medium, should in order to fit well in the box, be placed flatwise and on edge, both lengthways and crossways with the box. With oblate apples, such as the Maiden Blush, they may be placed on edge and flatways, or, better still, tilted.

Three Different Shapes.—Elongated is an apple that calipers as much or almost as much from the stem end to the blossom end as it does the opposite way, or perhaps a better way to expres it would be to say depth and width. A medium apple calipers from one-tenth to one-sixth more in width than in depth, and an oblate apple calipers one-sixth or more in width than in depth.

It is very essential when the box is filled, that the pack is higher in the middle than at the ends, not only in order to hold the apples tight together when the lid is on, but also to take up the space made by the shrinkage, as the lid when nailed on should be pressed hard enough to spring the bottom the same as the top. As the apples shrink, the top and bottom, especially the bottom, will spring back, thereby taking up the shrinkage. The crown, when the pack is finished should be about three-fourths of an inch so when the lid is nailed on there will be a crown of three-eighths of an inch on top and bottom. Under no consideration must the apples be laid loosely in the box, but every one must fit tight, and when the top tier is finished the apples at the ends should be flush with the ends of the box and the crown should rise gradually from the ends to the middle; if too abrupt at the ends the lid will not come down tight at the middle and the apples at the ends will be crushed.

QUALITY IN PACIFIC COAST FRUITS.

Mr. Chas. H. Hays, who is a loyal Oregon fruit grower, takes up the quality of Coast grown fruit as compared with Eastern, in the columns of the Rural New Yorker in this interesting way: "My cousin, after eating cherries from the tree, just as she ate them at the East, returns to New York declaring more emphatically than ever that there is no place in the East, or between here and there, that can compare with Oregon, and no fruit as inviting in flavor, texture or looks as that of our own Willamette valley. Now, is not that a better and fairer way to judge the merits of the fruits of the East and West than to ship ours the entire length of the continent and then compare them with Eastern products direct from the trees? Fruits shipped long distances cannot compare with home-grown products. That is easily proven by taking almost any variety of fruit and packing it for transportation, but instead of shipping store away in some cool place or cold storage and leave for the same length of time that it would have taken it to reach an Eastern destination. Then take your stored fruit and try it alongside of fresh fruit from the trees. The difference will readily be noticed by most anyone, and you would undoubtedly hear loyal Oregonians declare it to be California fruit. And yet this fruit has only been carefully stored, and not subject to the rough handling of transportation. Will not the contrast be more marked then after journeying from the Pacific to the Atlantic? In my opinion the best fruit for most sections (after transportation is taken into consideration), is that grown in that section, but until the East stops producing "cider apples," packing in large and unhandy barrels learns how to pack, and such States as "bashful" Vermont fill their larders with venison, Oregon is going to ship her fruit products East and sell them at a higher price than locally grown. I have not said that Eastern fruit is as good as Oregon fruit, for I still consider Oregon fruit superior to that of any other section simply on the authority of many Eastern and Western men who have tried fruits of different sections by picking them from the trees themselves."

OREGON THINKS OF DRYING CHERRIES

Oregon had much trouble with cherries this year because of rains at picking time and, according to the Salem Statesman, is looking into the chances of profit in drying. A Salem grower dried about 1500 pounds of Royal Ann cherries and entered into negotiations with California and Omaha dried fruit dealers. Samples were sent to the different dealers and favorable reports have been received from them. An effort was made last season to introduce into the New York pie counters dried Oregon cherries, but nothing material resulted. Pacific Coast cherries which arrive at Eastern destinations in good condition bring remunerative prices, but they are so susceptible to mold and there are so many resulting losses that shipping firms are not usually willing to handle them in large quantities. Some years Oregon cherries seem to carry better than in others, the difference apparently depending on the amount of moisture in the soil and the air. For this reason California cherries usually carry better than those of the northwest. In years in which there is an overplus of cherries which cannot be marketed at profitable prices, it has hitherto paid well to dry them, especially if pited. Whether it would pay to employ men at full wages to pit cherries we do not know, but women and children can make fair wages at rates which will justify the expense. The best tool is a piece of quarter-inch steel or brass rod with one end counter-sunk to catch the pit easily and the other stuck in a wooden handle, the whole instrument being about four inches long. The writer has never dried cherries of the Tartarian type in that way and they might shrink too heavily to be profitable, but Royal Anns pitted and dried

should bring from 15 to 18 cents a pound, the latter price being very remunerative.

[California had a vision of profit in dried cherries 25 years ago, but never realized it.—EDITOR].

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

San Fernando is now getting a tardy recognition as being on the map, and it is time that her citizens were awakening to the possibilities of that region, for it is one of the best in California. Up to the inception of the Owens River proposition undertaken by the city of Los Angeles, the whole San Fernando valley was somewhat under a cloud as a place desirable for a fruit grower to invest and settle as the city of Los Angeles claimed all the waters of the Los Angeles river and could, by a court decision, prevent any of the orchardists from pumping water on their own lands except for domestic purposes. With the coming of plenty of water all this is now changed and the future of the valley is assured. In recognition of its growing importance the lemon men of California held their annual "squeeze" at San Fernando three weeks ago, and on Saturday the 9th inst., another meeting of the citrus fruit men took place in that town, and some very interesting talks were made by men prominent in the citrus industry. Numerous automobiles took the visitors to points of interest and a fine lunch was served at the exchange packing house, where the speaking took place.

Failing to get an invitation to attend the auto ride a lone fertilizer man and myself decided to chum together for the day and I consider it one of the lucky events of my career that it so turned out, for we were destined to meet a man that was a man. We were sitting in one of the real estate offices when the man came in and the talk ran from the weather and the meeting of the citrus fruit men to farming, and the fertilizer man quickly pricked up his ears for a possible sale. The man did need fertilizer and the upshot of it all was that we were both invited to ride out to the ranch in an auto that simply touched the high places, and did not bother to make any acquaintances with the low ones.

We were shown a citrus orchard that was the pride of the man's heart and which well deserved the love of any enthusiast. We were told that three years ago the orchard was in such a run down condition that neighbors and men who were supposed to know citrus conditions advised that every tree be pulled up by the roots and the orchards re-planted. We were told that the orchard had been worked on shares by a man who simply took and did not give; that he gathered the crops but placed nothing back and that as a consequence the trees were starving, and all but dead. My friend, the fertilizer man, could vouch for this for he had seen the orchard at its worst, and there was still an occasional tree that had not responded to treatment as it should, that gave mute testimony of former condition. The man said that all the while the milker had had charge of the ranch that no fertilizer of any form had been used, that no pruning had been done, that cultivation had been neglected, and that what little irrigating had been done was by the basin method, which the man severely condemns.

When the man took charge heroic measures were needed and they were employed. Every citrus tree in the orchard was in very bad condition. He puts it very strong when he states that there was not a box of merchantable fruit raised on the place during the season prior to his taking charge. It was worth while to try drastic measures for apparently nothing worse than existing conditions were possible. Every tree was cut back to the limit, almost down to the trunk. Heavy fertilization with cow and horse manure, half and half, were applied to the land. Intensive cultivation was practiced, in fact, the man now says that the cultivator never stopped on his ranch from daylight to dark. The manure was disced and harrowed in thoroughly and the old system of irrigation was changed and the furrow system used.

The results? I wish you could see them. This is one of the very finest orchards I was ever in and that deep green of the trees gives evidence of new life and perfect health. They are simply loaded with fruit, and the man will have one of the best crops in California this coming season.

While he is content with the results so far attained he is not content to stop, for to stop means not to go ahead, and that is what he is after at all times. He is going to use ten pounds to the tree of some kind of commercial fertilizer this fall, and so hold the ground he has already gained.

Mr. Fred L. Boruff is the man in the case, and he is not only an orchardist, but a farmer on a gigantic scale even for California. His 85 acres of citrus fruits look very small, indeed, when compared with 17,000 acres of land in grain, and that is what he claims to have under cultivation. The ranch is known as the Porter ranch and is one of the largest in the south. The citrus orchard is divided into 45 acres of lemons, 30 acres of St. Michaels, 5 acres of navels, and 5 acres of valencias. Doing very well, thank you.

The home of Mr. Boruff is one of the very finest in all southern California, and that is saying a whole lot. The owner kindly took us all through the magnificient place and it is a palace fit for a king, a king of citrus fruits, as Mr. Boruff may yet be known. The house was built at the same time the orchard was being built, taking one year to construct, and the lawns and gardens are in keeping with the whole environment.

Mr. Boruff claims to have used no original methods or patent processes in his work, except that he is inclined to doubt if any other orchardist cut back his trees so thoroughly, and in this I am inclined to disagree with him, but he is the biggest crank on intensive cultivation that I have ever met, and the results attained seem to justify his riding his hobby as hard as he wanted to. From his talk I should say that he was inclined to use more water than I should advise, for I have seen groves that have been spoiled from the excessive use of water. So far he has apparently done no damage in this line, but he should know certain before going too far.

The fertilizer man was there with the advice that a stiff-toothed harrow be used but could not convince friend Boruff that he should give up his spring-tooth, which has done him such good service.

On the train going up in the morning I sat for most of the way with Prof. A. J. Cook, of the Claremont College, and found him very much in earnest for more publicity for the conservation of forests, their better preservation by means of more efficient systems for the prevention of fire and for fighting the same, and for the pushing of the work toward eradicating scale pests. One thing that brought up the suject of the conservation of forests, was the statement of a gentleman on the train that he had recently been up into the mountains back of San Bernardino, and had seen the ravages made by the lumber men in that region, claiming that the ground was cut off to a tree, not even the smallest sapling being left where the company had operated. As this company got in there before the importance of conservation was fully recognized, and as they own the ground, it is difficult to see what can be done in this particular regard, but this man says that it would be an object lesson to the orchardists of this part of the country, that depends wholly upon irrigation water for the sustenance of its orchards, if they would visit this particular territory, and that they would be the first to rebel against any like concession ever being granted again in the mountains which form the watersheds of our citrus country.

Entomological.

THE WAY TO CATCH CANKER WORMS.

Mr. Dudley Moulton, who, as stated in our issue of October 9, has been appointed chief quarantine officer of the California State Horticultural Commission, writes for the San Jose Mercury about canker worms in this way: The two species of canker worms which are found in the orchards around San Jose have very similar life habits, and both can be controlled equally well with the same, and, in fact, a single treatment. The moths are now beginning to come out from the ground and bands or traps should be placed around the trees at once. It therefore seems an opportune time to give out the following notes about the life habits of the insects and tell what are the best means for controlling them.

The two species, known as the "Fall" and the "Spring" canker worms, are so named because the adult moths of the one species come out of the ground and climb up onto the trees to place their eggs after the first rains in the fall, in October, November and December, while adult moths of the second insect do not leave the ground until spring, March and April, when they too climb up and place their eggs. The winter is passed by the first species in the egg state on the small twigs, while the second species hibernates in the ground. Eggs of the spring canker worm, although not placed on the tree until about March, hatch with the early unfolding of the leaf buds, when eggs of the earlier appearing species are also hatching.

Males of both species have wings and can fly, while the females have only partially developed wings and cannot fly, but must crawl up the trees. Adult female moths can therefore be easily trapped while ascending the trees and before they have deposited any eggs.

Various kinds of wire and paper traps and sticky bands have been devised to catch these upcoming moths, but it now generally conceded by all practical men that the one most effective trap is made of "Tree Tanglefoot." This is a sticky preparation similar to fly tanglefoot and is made especially for out of door use on the trees. A band of about three inches should be placed around and directly on the tree trunk. It will remain sticky for the entire season and does not glaze over or become dry, nor is it affected by hot or cold or wet weather. Wire traps and other bands painted with various adhesive substances are not nearly so effective or finally so cheap as this simple band of "Tanglefoot."

The ground is already well softened by early rains and the moths of the fall canker worm will be coming up immediately. Traps or bands should therefore be placed around the trees at once.

The Irrigator.

DEEP WELL PUMPING FOR IRRIGATION.

To the Editor: Will you kindly answer through your columns the following questions. If you cannot give sufficient authority, please publish questions. (1) How high can water be raised for orange trees with profit? (2) Can water be raised 150 feet and raise peach and apricot trees with profit? (3) Can water be raised 150 feet for grape vines with profit?—F. M. B., Huron.

Answer by the Pomona Manufacturing Co.

To the Editor: In reply to your favor of the 14th inst. enclosing letter containing inquiries from Mr. F. M. Barney of Huron, Cal., we beg to reply as follows:

(1) There is no reliable data on hand to enable us to give the extreme height to which water may be pumped to grow oranges with a profit. The average lift in this section (Pomona, Cal.) is 200 feet. The Pomona Manufacturing Company has a deep-well plunger pump lifting water 250 feet to irrigate an orange orchard. The owners are perfectly satisfied with the cost of raising the water and results obtained.

(2 and 3) Yes. It is no trick at all for the Pomona deep-well pump to lift water 150 feet at such a low cost that grapes, peaches and other deciduous fruits may be irrigated and grown at a profit.

Thanking you for the privilege of answering the enclosed letter, we are POMONA MFG. CO.
Per W. KIRKPATRICK.

Cost of Water for Oranges.

To the Editor: In answer to the question from Mr. F. M. B. of Huron, which you submit to us, we will state that we are in receipt of a letter from one of our friends in Riverside, Cal., who states that he considers 25 cents cost per inch of water a maximum price with which to raise oranges for profit. BYRON JACKSON IRON WORKS.
San Francisco.

[Others who have had experience is this interesting matter, whether pump users or pump makers we care not, are invited to participate in the discussion of the value and efficiency of deep well pumps.—EDITOR].

AGRICULTURAL REVIEW.

Horticultural Notes.

The Farmers' Union of Campbell is packing prunes in large quantities and expects to handle about 2000 tons before the season is over.

Ernest Miller, a young banker of Visalia, has purchased a 40-acre tract of land near Porterville and will set it all out to oranges the coming season.

The fifth annual fruit festival held at Paradise, Butte county, last Saturday, was quite a success. Many fine displays were made and a good attendance was had from outside points.

The crop of dried apricots in Orange county is said to be all sold. The last growers to sell are reported to have received 10 cents per pound, as against 7½ cents paid earlier in the season.

A Catholic priest from Arizona has purchased $60,000 worth of good land in the southern part of Orange county and is settling it with relatives from France. The land is in the walnut belt near Capistrano.

The total output of oranges in the Glendora section the past season was 1056 cars, which netted the growers $1.10 for navels and $1.35 for Valencias. The coming crop is estimated at 70% of the past season.

Last week there was shipped from Napa over 275 tons of dried prunes to Germany. The fruit was of fine quality, and it is expected that much more fruit will find a market where this shipment was sent.

The Porterville Messenger states that a southern syndicate will plant 120 acres of land near Ducor, Tulare county, to oranges this season, and will also plant 400 acres in the Strathmore district if trees can be secured.

Between 400 and 500 tons of prunes were cured at Anderson, Shasta county, this season, which are now being shipped. Growers realized about 2½ cents per pound, which was a better price than was expected earlier in the season.

The Covina Argus states that the coming orange crop will be about 20% short of last season, when the total shipments aggregated 1655 cars. Although of large size the fruit is not maturing rapidly, little will be fit to ship before January 1st.

The Chicago Packer estimates the Watsonville apple crop at 3200 cars, which is now being marketed, will sell for about $1,920,000—a record breaking year. This season the apples are being shipped in quantities to England, China, Australia and central States.

The last car of almonds was shipped this week by the Contra Costa County Almond Growers' Association, and the season has been a very prosperous one with it. The growers received good prices and the association will have a large membership next season.

The season's apple packing has about closed at Sebastopol, part of the crop being shipped to Australia. This was a prosperous season for the growers, as the crop was large and prices good. Driers in that vicinity will be in operation for some time yet, the dried fruit also commanding good prices.

In the southern counties walnuts are now coming into the packing houses and heavy shipments will soon be made. As the crop is harvested it is found to be considerably short of last year. The crop of English walnuts in southern Europe is reported to be much larger than last year.

Wylie M. Giffen was selected president, and Bernal Hopper secretary, of the board of directors of the million dollar raisin corporation at Fresno last week. Active work is now being carried on in an effort to secure 65% of the growers to sign contracts to give the new corporation the handling of the raisin crop for the next five years.

What was feared to be the red spider at work in the citrus seed beds in Tulare county, has turned out to be but a common spider which is easily controlled. Specimen spiders were sent to Washington and passed upon by Chief Entomologist Howard, who pronounced them of a different species than the dreaded red mite.

A dispatch from Selma states: Deliveries of raisins are keeping the Selma packing houses busy day and night. With the good weather of the past week practically all crops have been taken from the fields, and a majority of the growers appear to have sold. Owing to the fact that delivery dates will soon expire and the downward tendency of the market there is a grand rush by the growers to deliver their goods at once, fearing rejection if they are tardy.

At a meeting of the United States Consolidated Seeded Raisins Company, at San Francisco last Saturday, it was decided to offer 2 cents per pound for standard Muscatel raisins in the sweatbox, the offer to take effect if 20,000 tons were signed up for delivery prior to November 1st. The packers believe that if they can secure this amount of the 1909 crop that they can control the market and clean up the year's product that there will be no holdover to interfere with next year's crop.

General Agriculture.

The Spreckles Sugar Company expect to receive double the amount of beets at their big sugar plant near Salinas, next year over this, by offering to pay the freight of all beets shipped to them.

The bean harvest is in full swing in Colusa county and a big crop is being harvested. The yield is reported as going from 15 to 20 sacks per acre, which command a price of $3.25 per hundred.

Kern county had 250 settlers arrive last week from Nebraska, who propose to colonize tracts of land there lying between Famosa and Bakersfield. Seventeen cars of household goods arrived with the new settlers.

The Co-operative Land & Trust Company last week purchased about 4000 acres of fine land from the Sheehy estate adjoining Merced, for $200,000. The new owners propose to place the land under irrigation and cut it up into small farms for colonists. The land is said to be one of the best tracts in Merced county.

The third annual fair of the Fresno County Agricultural Association is being held at Fresno this week. One of the features was the fine poultry exhibit, which takes the place of the poultry show usually held later in the year. Five hundred fine birds being on exhibition. The stock department showed up well also,



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ving entries from Stanislaus, Kings d other outside counties.

The crop of Chile peppers grown in Or- ge county is reported to be about 50% s than last year, when 125 tons were sed. The cause of the shortage this r was curtailment in planting, owing overproduction last season. Growers holding for 13 and 15 cents per pound d report good demand, though drying s just commenced.

The preliminary estimate made by the reau of Statistics of the United States partment of Agriculture, gives the eat crop of the country as 724,768,000 shels, as against 664,602,000 bushels last ar. Oats are also given as a much heavier crop than last year, while barley will be about 2,000,000 bushels short, rye is about the same and hay a lighter yield than a year ago.

The homesteading of agricultural lands in Alaska has begun in earnest this fall. The farming and grazing lands on the Kenai peninsula and Susitua basin is estimated to amount to 6000 square miles, practically none of which has been occupied. A farmers' institute was held at Seward recently, at which time an agent from the Department of Agriculture praised the climate for growing hay, root crops and some of the grains.

Stock and Dairy Notes.

The fall wool sale held at Cloverdale last week was quite successful, over 300 bales of the fall clip being sold at 16 cents per pound.

O. M. Sharp, one of the vineyardists of Yolo county, who refused to sell his grapes to the wineries for $5 per ton, and fed them to hogs, claims to have netted $10 per ton for grapes as hog food.

W. A. Bolton, of Healdsburg, is receiving pigeons from Belgium and is preparing to raise squabs on a large scale. He expects to receive 500 adult birds to breed from and will sell none of the increase till he has 2000 birds to breed from.

Twenty head of Norman Percheron draft horses were shipped from Salinas to San Francisco last week. This is the second shipment from there recently, and as the horses were all matched teams of 1300 to 1700 pounds weight, they commanded good prices.

The Selma-Kingsburg Creamery, a co-operative concern, was sold last week and the creamery will be moved to Kingsburg. The change is made owing to the lack of support by dairymen around Selma, as the land formerly used for dairy purposes has been gradually changed over to orchards and vineyards.

Hubbard & Carmichael are reported to be making a success of the cheese factory they have been operating on their ranch southwest of Newman, Merced county, since July. They are making about 4000 pounds of cheese weekly from their dairy cows, which number 289 head. The cheese is finding a ready sale mostly at San Jose.

While at the Yukon-Alaska Exposition last week, F. A. Mecham, of Petaluma, purchased 25 head of prize winning sheep which he is having shipped to his home ranch to use as breeders. The sheep were of several varieties and were not only prize winners at the fair, but were of the blue ribbon class in other countries before being imported.

Miscellaneous.

The Bruck Grape Juice Co., of St. Helena, has made 6000 gallons of grape juice this season, which it expects to find market for in the central States.

The large fruit drying plant on the H. B. Reed ranch, near Chico, was destroyed by fire last week, together with over six tons of prunes which were in the buildings.

The new cotton gin at El Centro, Imperial valley, was placed in operation last Monday and the first bale of cotton, weighing 460 pounds, was sold for $100. The crop in the valley is of high grade and will run from a bale to a bale and a half an acre.

The Patterson ranch of 20,000 acres, along the San Joaquin river on the west side of Stanislaus county, is to be placed under irrigation. The water is to be raised from the river by powerful electric pumps, and already most of the land has been checked and levelled ready for the water.

M. H. Lapham, in charge of the Pacific section of the United States soil survey, will superintend the work of soil survey in the Livermore valley as well as a like work in one of the San Joaquin valley counties this fall and winter. A larger force than usual will be in the field this winter and 2000 square miles will be covered.

The report of Edwin Duryea, Jr., of San Francisco, was last week submitted to the board of directors of the South San Joaquin Irrigation District, at Manteca. The estimated cost of the irrigation system is $1,861,500. The source of supply recommended is the Stanislaus river. The report was filed, and the time for a special election for bonds to provide funds for constructing the system will be set later.

The Hanford Sentinel tells of the following instance of money being made growing alfalfa: Ed Kerr, who bought 160 acres of land over in the Wheatville country about a year ago, on which ranch there is about 140 acres of alfalfa, will harvest about $8000 worth of good, clean alfalfa seed this year. If the crop comes off as predicted, Mr. Kerr will have paid from the ranch the price of the land in one year. The Wheatville country is one of the finest alfalfa seed producing countries in the State, if not the best.

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Fruit Marketing.

NEW YORK GROWERS WILL TRY TO MARKET THEIR FRUIT.

It will interest those who are working for co-operative fruit marketing by growers in this State to know of an enterprise which is beginning in western New York.

The Growers' and Shippers' Exchange was recently incorporated under the laws of the State of New York, with a capital of $40,000 and headquarters in New York City. At a recent meeting it was agreed that each local association of growers incorporated to work in conjunction with the Clearing House Exchange will pay the Growers' and Shippers' Exchange 5 per cent for selling and distributing products; that the Clearing House Exchange, located at Rochester, N. Y., will establish salaried agencies in whatever market centers deemed advisable and pay salaries and guarantee payment of sales.

It was also agreed that the capitalization of each local organization should be at least from $2000 to $5000, so that the association could purchase its proportionate share of the stock in the Clearing House Exchange, and if deemed advisable buy products from growers who are not members. Associations or shippers using the selling exchange will be allowed to draw a draft on each shipment for whatever amount the board of directors may deem advisable, by paying exchange or interest, thus enabling the association and shippers to get money for operating expenses, buying products, etc. It was further agreed that each association formed should be incorporated under the laws of the State, with stock fully paid and non-assessable, so that stockholders will not be holden for debts of the association.

Growers who are members of local associations, by paying interest, will be advanced money on shipments and also on apples placed in storage to be held for winter or spring trade. It will be the duty of each local association to establish its own brand and grade, prepare cars for shipment and then to notify the Clearing House Exchange, giving a manifest of each car. The latter will then give shipping directions. Should any large grower with an established brand wish to ship through the Exchange and do his own packing he must use his own brand and stand sponsor for each package or carload.

No grower packing his own fruit shall be allowed to use the brand of any local association. No large grower or dealer will lose his identity or trade, for he will be allowed to supply, through the Clearing House Exchange, his trade with his brand, and the Exchange will help protect that market from being overstocked. Where local associations pack for growers, sorting the grades, the association manager will issue a receipt for each load, keeping each grower's product separate until sorted and packed, when the amount of each grade will be entered on a record book, so that the grower will know just how many packages of each grade each load has made.

Local associations will be requested to keep in touch with the Clearing House Exchange and also keep it posted in advance as to how much of each particular product they will have to offer, so that the selling exchange may secure orders and keep its salaried agents in distant market centers at work securing f. o. b. orders. Whenever products are stored they should be held in storage at growing points, and should be sold before being shipped. It is proposed to put up canvas packing sheds at different points on railroads, where packing can be done cheaper than out in the orchards. Storages will be leased or erected, just as the association desires.

A GOOD WORD FOR WILD RYE.

To the Editor: Will you kindly name the grass sent under separate cover and inform me as to its nutritive value? It seems to come nearer solving the problem of permanent pasture, at least in this locality, than anything I have seen. It produces an abundance of basal leaves which, when the grass has been cut or grazed, notwithstanding the very dry season, are now green, and though a little rought and harsh are readily eaten by stock. It is gaining ground especially along roadsides and in fields not in cultivated crops, and its generous growth of underground stems attest its permanent character.—INQUIRER, Lodi.

ANSWER BY DR. H. M. HALL, UNIVERSITY OF CALIFORNIA.

This is the "slender wild rye" (Elymus triticoides). It is common on bottom lands of the warmer valleys, sometimes growing in soil which is moderately alkaline. Being a perennial, rooting and growing from underground stems, it usually comes to stay, although its eradication, when that is desirable, is not particularly difficult, the root stocks being much less robust and persistent than Johnson and related grasses.

I can find no account of its value for feeding purposes, although it is cut for hay to a limited extent, particularly in Oregon. It seems too coarse and woody to be of high nutritive value.

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UNIVERSITY OF CALIFORNIA BUTTER SCORING CONTEST.

To the Editor: We offer herewith a brief report of the results from scoring the fifth entry to the California Educational Butter Scoring Contest. All entries arrived on time and in good condition. It is especially gratifying to note the care taken in packing most entries to insure arrival in best condition. One entry was carefully packed in ice and paper, and the score received speaks well for the ability of the buttermaker who sent it. With two exceptions all the butter was made from gathered cream. The United Creameries receive about two-thirds whole milk, while the Pioneer receives all whole milk.

The scores are as follows:

Name of creamery and address.	Score.
Golden Creamery, Etna Mills	96
San Pasqual Creamery, Escondido	94
Salinas Creamery, Salinas	93
United Creameries, Arcata	92
Hicks Valley Creamery, Hicks Valley	92
No tag	92
Crystal Cream & Butter Co., Sacramento	91½
Gridley Creamery, Gridley	91½
Rose City Creamery, Chico	91
Ceres Creamery, Ceres	90½
Pioneer Creamery, Ferndale	90½
Suisun Creamery, Suisun	90
Woodland Creamery, Woodland	90

As a whole, the butter submitted averaged low in flavor, but other defects were not especially noticeable save two or three entries that showed a weak body and one or two that gave a milky brine, indicating incomplete removal of buttermilk in washing. Most creameries at this season are bothered with small quantities of inferior cream, so that low quality might reasonably be expected. Seventy per cent of the entries were made by using starter. The amount used varied from 10% to 40%. In only two instances was the cream pasteurized.

The entry from Golden Creamery, which received a score of 96, was an excellent piece of butter in every regard. It was made from gathered cream one day old and containing 36% butterfat. Twenty per cent of starter was added. It was then held for four hours at 60° F., cooled to 50° F. and churned. The buttermilk was 54° F. and the wash water 56° F. Salt was added at the rate of three-fourths ounce to 100 pounds of butter.

The last entry for the current year will be called for the last of November, and the scoring will take place at the University Farm in tne presence of the short course creamery students. It is urged that as many buttermakers as possible accompany their entry to the contest. Special attractions will be offered. The November entries will decide the winner of the prize cups to be awarded on the basis of the highest and second highest average of the six contests. As it now stands, there is only 0.7 of a point difference in the average scores of two of the regular contestants, each of which has received the highest score twice. In view of this fact, there is some speculation as to who will gain first place for the year. Notice of the exact date will be made later.

HERBERT A. HOOPER.
University Farm, Davis.

WHAT IS A DRAFT HORSE AND WHY?

A picturesque sketch of what is a draft horse and how the right kind is measured by money is given by a writer for the Breeder's Gazette, who seems to write from expert study of the Chicago horse market.

Inexperienced men have missed the draft type in many cases through wrong selection or light feeding and are disappointed in results. They wonder why buyers do not gloat over the big horse of which they are so proud and offer but a moderate sum for the little shapely chunk. They simply have missed the type. A horse is either a draft horse or he is not. Those on the ragged edge of draft horsedom are out of bounds when high prices are distributed.

To class as a drafter a horse must be big. So general is the failure of well-bred colts to attain sufficient size that this is the commonest complaint of buyers. But with size to weigh 1600 pounds or more when fat, buyers demand a wide, deep chest, a strong, short back, close coupling and full, deep barrel. These are the things that indicate bodily vigor. A horse so endowed has capacious lungs and digestion; he has a good mill for grinding feed into power. Especial importance is also attached to large hoofs under big-boned, flat, smooth legs of moderate length, with strong clean hocks. Short cannon bones and moderately long pasterns are preferred. Such an under-pinning as this is the only one that lasts through years of steady travel over hard footing. With these prime essentials buyers want wide, full, moderately level croups, heavily muscled thighs and shoulders, and a neck that rises well, with enough length to escape the stuffy, pudgy appearance that commonly goes with an over-thick neck that cheats the collar out of most of its bearing surface. A clean straight face, wide forehead, and large clear eyes complete the essential points of conformation that buyer demands along with a free business gait.

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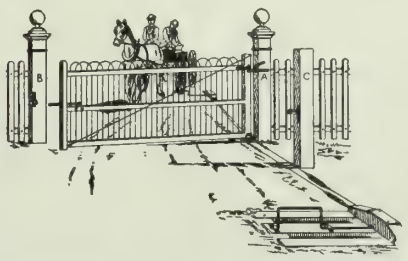
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symmetrical proportions and is sound, sales are quick and prices long. A brown gelding showing these characters coaxed $365 from a veteran Boston buyer the other day at Chicago. For a gray, he paid $415. Neither of them had extreme weight, but they were compact. The gray stood 16 hands high and weighed 1725 pounds; the other horse stood at 15½ hands and weighed 1650. Besides his advantage in size, the gray was stronger in the back, with tougher feet and a trifle smoother bone. He was set low enough to the ground, although some favor the extreme low type of the brown.

Contrast with these market-toppers the rough, unshapely, leggy "cherry picker," also a five-year-old, sold the same week for $175. This horse would be popularly called big, but not by a horseman. He stands 18 hands high, but only bears down 1525 pounds on the scales. This is a horse with good feet, big bone and a deep chest; but his legs are too long, and his narrow chest, small barrel, short "goose rump," pinched shoulders and characterless head do not recommend him to buyers. He is not their kind and they do not want him; but his country owner had considered him a great horse. Many worse horses of this kind have ducked their heads to get them through sale stable doors at the Chicago market this summer, and run up feed bills for a week or two before a customer was found. Some are more ungainly; often they are shallower of chest and flank and longer of leg. As a general proposition long legs carry a slab-sided horse.

These horses are perennial sources of disappointment to all who have not learned to leave them alone. Their breeders suffer most, for they go to expense enough to raise a good horse and get half price for doing it.

SIZE OF THE HOLSTEIN-FRIESIAN.

Recent investigation of some 60 head of record cows showed that only 13 out of that number weighed more than 1500 pounds, there were some 27 that passed the 1400 pound mark, and only nine that weighed less than 1200 pounds, the average being 1383 pounds, this average being much higher than one based on numerous animals. The average weight of 25 bulls was taken and results show 2164, while out of the 25 not one weighed less than 1200 pounds, and only five less than a ton while three weighed more than 2400 pounds.

Mr. Malcolm H. Gardner, superintendent of the Holstein-Friesian Advanced Registry, and a man who has had more than 20 years experience with the breed, states that these animals reach full growth and maturity when they are about five years old, but arrive at their maximum growth in height earlier. He says they reach their full height at from two and one-half to three years of age, and continue to develop in length at the rate of about one and three-fourths inches each year from three to five years of age. They also annually increase three-fourths of an inch in width of hips and two inches in girth of chest. From these very definite and instructive figures we see that it is unreasonable to expect a heifer under three years to appear as near the ground as a mature cow. She will be as we say, more "up standing." Mr. S. Hoxie states that the average measurements of cows about five years old, or nearly mature, which were registered in the fourth volume of Advanced Registry, while he was in charge, were as follows: Height at shoulders, 51.8 inches; height at hips, 53 inches; length of body, 64.9 inches; length of rump, 21.4 inches; width of hips, 21.9 inches; width of thigh, 19.6 inches; girth at smallest circumference of chest, 75.6 inches.

The average weight of these cows in volume four is given at 1262 pounds. These animals were what the Holstein-Friesian breeders designate as typical of the "milk and beef" form.

HOW AN EX-CALIFORNIAN CURED BALKY HORSES.

Mr. A. O. Dinswood, now of Minnesota, but formerly of southern California, where some of his notable cures were affected, gives the Breeder's Gazette his way of dieting a horse for balkiness which is both simple and humane and does not require the hypnotic personality of a professional horse trainer to make it effective. I call it the "diet cure," and it consists merely in giving the horse a generous allowance of "post oats" right where he sulks, even if you have to plant a post there to grow them on. But be sure and give him his medicine right where he succumbs to an attack of the balks, so he can see the relation of cause and effect.

Balky horses are by no means the leather heads of their species. Generally they have an abundance of nerve and endurance. Some of the toughest workers I ever drove were a little balky. Some of the greatest runners and trotters known to the race track have been next thing to balky. Their very excess of nervous energy inclines them to be self-willed, obstinate, stubborn—in short, balky. Whipping nearly always intensifies such a horse's determination to have his own way. But hunger—if there is a greater domesticator known to the animal world I have yet to hear of it. The successful animal trainer rewards his pets with morsels of their favorite dish and it is just as easy to teach a balky horse to associate obedience with his master's crib. When he sulks without cause, leave him there. It will not be long until he is willing to sell his birthright to balkiness for the mere chance of getting a mess of faded-out hay. It is true you can often start one of these rusty ones by diverting his attention, such as blindfolding, pebble in the ear, a mouthful of grass and hitching by the tail, but you cannot fool all of them all the time with these schemes, and some of them you cannot fool any of the time. But for a remedy that will not need administering very many times, and usually but once, I humbly recommend the "diet cure."

The first time I ever tested it was on a half-broken range horse. He was not balky, but a pretty sensible little chap. But he had the uncivilized habit of refusing to be caught, and when cornered would always keep his heels toward me. It only took about a day and a half in a yard without feed or water to make him ready to accept the glad hand, and after that I caught him anywhere. The next case was not so easy. I got him in southern California, where there are more ill-natured headstrong equine brutes than in any other locality known to me. This is probably due to the undomestic way they are raised, in large pastures with no handling until old enough to break. The horse in question was a rather innocent looking branded Westerner, and was doing good work on the road when we got him. He soon made up his mind that he could impose on us with impunity, and then we fell out. He would not so much as tighten his tugs when hooked either single or double to a light rig. Instead, he braced his miserable little carcass against the dashboard so effectually that his mate could do nothing.

Talk about an unsanctifying influence; if I ever longed to use a club it was then, sitting there glaring at that wicked, mulish little rascal which I had taken, all skin and bones, from a hard life and fattened up on good alfalfa. It occurred at the roadside in front of the house near a good hitching post. Jack was promptly tied and his mate put in the barn. When night came he was blanketed. The next morning I got out the other horse and rig and hitched up. Jack was of the same opinion still. I offered him a sip of water, but he was too sulky to drink. Again we left him. On the third day we got no better results. But after 72 hours at the post he looked weak and dejected. I got out his mate and rig as usual. He went about two rods, stopped an instant as if undecided and then sprang into the collar and went down the road at a rattling gait. After a half mile drive he was put in the barn and fed. Jack never balked with me again, and I hauled some big loads of California pumpkins with him on mellow ground. Occasionally he would throw his head over the other horse threateningly, but a sharp command never failed to start him. Whether he bothered his next owner or not I cannot say.

I doubt if a true-blue puller, under all circumstances, can ever be made from a naturally balky horse or one that has been spoiled, but I have faith that the "diet cure" will make fair workers out of most of the sulky ones. While I hope never to be vexed with another balky horse, if I do get one he will try to earn his rations or starve in his tracks.

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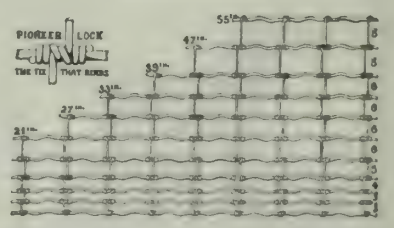
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FEDERAL MEAT INSPECTION.

Written for the PACIFIC RURAL PRESS
By PAUL P. PARKER.

The importance of the Federal meat inspection laws cannot be overestimated. The regulations which are devised to control the disposition of meat from inspected carcasses are clearly defined, thorough and most rigid, and backed by them the inspector may absolutely perform the duties of his office. The laws governing meat inspection are based upon the work of the highest recognized authorities on animal diseases and from years of scientific investigations.

The consumers of meat want good, wholesome meat and are willing to pay a little more for it. If it was not for the government inspection many diseased animals would find their way into the market. A piece of meat may be diseased so as to impair its wholesomeness without giving any indication of this fact to the consumer. It is for this reason that the government protects the consumer, where he is unable to protect himself. Every animal which is considered dangerous or unwholesome in the slightest degree is not allowed to enter into a food product. The inspectors are given enough leeway in judging carcasses so that they protect the consumer and yet at the same time avoid wanton waste by unjust condemnation. Most every food animal has some slight infection or disease, but not enough to unfit the meat for eating purposes, as these infections are in no way transmissible.

Only the meat of the large wholesale butchers and packers is inspected; farmers, retail butchers and dealers are exempt from inspection, as it would be impossible to inspect every animal killed on a farm or small slaughter house. The government, however, forces these small retailers to comply with the interstate commerce laws, and when tney ship meat out of the State where it is killed they must certify that the meat is wholesome, and if the meat is not up to standard the shippers are subject to a fine and imprisonment.

The inspection force is capable and expert, the positions being filled through civil service examinations which afford a good test of ability. The men who have charge of stations where slaughtering is done and the men who do the post-mortem work are all trained veterinarians who have a thorough knowledge of animal diseases and their bearing on human health. These inspectors see that the yards, pens, alleys and chutes are kept clean and that the refuse is carried away and not fed to the hogs on the premises. Dr. Baker, who has charge of the Government Meat Inspection Bureau at San Francisco, has done much toward improving the sanitary conditions of the slaughter houses around the bay and in safeguarding the interests of the meat consuming public.

Notwithstanding the general high character of the inspectors, careful supervision is exercised to prevent bribery or collusion, and to guard against careless or indifferent work.

The actual work of inspecting the animals commences when they are driven into the yards. A veterinarian goes among the stock making the ante-mortem inspection. "Downers" or cripples and those animals suffering from diseases which makes them unfit for food are condemned and sent to the rendering works. This inspector also condemns the animals which arrive at the yards dead. Those animals in poor condition or under suspicion as unfit for food are marked with metal tags bearing the words "U. S. Suspect," which remains upon the animal until the final post-mortem inspection. It often happens that some of these suspected animals will be found in good condition at the post-mortem examination and passed. The number of ante-mortem inspections of animals made in the United States last year is as follows:

Kind of animals.	Passed.	Suspected.	Total.
Cattle	7,198,224	33,048	7,230,272
Calves ...	1,993,461	2,134	1,995,595
Sheep ...	9,778,189	1,751	9,779,940
Swine	34,980,571	27,456	35,008,037
Goats	46,066	1	46,067
Total ..	53,689,692	63,390	54,059,901

Cows within a month of parturition or for 10 days after will be subject to condemnation. The meat of cows which have calves inside with hair on is likewise sent to the fertilizers or soap factories.

After the ante-mortem inspection the operation of killing and dressing is watched closely. It often happens that animals which escaped detection on foot are found to be diseased at the post-mortem examination. Every condemned carcass in the slaughter house is at once marked with a special tag, "U. S. Inspected and Condemned," and those carcasses which have passed inspection are marked "U. S. Inspected and Passed."

The following table for 1908 gives the post-mortem inspections of animals rejected or suspected on ante-marten. inspection and the final inspection of carcasses that were held for a more thorough examination than could be given on the first post-mortem:

Kind of animals.	Passed. forfood.	Passed for lard and tallow only.	Condemned.	Totals.
Cattle	7,081,315	1,744	33,216	7,116,275
Calves	1,989,639	4	5,854	1,995,487
Sheep	9,694,359	96	8,090	9,702,545
Swine	34,878,469	106,675	127,933	35,113,077
Goats	45,920	.....	33	45,953
	53,689,692	108,519	175,126	59,973,337

When a carcass is found which shows a slight evidence of disease, but on account of the haste in which the inspectors must work, they are not sure of the extent of the infection, they mark the carcass with a tag bearing the words "U. S. Retained," and place it to one side where it is given a very thorough examination. These carcasses are often infected in one place, so that the rest of the body can be used as food and not wholly wasted.

Meat inspection does not stop with the carcasses, but it follows the meat until it is in the hands of the consumer. They see that only wholesome meat is used in canning and that it is prepared under sanitary conditions, without the use of harmful preservatives or forbidden coloring matter. They also go a step further and see that the packages are truthfully labeled and no misleading pictures used. Shoulders cannot sell as hams. The designation leaf lard and a picture of a leaf on the package cannot be used unless the lard is really made from the leaf fat of the hog. "Kettle rendered lard" must be actually so rendered, and "farm sausages" must be made on a farm or bear the word style in conjunction with the name, as "farm style sausages."

Aside from the protection, meat inspection affords the public health; it is a valuable adjunct in locating and eradicating the various contagious animal diseases, such as tuberculosis, Texas fever and hog cholera. A stock raiser's animals may be infected with these diseases, possibly unknown to him, and he will be selling them broadcast over the country. When one of these animals comes under the eye of the inspector he immediately finds out from what locality it was brought, and an investigation of the district is made. This is especially true of tuberculosis, which, unless the tuberculin test is made, will never be found out until the animal is killed. Last year over 24,000 cattle carcasses and 77,584 swine carcasses were condemned for tuberculosis. Hog cholera was instrumental in causing 27,234 swine carcasses to be destroyed. As these animals are being condemned it necessarily puts the buyers on the alert, so that when they buy stock from a district where animals have not pessed previous inspections they will only take the animals subject to inspection. So it behooves every stock raiser to look after the health of his herds.

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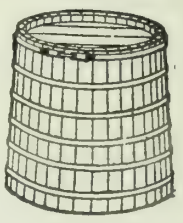
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The Poultry Yard.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

CARE OF THE PULLETS.—Mrs. R. M., of El Cerito, asks about the care of her pullets. She says, "I have 35 pullets, hatched the first week in April, in a yard about 25 feet square. I got them as day-old chicks and have given them the best of care so far as I know. They have done well, but now some of them that are beginning to lay seem to have difficulty. One of them in laying was torn apart, with the egg bag out. I had her killed, and she proved to be very fat, especially about the vent. We took a big handful of fat from that portion. I have fed them well to make them lay; give them a good many potatoes cooked with table scraps and meat. Would like to know the proper care of pullets, and if I am feeding them too high."

The plan which Mrs. M. has followed in the care of her pullets would be better suited for the fattening pen than the production of well developed laying stock. In so small a yard for growing pullets, great care must be taken to feed in deep litter so as to give the birds exercise; also to keep the ground mellow and encourage them to scratch. The growing stock which are not to be sold for broilers and fryers, should have plenty of hard grain and fresh green food always accessible but little other food. We want to produce bone and muscle, a strong sinewy bird, not tender flesh and fat. This requires exercise, hard grain, good green food, sand and grit, and occasionally a little cooked meat mixed with bran and such vegetables as onions. After the pullets are well started in laying the daily mash of ground grains may be given to advantage. Most poultry keepers try to force their pullets and like to tell how early they come to laying as though that was a cause of gratulation and a sign of extra merit in the fowl. This is a great mistake. The young stock should never be skimped in their feed but they should not be forced nor fed such fattening rations as boiled potatoes and ground grain stuffs. Potatoes except for fattening purposes should be fed with caution to all fowls. They should always be mashed and mixed dry with bran or else fed raw. The practice of throwing boiled potatoes into the poultry yard is bad for fowls and especially so for the young stock. Usually, owing to the high price of potatoes, there is little need to give this caution, but where culls are available for cheap poultry food they must be fed with care.

GRAPES AS POULTRY FOOD.—M. S., of San Rafael, asks: "Is there any ground for the belief that feeding grapes to poultry tends to reduce laying? Are grapes good food for young poultry? An answer in your paper will kindly oblige a subscriber in Marin county."

The question of feeding fruit, especially acid fruits, to fowls has not been settled among poultrymen; though the weight of opinion leans to the belief that much acid food does check laying in hens. We have made no definite tests in the matter but have studied the subject pretty closely with the following results: Well-fed fowls will not eat more fruit than is good for them of their own volition. But if forced through insufficient other foods to fill up on fruit, or if compelled to eat it in the mash, a check in egg-production, and other ill effects, may result. For instance: We used to have a friend living in Palomares canyon whose flock of hens ranged in her large apple orchard. This poultry raiser was a careful economical person, and at one time when the ground was covered with windfalls she decided she might utilize them in the mash. Accordingly she boiled a goodly number of the apples and mixed them with the bran and other ingredients of the mash. The check in the egg output was so immediate and decided that this lady never used fruit in the mash afterwards. The fowls had already eaten all of that class of food they wanted while ranging in the orchard and the apples in the mash were just that much too much.

Fowls are particularly fond of grapes and what either the old or the young stock get in ranging among the vines will not hurt them, nor a small quantity fed to them in their pens; but to throw a pile of refuse grapes down in the dirt and dust of the yards and allow them to sour and spoil there cannot fail to be injurious both to old and young stock.

AN EGG.—In an address before the Colorado Poultry Association on this subject, G. W. Veditz said in summing up its points: "In literature also the egg plays a great role and in the legendary customs and superstitions of our Saxon and Teutonic ancestors it is second only to the mistletoe and mandrake. The old nursery rhyme of Humpty-Dumpty is based on the fragile nature of the egg shell, and what novelist or poet has not used the egg shell as a simile for something easily broken? The egg at one time symbolized the universe, and the Easter egg extends way back to pagan days. The saying, as full of something an an egg is full of meat, is a popular tribute to the nutritive value of the egg; while to say of a man that he is a "bad egg" conveys about the limit of insult as an intimation that he is an undesirable citizen. In short, when we remember that 1,500,000,000 dozen eggs are produced in this country annually it is not strange that the egg should play such an important part in almost every phase of our domestic economy. There is also the egg as viewed from the standpoint of the chemist and biologist. The former has again and again attempted to produce an artificial egg. The component elements, the proteids, nitroids and corbohydrates, and even the egg shell were all duly compounded and the resultant held up as a truly egg, but as sure as eggs is eggs it was not an egg. Something was wanting, and it was eventually found much cheaper to let the hen continue in the egg business at the old stand. Eggs for hatching have had volumes written about them. One thing concerning which we need no books nor poultry experts to assure us is that "eggs for hatching" are not always hatching eggs. Perhaps it is just as well that this is so. If every sitting of eggs sent out produced 15 chicks or more in the case of twins, the poultry business would go to the demnition bow-wows so to speak. We could not take a step without having some chick under foot. They would roost in our front parlor and on the back porch, and would become a worse nuisance than the English sparrow. In fact eggs for hatching may be regarded pretty much as the same sort of proposition as codfish eggs. Every codfish mother lays something like six millions eggs at a clutch, but these six million eggs produce eventually only six adult codfish."

ORDERS BY PIGEON-POST.

An entirely practical use of homing pigeons was cited recently in the London Daily Mail. The inventor of the system is a butcher's son, who employs his birds regularly to carry orders from outlying districts—presumably where there are no telephones—to his father's shop. The plan works excellently.

"When the boy goes to collect orders, he takes six of his fastest birds with him. After he has gone a mile or two and collected a dozen orders, he liberates a pigeon with the slips enclosed in a little metal case attached to the bird's foot. Before five minutes have elapsed, these orders are in the delivery wagon on the way to the customers.

"At the various stages of his round, which usually takes three hours, the other birds with more orders are set free, and by the time the shop is reached, all the orders received by this pigeon-post have been dispatched."

It takes Missouri to "show" all the other States how to appreciate the poultry product by giving $10,000 to help that industry. There is also a good lesson to be learned from the way in which the poultry association and their secretary went after and landed the $10,000.

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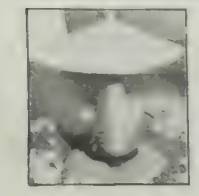
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The Home Circle.

The Magic Charm.

I took the magic mirror and in deeps of night,
Sweetheart! I fearsome ventured down the stair;
It was the gruesome hour for ghosts' and witches' flight
And but one tiny taper did I bear.

I felt the goblins stealing—creeping after me;
The shadows even seemed to mock and Jeer—
The air seemed full of creatures that I could not see,
Sweetheart, I shuddered just from very fear!

Pale amber shone the apples in their place;
I was to eat one from the farthest bin,
When in the mirror would appear a face—
I hoped, Sweetheart, your face I'd see therein!

I feared me so some other face than yours to see,
To work the charm I really did not dare;
I dropped the magic mirror as I turned to flee,
And with the goblins scurred up the stair.

—*Cora Lapham Hazard.*

Hallowe'en.

The ancient festival of Hallowe'en had a much deeper significance in early history than in modern times. In North Wales there was the custom of the big bonfire at nightfall, when each member of the household placed therein a stone, and if it were not found in the morning, that one would not live to see another Hallowe'en. Soul cakes were also distributed to the poor, who in return prayed for good crops the following year.

One historian considered these fires as a harvest home rejoicing as a thanksgiving for the safe harvesting of crops. Many superstitions became attached to these rejoicing fires, which were clearly a relic of pagan times, for there is nothing in the church observance of the following All Saints' Day to have originated such extraordinary notions as are connected with this celebrated festival. The leading idea is that it is the time of all others when supernatural influences prevail, and in the Isle of Man the kindling of fires was done to counteract the baneful influence of fairies and witches which were supposed be abroad that night.

Now the holiday has developed into a time of merrymaking and foolish pranks, when everyone's future is to be predicted in one way or another. It affords a fine opportunity to teach both children and young people to have a jolly good time without causing hurt feelings by malicious mischief.

Upon no holiday is entertaining any easier, for there is a simplicity about decorations, games and refreshments that are appropriate, that it not true of other holidays. Branches of autumn leaves, festoons of popcorn and cranberries, bundles of fodder, corn and pumpkins should be used in the decorating.

If you are blessed with a large old-fashioned fire place, have it well filled with logs and let their glow, combined with the subdued light of Jack-o'-lanterns furnish the illumination. Have your guests come as ghosts, each bringing a bundle of sticks, which in turn are burned in the grate. Each person is expected to tell a ghost story while his faggots are being consumed.

This form of amusement is too "shivery" for many, who prefer the good old fashioned games with their rollicking fun. Ducking for apples and nuts is enjoyed by all, even if accompanied by a little wetting, while the more adventuresome may try to get pennies from the bottom of the tub by a little suction.

In fortune telling with apple rinds, pare the apple so that the skin comes off in a continuous piece. Toss over the shoulder, and the initial of the name of one's sweetheart is supposed to be formed.

Other fortunes can be foretold by baking in a cake a thimble, a ring and a penny. When cut, the person who receives the piece containing the thimble is condemned to single blessedness, while the possession of the ring means happy married life, and that of the penny the pleasures of wealth.

Burning the nuts is a famous charm. They name the lad and lass to each particular nut, as they lay them in the fire, and accordingly as they burn quietly together or start from beside one another, the course and issue of the courtship will be. Charles Graydon, in his poem, "On Nuts Burning, All Hallows Eve," cleverly expresses the thought to be conveyed.

"These glowing nuts are emblems true
Of what in human life we view;
The ill-matched couple fret and fume,
And thus in strife themselves consume;
Or from each other wildly start,
And with a noise forever part.
But see the happy, happy pair,
Of genuine love and truth sincere;
With mutual fondness, while they burn,
Still to each other kindly turn;
And as the vital spark decay,
Together gently sink away;
Till life's fierce ordeal being past,
Their mingled ashes rest at last."

Another favorite form of fortune telling is with the three dishes placed side by side on the hearth. In one place clean water, in another muddy water and leave the third empty. Each person, blindfolded, dips their fingers into one of the dishes, whose relative positions should be changed frequently. To touch the clean water indicates marrying a maiden or young man, as the case may be; the muddy water, a widow or widower, and the empty dish, that one will live and die without the joys and sorrows of married life.

Another game which will cause much amusement is that of the apple and the lighted candle placed on the ends of a horizontally revolving board. Let each person, without the aid of the hands, try to bite the apple as it is rapidly revolved in front of them. They will have to be very quick of motion to avoid having the candle swing into their faces.

If refreshments are served at one large table, let the centerpiece be a kettle suspended from three cross sticks, filled with fruit, or a large pumpkin hollowed out and filled with simple flowers. For light refreshments nothing is more suitable than apples and nuts, popcorn balls, cider, gingerbread and doughnuts. Place cards add much to the attractiveness of the table and can be made at home by anyone having the ability to copy some of the comical Brownie pictures.

A fitting climax to a successful Hallowe'en party would be the autograph portraits of all the guests. These can be written in specially prepared books, entitled "Ghosts of Our Friends," or, lacking these, on rather soft paper with a coarse pen well filled with ink. Furnish each guest with a small sheet of soft paper with a line drawn lengthwise in the center. On this line have them write their names in a flowing style and fold exactly on the line while the ink is still wet. Open up and the result is a queer portrait of the owner of the autograph.

To make popcorn balls, place your fresh popped corn in a bowl and pour soft boiled molasses candy over it. Stir until well mixed, and, while still warm, take out a large spoonful at a time and press into a ball. After all the balls are made, put in a cool place to harden.

The following recipe for soft gingerbread, furnished the readers of the RURAL PRESS by one of the many good cooks in California, may be of interest: One cup melted lard, 1½ cups black molasses, 1 cup sugar, 1½ cups hot water, 2 even teaspoons soda, 1 teaspoonful each of salt, ginger, cinnamon and cloves, and nutmeg if you like; 3 cups unsifted flour; add 3 well beaten eggs. This amount will make three cakes. Bake in rather a slow oven, as anything containing molasses burns easily.

Home-made candy is always a welcome addition to any menu. Here is a good recipe for chocolate fudge: Four cups white sugar, 1 cup grated chocolate, 1 cup milk, lump of butter, vanilla to flavor. Put all the ingredients on the fire together and cook until a little will harden when dropped into cold water. Remove from the fire and beat until it grains, then pour onto a buttered platter and mark off in squares.

The Pumpkins.

Pride of October, we swiftly and good to see
Grew to magnitude lusty and bold;
Give your attentions, to these our dimensions;
Note our complexions—as yellow as gold.

Mightily blest are we, high is our destiny,
Proudly we yield to the popular cry;
For joy of the Nation, behold our translation
Into the peerless pre-eminent pie.
That's not the most of us! still each ghost of us
Grin from the wall when the feasting is done;
Spirits of quality, made for your jollity—
Jack-o'-the-Lantern, the demons of fun.

—*Theodosia Garrison.*

Flowering Bulbs.

All gardens should contain some flowering bulbs, as they come into bloom before other spring flowers and are both attractive and easy of culture. If planted in the fall in well drained sandy loam mixed with manure and at the proper depth, the result in early spring blooms will be all one can desire. Lilies need to be covered with 5 inches of soil and planted at least 12 inches apart. Narcissus, hyacinths and tulips do not need to exceed 4 inches of soil over them and range from 12 inches apart for narcissus to 5 inches for tulips. Jonquils, snowdrops and crocuses should be planted 3 inches deep and 6 inches, 3 inches and 2 inches apart, respectively. After the flower spikes appear, liberal applications of liquid manure make the blooms more brilliant.

Any of these bulbs make satisfactory house plants if properly potted and forced to make good roots before the top start to grow. The pots should have pebbles or charcoal or broken pieces of pots placed in the bottom for drainage. After the bulb has been placed in the soil give pot and all a thorough soaking and then put in a cool dark place to give the roots an opportunity to make their growth first. Water lightly for several weeks, or as long as the bulb is kept cool. When brought out into the sun and warmer atmosphere an abundance of water is necessary.

Drummer (settling bill in Eagle House, Hayfield)—Pardon my curiosity, sir, but what do you stuff your beds with in this hotel?

Landlord (proudly)—Best straw to be had in this hull country, b'gosh!

Drummer—Ah! That is very interesting. I know now where the straw came from that broke the camel's back!

Going Him One Better.

"Young man," said the stern parent, who thought it was up to him to ring in a bluff, "can you support my daughter in the style to which she has been accustomed?"

"Oh, I suppose I could," answered the son-in-law candidate, "but, honestly, old man, I'd be ashamed to do it."—Chicago News.



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We receive messages like the above daily from San Francisco's leading business houses. They call on us because they know we have the right kind of young men in our school, and because they know we are giving the right kind of training. If you are interested in the opportunities offered by the new San Francisco write us for particulars.

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One Year $75. Send for Circular.
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PETER BACIGALUPI & SONS
PHONOGRAPHS
941 Market St., San Francisco, Cal.

THE MARKETS.

San Francisco, October 20. — (Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

This market remains fairly active, and shipments from the north are now coming in freely. Prices are higher on all grades, the advance amounting to about 5 cents, and the tone is very strong, owing to large demands in other quarters. A heavy movement is taking place in the north, with large purchases by Eastern interests as well as for export, and this movement has a strengthening influence on all Coast markets.

California Club	$1.75	@1.80
Sonora	1.85	@1.95
White Australian	1.85	@1.95
Northen Club	1.65	@1.70
Northern Bluestem	1.82½	@1.87½
Russian Red	1.65	@1.67½
Turkey Red	1.75	@1.82½

BARLEY.

Advances have occurred in both spot and future barley, and the movement is becoming more general. Feed is in fair demand locally, being quoted about 5 cents higher, with moderate arrivals from inland points. Brewing and shipping grades are also very firm, with an increasing demand for export.

Brewing	$1.45	@1.46½
Shipping		1.45
Chevalier		Nominal
Good to Choice Feed, per ctl.	1.42½	@1.45
Common Feed	1.35	@1.40

OATS.

Oats show a much stronger tone, with advances on practically all lines. With a greatly increased interest on the part of buyers, there is a very fair movement locally, though supplies are still rather large. The northern market is also firm, with a prospect of importations from Canada shortly.

New Red, choice	1.65	@1.75
Common	1.55	@1.65
Red, seed	1.90	@2.10
Black	2.40	@2.75
Gray		Nominal
White	1.57½	@1.62½

CORN.

There is no change in either prices or conditions, supplies being very small and demand entirely lacking in this market.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.68
Mixed, in bulk		1.66
White, in bulk		1.73

RYE.

The market is almost at a standstill, and prices are entirely nominal. There is a fair inquiry, but many holders are asking higher prices than those formerly quoted, and buyers accordingly hold off. The supply is limited, and consists mostly of Eastern stock.

Rye, per ctl	Nominal

BEANS.

Beans have been coming in quite freely for the last week, and the arrivals include all varieties. The harvest has been delayed somewhat by the rains, and is progressing rather slowly. This has had a tendency to strengthen the market for spot stock and early deliveries, as many of the dealers have shown anxiety to secure supplies from the new crop. The opening prices for the season are exceptionally high, and so far all descriptions are very firmly held. The market is still rather unsettled, however, and there is some doubt whether the present figures can be maintained when the entire crop is in. Bayos, large whites and pinks are lower, while blackeyes, limas and red kidneys show a slight advance. The larger handlers seem to have little confidence in the lima pool.

Bayos, per ctl	$3.50	@3.90
Blackeyes	3.90	@4.10
Cranberry Beans	3.25	@3.50
Garvanos	2.60	@3.00
Horse Beans	1.50	@2.25
Small Whites	4.00	@4.25
Large Whites	2.90	@3.25
Limas	4.10	@4.20
Pea		Nominal
Pink	3.00	@3.15
Red		Nominal
Red Kidneys	3.75	@4.00

SEEDS.

The demand is steadily increasing, and most descriptions are now moving quite freely. Prices as quoted by local dealers are about the same as before, all values being steadily maintained. Alfalfa seed, however, is said to be moving at 12½ cents in some parts of the interior.

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb		4 c
Canary	4¼	@ 4½c
Flaxseed		4 c
Hemp	3¾	@ 4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard		Nominal

FLOUR.

The market shows increasing activity here, with more buyers coming into the market for future requirements. Foreign shipments from San Francisco are also larger than a year ago, though still rather light. Large sales of northern flour are reported to both Eastern and foreign interests. Prices are firm, but unchanged.

Cal. Family Extras	$6.20	@6.60
Bakers' Extras	6.20	@6.60
Superfine	5.10	@5.30
Oregon and Washington	5.30	@5.50

HAY.

The arrivals continue very light, being slightly smaller than for the preceding week. Local dealers believe that the present light receipts are likely to continue until the market strengthens materially. The supply of choice grades is found to be considerably short of normal, and an active buying interest is looked for during the winter, though the lower grades are still moving rather slowly. Active trading is also expected in the interior during the winter, as considerable inquiry has been received by the dealers. The market is now in a healthy condition, except for stock and alfalfa hay, of which there is a surplus. Prices show no change this week.

Choice Wheat, per ton	$19.00@21.00
Other Grade Wheat	13.00@18.50
Wheat and Oats	14.00@16.50
Tame Oat	14.00@17.00
Barley	10.00@13.50
Wild Oat	10.00@13.00
Alfalfa	9.00@12.00
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

Rolled barley is about $1.00 per ton higher, owing to the advance in the raw grain, and is firmly held. Otherwise prices are as before, bran, shorts and middlings being steady under a fair demand.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Corn Meal	38.00@39.00
Cracked Corn	39.00@40.00
Middlings	36.50@37.50
Mixed Feeds	28.00@32.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	29.00@31.00
Shorts	31.50@33.00

VEGETABLES.

Business is fairly active on most descriptions this week, owing to the large number of visitors in the city, and with supplies becoming smaller on some descriptions prices are generally firm. Onions are a little higher, with considerable speculative demand in adition to current requirements. Peas and beans are firm, with an advance on the latter. The overstock of tomatoes is cleaning up, and prices are much better. Egg plant is higher, with little good stock offering, though poor lots find little demand. Cucumbers are a little easier, and turnips are lower.

Onions—New Yellow, per ctl	75@	85c
Garlic, per lb	4@	5c
Green Peas, per lb	3@	5c
String Beans, per lb	3@	5c
Lima Beans, per lb	6@	8c
Turnips, per sack		75c
Summer Squash, large box	50@	65c
Tomatoes, per box	50@	85c
Cucumbers, large box	40@	65c
Egg Plant, per box	40@	65c
Okra, per box	50@	75c

POULTRY.

Prices show little change, and the market is hardly as strong as was expected in view of the celebration this week. Eastern stock has met with a fairly good demand, but has been quite plentiful, and only the best of the local offerings received any attention. A few dressed turkeys are now coming in, and find a fair demand at the quotations, but live turkeys are inclined to easiness.

Broilers	$ 4.50@	5.00
Small Broilers	3.00@	4.00
Fryers	5.00@	6.00
Hens, extra	8.00@	10.00
Hens, per doz	6.50@	7.00
Small Hens	4.50@	5.00
Old Roosters	4.00@	5.00
Young Roosters	7.00@	7.50
Young Roosters, full grown	8.00@	9.00
Pigeons		1.25
Squabs		2.50
Ducks	5.00@	8.00
Geese, per pair	2.00@	2.50
Spring Turkeys, per lb	23@	25c
Gobblers, live	19@	21c
Dressed Turkeys, lb	26@	27c

BUTTER.

Some large arrivals of butter have caused a little easiness on extras, but the demand has been heavy this week, and the market is now stiffening up a little. The price is 2½ cents below that of last week, but new supplies are very closely cleaned up and the tendency is upward. Firsts have been in heavy demand, and show a slight advance over last week. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb	35 c
Firsts	31½c
Seconds	28½c
California Storage (extras)	30 c

EGGS.

Extras show continual fluctuation, owing to the extremely high prices at which they have been held. After a week of very active trading, during which the price occasionally reached 58 cents, a sudden increase in offerings, coupled with a smaller demand than was expected, has brought the quotation to 3½ cents below that of last week. Firsts, however, are strong and active at an advance.

California (extras), per doz	53 c
Firsts	47 c
Seconds	30 c
Thirds	24 c
California Storage (extras)	31 c

CHEESE.

All local descriptions are still in good demand, and trading has been active. Extra local flats are unchanged, but firsts are higher. Both local and Oregon Y. A.'s show an advance, Eastern stock remaining unchanged.

Fancy California Flats, per lb.	16 c
Firsts	15 c
New Young Americas, fancy	17½c
Oregon Flats	16 c
Oregon Young Americas	17½c
N. Y., fancy	18½c

POTATOES.

Potatoes are moving freely, but the supply is still large, with liberal arrivals and little demand for shipment to other points. The market is accordingly easy, present prices being sustained with difficulty. Some cheap lots of sweet potatoes are being marketed this week, bringing down the inside price.

Potatoes—River Whites	60@	75c
Salinas Burbanks	$ 1.25@	1.40
Oregon Burbanks	1.00@	1.10
Sweet Potatoes, ctl	1.25@	1.60

FRESH FRUITS.

Most descriptions are in good demand for this time of year, sales early in the week being quoted large on most descriptions. Some late red plums are being sold at the prices quoted. Persimmons are also coming into the market. Nutmeg melons are easy, only a few lots bringing top price. Berries are firm, strawberries and raspberries being scarce and higher, while cranberries are moving more freely. Supplies of Tokays are excessive, but other descriptions are in fair demand. Apples remain firm, and winter Nellis pears are moving freely at higher prices. Peaches are practically out of the market, but some figs are still offered, and a few watermelons are being cleaned up.

Melons, Nutmeg, per box	50@	75c
Raspberries, per chest	6.00@	7.00
Cranberries, per bbl	9.50@	10.00
Strawberries	3.00@	5.00
Huckleberries, per lb	8@	10c
Grapes, per crate	4$@	75c
Lug boxes	50c@	1.25
Wine Grapes, per ton	10.00@	15.00
Apples—		
Fancy, per box	1.00@	1.50
Common	40@	90c
Pears—		
Winter Nelis	1.25@	1.50
Other varieties	50c@	1.00
Quinces, per box	60@	90c
Pomegranates, small box	50@	65c
Persimmons	1.00@	1.25

CITRUS FRUITS.

Citrus goods show more firmness, with a better demand than for some time past, but the movement has not yet grown to any large proportions. Oranges and grape fruit have made up for the recent decline, while lemons show a sharp advance.

Choice Lemons	$ 3.50@	4.00
Fancy Lemons	4.50@	5.00
Standard	2.00@	3.00
Limes	6.00@	6.50
Oranges, Valencias	2.00@	3.50
Grape Fruit	2.50@	3.50

DRIED FRUITS.

Numerous changes in price are noted this week, and the movement continues active both here and in the East. The new apples are beginning to move quite freely, and are bringing considerably higher prices than before. Apricots are also higher, and as most of the stock has been bought up by packers, and much of it already sold in other markets, the remainder is very firmly held. White figs are attracting more attention, sales being reported at an advance over the last quotation. Peaches are also in much better demand, with considerable inquiry from other markets, and the packers are offering higher prices for the stock still held in the country, as a large proportion of the crop has been cleaned up. Prunes are beginning to clean up, the larger sizes being hard to obtain at any ordinary figure, and better prices are now offered, though the smaller sizes are still in fairly large supply. The raisin market remains in bad condition, 2 cents being the highest price now obtainable for loose muscatels, while there is very little demand from the East. A fair movement is reported, however, in some of the producing districts.

Evaporated Apples, per lb	8 @	9 c
Figs, black, new crop		2 c
Figs, black, new crop		3 c
Apricots, new crop	9½ @	10 c
Peaches, new crop	5 @	5½c
Prunes, 4-size basis	2½ @	2¾c
Pears	6 @	8 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox		2 c
Thompson Seedless		2 c
Seedless Sultanas		1¼c
London Layers, 3 crown	85@	95c

NUTS.

Prices are firmly held as before. Large shipments of the new walnuts are now being received by local jobbers and shellers, and there is a strong demand from the retail trade, which is out of old-crop stock. Local prices will be unsettled until more of the new stock is distributed. Almonds are in good demand, with little stock remaining in the country.

Almonds (new crop)—	
Nonpareils	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7½c

HONEY.

There is some demand for comb honey, which is fairly firm, with very light offerings. White extracted is also fairly steady, but the lower grades are weak and dull. The following prices are quoted by local dealers.

Comb	10	@14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

Prices are again quoted higher for both old crop and new contracts. The market is quiet, but several fairly large sales have been made recently to Eastern brewing interests, and the market remains in a strong position.

Hops, Old, per lb	14	@19 c
New crop	24	@25 c

WOOL.

Wool is firmly held by the majority of producers, but is dull, with little demand in any market. Some of the better lots are moving, but a large proportion of the fall clip is defective, and buyers are paying little attention to it.

Fall clip, Northern Free	12	@15 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

Dressed meats are unchanged in price, but most descriptions are fairly firm. Live stock is also unchanged, except for a slight advance in calves. Hogs are quite plentiful, but have met with an active demand, keeping the price steady.

Beef: Steers, per lb	6½	@ 7½c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal	7½	@10½c
Mutton: Wethers	8	@ 9 c
Ewes	7½	@ 8 c
Lambs	9½	@10½c
Hogs, dressed	9	@11½c

LIVESTOCK.

Steers: No. 1	4	@ 4½c
No. 2		3¾c
Cows and Heifers: No. 1	3⅜	@ 3½c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5½c
Medium		5 c
Heavy	4	@ 4½c
Sheep: Wethers	4½	@ 4¾c
Ewes		3¾c
Lambs	5¼	@ 5½c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs		7¼c
250 to 325 lbs		6¾c
Common Hogs, lb	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

ENGINES AND PUMPS

If you are going to irrigate, write us for catalogs and information.

THE CALDWELL BROS. CO.

SEATTLE TACOMA SPOKANE

Special Citrus Market Report.

Los Angeles, October 19.—Valencias are today bringing more money in the East than at any time since the season opening, and this in spite of the quantity and the fact that Floridas are in the market in force. In New York on Monday of this week California oranges sold at an average of $3.70, while Florida fruit was bringing in the neighborhood of $2.00 a box.

There has been very little demand for Valencias at this end and most of the fruit has been rolled or sent direct to auctions. The quantity of fruit now in California is small and there is hardly any established

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We also have lands under irrigation in the heart of the San Joaquin Valley; 20 acre or more unimproved farms. In some instances this land has more than paid for itself out of the proceeds of the first crop. Both tracts are entirely free from overflow. All land sold on easy terms of payment. Write us or call at the office for booklet giving full particulars.

ALFALFA FARMS COMPANY

403 Monadnock Bldg., Market at Third St., SAN FRANCISCO.

f. o. b. price, figures being given all the way from $2.00 cash, to $2.50 usual terms. Right now the shippers are receiving considerable inquiry and there is but little fruit available.

Only a very few lemons are being shipped and only an occasional car shows up in the auctions, showing that nearly all the lemons are being sent out on orders. The shippers claim that they have no trouble in getting $4.00 f. o. b. for the best lemons, but say that orders are not all plentiful. The fact that but 30 cars went out from here last week would seem to substantiate this.

Navels are now being picked in Tulare county, and the first car will probably go out this week, and the season begin in earnest by the first of November. Reports from the north are all to the effect that the fruit is of good size, well colored inside and sweet. The quantity per tree is short of last year, when it was very short, indeed, but it is expected that the new orchards just coming into bearing will swell the total output considerably over that of the past season. The first cars are being quoted at $2.50, but the price on the main crop is now placed at $2.00 f. o. b., some brokers stating that they can get all the fruit they now need at $1.75 cash per box.

The citrus fruit shipments for the past seven days have been 157 cars of oranges and 30 cars of lemons. The total output to date is 31,591 cars of oranges and 6094 cars of lemons. To same date last season the output was 24,480 cars of oranges and 4768 cars of lemons.

Deciduous Market Report.

Sacramento, October 19.—The California Fruit Distributors in the regular weekly letter issued today, report nine cars of pears to have been shipped during the week previous, with but little of this fruit left. Four hundred and seventy-nine cars of grapes were sent East during the week. Malagas are about gone, leaving Tokays as the principal shippers. A few Cornichon and Emperors are going forward. The former will be a good crop and fine quality, but the Emperors are very short. Demand for grapes is good and prices are better than earlier in the season. Tokays are selling for about $1.25; Malagas, $1.12 and Cornichons, $1.25.

Total shipments of deciduous fruit to October 19th were 12,874 cars; to same date last season 11,086 cars.

CROPS FOR THE DRY COUNTRY.

Mr. L. C. Hogensen of Utah writes interestingly in Campbell's Farmer of dry land crops in his State:

There are some 20,000,000 acres in the State that can be reclaimed in no other way than by the application of scientific principles of agriculture. Good crops cannot be grown on these lands by careless methods, because of the lack of moisture. The great problem of arid farming is the securing of moisture, which must first be gotten into the soil and then kept there until the plants need it. The land should be plowed deeply in the fall to make an adequate reservoir for the storing of the winter moisture. The land should be fallowed during alternate years so that the moisture of two years will be available to the crop. The fallow land should be kept cultivated and free from weeds to prevent the evaporation of water from the surface. Deep rooted crops should be selected so that they can reach far and wide for moisture.

Wheat is now and perhaps always will be the principal farm crop. Fall wheat is always preferable to spring wheat. From two to three pecks an acre sown with a press drill gives better results than more thickly sown grain. Broadcasting grain is not satisfactory in any way. During four years of trial on the various arid experimental farms in this State the Turkey Red wheat has given the best yields of good quality wheat. It is considered the standard of milling wheats in the great Northwest. The Koffoid wheat also is an excellent variety, and during the years of trial has stood all the tests and yielded good crops when most other varieties have failed. It combines the qualities of high yield, good quality, stiff straw, does not shell easily and stands frost and drouth well. Other good varieties are Winter Lasalle, Odessa, Gold Coin, Blue Stem and Red Chaff. The Durum wheats take the lead as spring wheats. They are adapted to grow in soil rich in plant food and in a climate that is hot and dry. Other good spring wheats are Sonora and New Zealand.

Oats is now considered a good arid farm crop. The only drawback has been spring oats. About three years ago Mr. Stephen Boswell of Nephi, Utah, imported some seed of a fall variety from Europe, which has since proved a great success and is the best we have today. It is called the Boswell winter oats.

Alfalfa, field corn, brome grass, potatoes, etc., also give excellent results on arid farms. Alfalfa should be sown with a drill at the rate of about eight pounds per acre. A disc run over the field every spring will be found beneficial. Corn and potatoes should be flat and not ridged, as less water will be lost in this way. Brome grass is by far the best grass grown on arid land. It is sown broadcast in the spring at the rate of from 15 to 20 pounds per acre. It may be used either for pasture or for hay. The hay is of excellent quality and is relished by all farm animals.

DESTRUCTION OF RATS WITH CARBON BI-SULPHIDE.

M. de Kruyff, of the Agricultural Bureau of the Dutch Indies, at Buitzenzorg, Java, has published an interesting article on the destruction of rats. The various contagious diseases which have been recommended for this purpose have been found useless in the tropics, and have not always proved effective even in the temperate zone. Hence de Kruyff's experiments will be of general interest.

After working four years with various viruses without succeeding in creating an epidemic, or even killing a single rat, de Kruyff obtained more encouraging results by employing carbon bi-sulphide in the following manner:

All visible rat holes were first stopped with earth for the purpose of ascertaining which holes were inhabited, for the inhabited holes were found reopened the following day. Half a teaspoonful, or less, of carbon bi-sulphide was poured into each of these holes, and after waiting a few minutes to allow the liquid to evaporate the mixture of vapor and air was ignited. The result was a small explosion which filled the hole with poisonous gases and killed all the rats almost instantly.

A pound of bi-sulphide, costing about 10 cents, is sufficient for more than 200 rat holes. One hundred and thirty-one rats were found dead in forty-three rat holes which were opened after the operation. In two cases ten rats were found in a single hole. The process is therefore very cheap and its results are immediate and absolutely certain.

PUBLISHER'S DEPARTMENT.

H. F. Arenberg, of Petaluma, is advertising a brooder heater and stove in the PACIFIC RURAL PRESS, that is a strong feature with poultry raisers, and small farmers in general. This device is built on lines that render it cheap and serviceable to all in need of a feature of this kind. We can commend Mr. Arenberg to our readers.

Attention is called to an article in another part of this issue treating of rat killing by the use of Carbon Bisulphide. Wheeler, Reynolds & Stauffer, office at 624 California street, San Francisco, are the only manufacturers of this commodity west of New York.

Probably no crop in California is more sure of monetary success than alfalfa. The market is steadily growing better and with good soil and plenty of water the crop is a money maker. In both the Sacramento and San Joaquin valleys alfalfa is at its best and the lands being advertised by the Alfalfa Farms Co. in this issue of the PACIFIC RURAL PRESS are worth investigating if you are looking for such a proposition.

UNITED STATES SEPARATORS WIN GRAND PRIZE AT SEATTLE EXPOSITION.

It will not surprise anyone who has used a United States Cream Separator to learn that this separator was awarded the Grand Prize, the highest possible award, at the Alaska-Yukon-Pacific Exposition at Seattle, Wash. The award made by expert judges confirms the testimony of dairymen and farmers throughout the country, who have put this sterling separator to the test day after day on the farm.

It is interesting to note that the United States Separators exhibited at the Seattle exposition were ordinary stock separators. No extra finish was put on them. They were all ready to go to work separating milk, and, in fact, they will be sold and at work before this article is read. The Vermont Farm Machine Co. has claimed for its United States Separators that they are exceptionally easy running, easy cleaning and long lived, and possess the highest degree of skimming perfection. The award of Grand Prize bears out these assertions.

The United States Separator is quite in the habit of taking Grand Prizes and Gold Medals at world fairs. At no place where it has been exhibited has it failed to receive the stamp of official approval, and the world record for close skimming, which the United States Separator holds, was made in competition with other leading separators.

The farmer who does not own a cream separator and who intends buying one is naturally interested in what others think of the merits of the various makes of separators. He depends on the testimony of actual users, and expert judges. The United States Separator is fortunate in having so many loyal users of its machines who never miss an opportunity to "talk United States," and also in having received such unanimous approval in the shape of awards by exposition judges. The combination of these two recommendations cannot fail to impress the prospective buyer of a separator. And he makes no mistake in following such advice, and buying a United States.

Two and Two Not Always Four.

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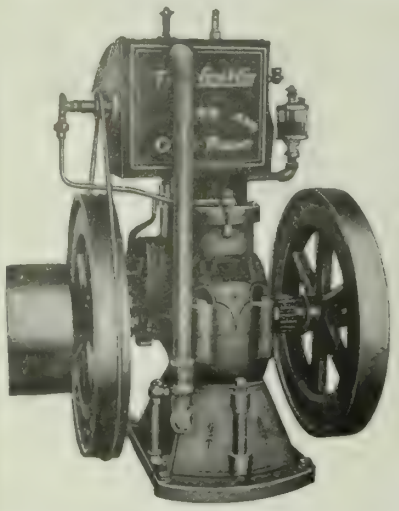
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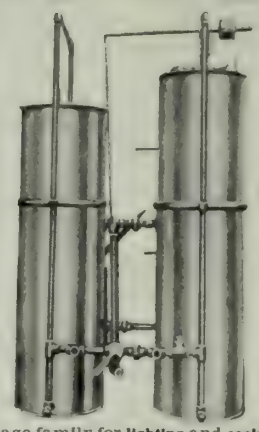
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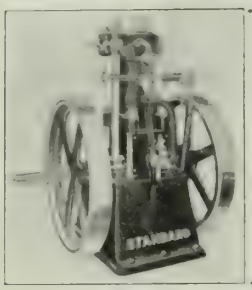
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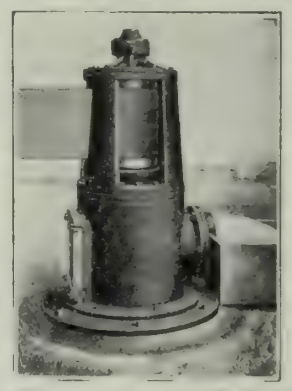
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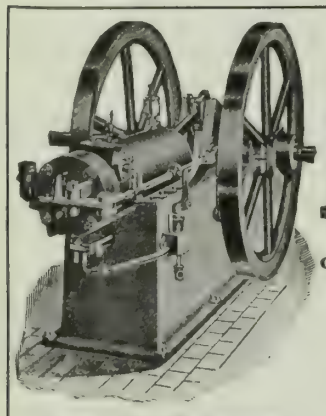
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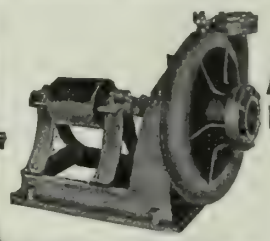
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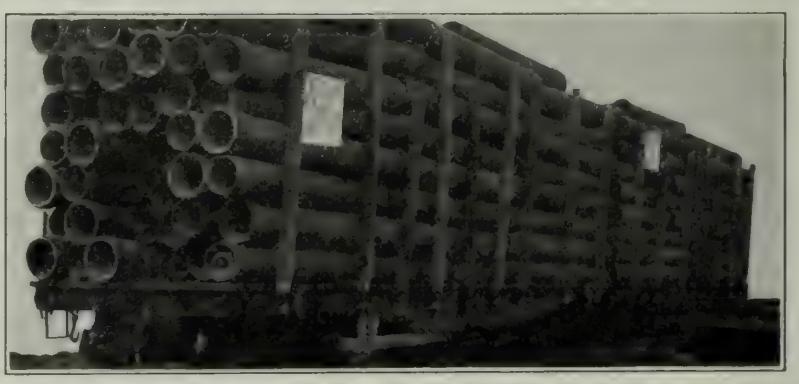
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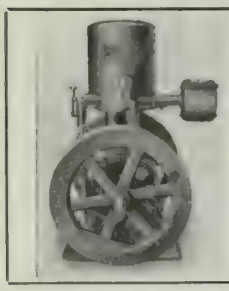
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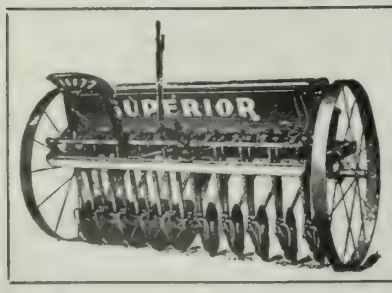
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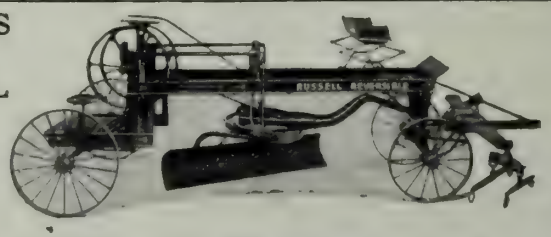
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Vol. LXXVIII. No. 18. SAN FRANCISCO, SATURDAY, OCTOBER 30, 1909. Thirty-ninth Year.

IMPROVED BUSINESS METHODS FOR THE DAIRYMEN.

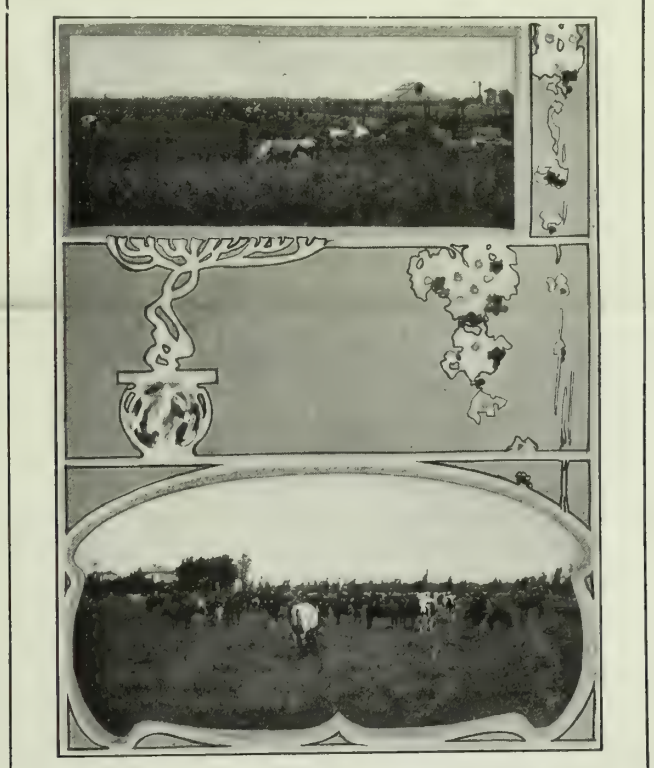
Written for the PACIFIC RURAL PRESS
By Mr. PAUL P. PARKER.

The dairymen of the Pacific coast should use better business methods in conducting their dairies. An intimate knowledge of the sources of profits and losses around a dairy are as essential to the dairyman as to the merchant. This does not mean that a complicated set of books should be kept, but it does mean that every dairyman should have a note book in which the record of each cow is entered, so that at the end of the year it can be told at a glance whether certain cows paid for their feed or not. This record should show the cost and amount of feed each cow consumed and the quantity of milk and butter fat produced. The mere fact of keeping the record of each cow will not in itself produce any more milk or butter, but it will show the dairyman the cows he should sell as unprofitable, and those he should keep and care for.

Ask the dairymen who conduct their business on the "general average" plan—that is, keep no individual record of the cows, but figure their profits at the end of the season as the difference between the expenditures and the sales—why they still stick to the old, primitive methods, and the only argument they offer in favor of their plan is that their father or "Old Bill Jones" made money in the dairying business without ever having a scale or a note book on the place, and they are going to do likewise.

Dairymen who talk in this manner forget that conditions have changed. Other factors have come into the dairy business with which their ancestors never had to contend. It is no longer possible to graze the dairy cows on cheap feed. Where formerly 100 pounds of butter a year from each cow left a profit, the increased cost of feed at the present time has made 150 pounds a year practically a loss. Transportation and refrigerating facilities also influence the market of the dairyman. When there is a scarcity of butter in one section it is only a matter of a few days to bring it hundreds of miles into the market, or when there is a surplus of butter the large storage plants make it possible to hold the butter until the price or the demand improves.

It is with these and countless other elements which the dairyman of today must figure. To meet them successfully the dairyman must use modern scientific business methods. Every day we hear of dairies in the same locality where one is paying handsome profits and the other is only eking out an existence, and the cost of feed and care being practically the same in both cases. If these dairies were to be investigated the unsuccessful dairyman would, no doubt, be found to have a herd which could not produce enough butter to pay for the feed they consume. An example of this came under my observation in Marin county. Two dairies are within a mile of each other and the conditions for conducting the business are practically the same. Yet one dairy averaged $46.50 per animal last year and the other between $10 and $11. The cause was easily seen. The successful dairyman had checked up his cows at the end of every season, and those cows—and their calves—not showing a profit were sold to the butcher, while his less fortunate neighbor kept no record of his herd, but spent his time condemning the dairy business. He had about the same herd he started in business with, having sold the calves of the good milkers and the poor milkers indiscriminately without any though of the future of his herd. Dairymen as a class know less about actual profit and loss of their business than any other branch of agriculture. The farmer knows what it costs him to plant his crops and to harvest them, and when the final accounting is done he knows what crop and what field gave him the best returns. But the average dairyman has only a hazy idea what his cows are yielding; he knows his good milkers and his very poor milkers, but those cows in between he knows very little about. If he would only keep tab on these doubtful milkers he would no doubt find he was losing more on them, and that they would bring him more profit in the hands of the butcher than on his dairy. It is surprising how difficult it is to size up a cow. It has been the experience of most dairymen who started in keeping a record of their herd that the cow they thought was the best money maker on the place seldom ranks better than fourth or fifth. It is business suicide to keep these unprofitable cows in a herd, and it is an injustice to the good milkers and the men who bred them, because these profitable cows do not get the attention or the credit which is due them. Where the cows were bought from a breeder as an improved type of dairy cow, unless a record is kept of the milk and rations, it is impossible to tell whether they came up to expectations or not, and it is only fair to the buyer and the seller to know just how many dollars and cents the animal in question is able to produce each year.



Dairy Scenes in Stanislaus County.

It is an easy matter to ascertain the profit a cow brings each year. Records on the Pacific coast show that it costs on an average $30 a year to keep a cow, and with butter averaging 25 cents a pound, it will take 120 pounds of butter to pay for the feed alone. Of course the calf and skimmed milk will almost balance up for the incidentals, rent and interest on the investments. So it is evident that no dairyman should keep a cow unless she gives at least 200 pounds a year. Even this will only bring $20 per cow a year, and if one or two of the dairy cows should die the margin of profit will dwindle down still lower. Dairymen find it more profitable to have 20 cows that average 300 pounds of butter a year than 40 cows which only produce 200 pounds.

The best way to find out what each cow is doing is to weigh and test the milk. Scales and a Babcock tester are as essential to every well regulated dairy as a separator. In weighing milk it should be remembered that every quart weighs 2.15 pounds. Both the morning and night milk should be weighed, because there is usually a slight difference in the amount of milk given at these periods. The Babcock tester ascertains the amount of butter fat in the milk and can be obtained from any dairy supply house for $5 or $6. The test is made by putting ordinary sulphuric acid in a tube full of milk. The acid dissolves all the non-fatty solids of the milk, so that when the mixture is whirled around in a centrifugal machine the butter fat rises to the top, being much lighter than the other solids. In order to measure the amount of fat by the graduations on the side of the tube, hot water is added. The percentage of butter fat is shown by the space it occupies on the sides of the tube.

Most people think that they are difficult to operate, but such is not the case, for every outfit has a very full and complete set of directions, so that after a few trials a person can make the test in one minute, and for the benefits derived no dairyman can put less time in more profitably. Some dairymen say that it is too much trouble to make these tests every day, although better results can be obtained when the tests are made daily, as the percentage of butter fat fluctuates very frequently without any apparent cause, yet it is not absolutely necessary. Some make the test every six weeks, others on the third, sixth and eighth month, while some only take the test once and then on the seventh month. When these tests and weights are investigated at the end of the year, the cows which have not paid for their

(*Continued on Page 282.*)

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Oct. 26, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.36	2 64	3.50	68	40
Red Bluff	00	1.03	2.15	84	48
Sacramento	00	1.29	1.27	82	48
San Francisco	.01	1.73	1 35	82	48
San Jose	00	1.44	.95	86	42
Fresno	00	.54	.89	82	46
Independence	00	.32	.78	80	38
San Luis Obispo	00	.52	1.60	96	46
Los Angeles	00	.30	.71	100	52
San Diego	00	.02	.46	94	52

The Week.

Last week we shied away from Portola comment because the daily journals were so faithful to it. For the same reason we do not undertake any account of the incidents of the festival. We must quiet the editorial conscience, however, by testifying to the wonderful interest manifested and the general satisfaction produced. Some of the spectacular features were very striking, some of the situations impressive, and the association of events very suggestive, but we think the universally conceded success of the celebration was not due to these. We apprehend that it was largely attributed to what we believe the metaphysicians call a subjective state in the population which only needed certain conditions to declare itself. One of these conditions was the influence proceeding from multitude to bring to expression the joyous hope, confidence and loyalty which is abiding in the hearts of the California people. These were embodied in what may be called the spirit of the occasion which was clearly brighter and more bouyant than anyone could have foreseen. In fact many who entered into the festivities with thought of a play spell only soon found that they were experiencing an uplift of the emotions proceeding from gratitude for the past confidence for the present and assurance for the future. Something of this kind was evidently needed to inspire San Francisco with new courage and bring her to fuller realization that she is strong in the heart of California. This end was surely attained. Those who came to us from going to and fro upon the earth and who had no special local sentiments have assured us that they never have seen an occasion in which the heart of a million people was so closely touched and predict that the influence of the event will bring new honor and admiration for San Francisco throughout the world. And we believe this is not an exaggerated view of the fact.

This will make for the advancement of California. In great distant cities groups of Californians held "jubilee banquets" on the night of the opening of the festival in San Francisco which convinced the people afar of the truth of the parody: "once a Californian, always a Californian." Then, too, the throng of new comers now in the State entered into the affair with all the enthusiasm of the native born. We are informed that the thirty-day colonist rate period, which ended just before the festival, saw more than 100,000 persons enter the State through the various gateways, all bent upon acquiring homes or making homes on land already secured. The rush is chiefly to the great San Joaquin valley, but will reach all parts of the State, and thousands were brought under the fervor of the festival and taught to know the California spirit.

Though the rain dampened the dawning of Portola fete it brought in a week of the most delightful autumn weather the very best of its kind for those who live only to enjoy. But enough rain has not yet fallen to begin late fall work widely, and, therefore, producers are beginning to wonder what the winter will be. Rather a new line of prophecy has been drawn which it may be timely to gossip about a little. Mr. S. V. Rehart, of Lakeview, Oregon, writes to the San Francisco Chronicle as follows:

"Every cool summer since 1874 has been followed by a more or less dry winter.

"Every summer since 1874 which has had a long heated term has been followed during the winter by a long term of heavy precipitation.

"Usually the period of successful precipitation during winter corresponds in intensity and duration with the heated period during the previous summer. The summer of 1874 was a remarkably cool summer, followed by a dry winter.

"The summer of 1875 had the longest heated term in the mountains of any summer up to the present writing, and the winter of 1875-76 had more precipitation than any other winter up to the present date at Sacramento, Cal. The summers that are part cool and have a short period of heat will be followed by a winter which will be part dry and part wet, similar to 1906-07, also 1908-09."

Mr. Rehart seems to have done most of his observation and prophesy in the mountains of northern California and southern Oregon, and he believes that "high altitudes no doubt are the best for long distance forecasting," but we do not see what that matters when you predict merely on the basis of the record. Mr. Rehart has brought his "discovery" to the attention of the authorities "with but little success and considerable discouragement." We are not surprised, for at first sight it does not constitute a rational basis of prediction and its author can only make it so by recourse to statistics, showing just when and how much "hot spell" and just when and how large rain succeeded and the same things about the cold summers and small rain which succeeded them. General impressions are not worth anything except as working hypotheses. Probably the authorities have worked on it enough to find coincidences and contradictions about balanced. However since there is plenty of time now to sit in the shade and figure, we give our readers Mr. Rehart's discovery to see if they can make anything out of it.

And while we are puzzling over the character of the coming season it is good to know that we shall have turkeys enough for Thanksgiving this time for it has been a good turkey year. From points in the Sacramento valley, where the turkeys walk the wide mesas in pursuit of their favorite entomological repasts, the announcement comes that shipments of turkeys will be the greatest ever known. Weather conditions have been right, there have been no epidemics among the birds and there have been more people engaged in raising them. As the market is being extended the increased production is not expected to result in decreased prices. And we greatly admire th sagacity in this early announcement of ample su plies from those who have the product to sell. will, of course, have the effect of taking the ed off the courage of the turkey importers from th central west and leave the California turkey clear market sky to fly in—so to speak.

Oranges are another Thanksgiving delicacy the East and it is interesting to note that the Fa Oaks colony, in Sacramento county, shipped Ea October 20th the first carload of ripe oranges the present season. The shipment is said to nearly two months in advance of the avera annual first shipment, but that may refer to t records of Fair Oaks' first shipment. It is t great a claim to apply to the State, for it ca hardly be more than two weeks ahead of the fir shipments from other central and northern di tricts which are usually emptied of fruit befo Christmas. It is possible that the hot spells du ing the last summer have rushed the fruit forwar to extra earliness this year in this part of th State. The announcement comes from Los A geles that the citrus crop for the season 1909-1 opening November 1st, will be from 15 to 30 below the normal yield of 35,000 cars of orang and lemons. It may be 10,000 cars short of th enormous yield of 38,000 cars for the season jus closing. The extreme heat that prevailed at di ferent times throughout the summer caused muc green fruit to fall, but that which remains on th trees promises to be of excellent quality and i returns to growers, will not fall far short of thos for the present season. Of the 38,000 cars o citrus fruits which will have gone forward b October 31st, oranges total 31,900 and lemons 610 The total returns to growers are estimated at $22 327,200, of which $18,374,400 is for oranges an $3,952,800 for lemons. These are very interestin figures. Remembering the high heat as a caus assigned for the reduction of the coming crop an applying the Rehart impressionist method o weather forecasting, we might conclude that w are entering upon a crop-year of large rainfal which will surely make the State good for an reduction which may have resulted to the citru product.

California pears have done excellently in Nev York of late in spite of the too frequent claim tha our long distance shipments of fruits are shy o flavor. A New York writer notes the fact that o the fruit stands of the metropolis California fancy Bartletts even at 10 cents apiece were sold mor readily than the inferior quality from local State at the rate of two for a nickel. This is warran for extra effort to grow pears in spite of the blight And speaking of blight the latest thing is that a Japanese, named Sagendi Kondo, who has bee doing horticultural detective work on his own ac count in the San Joaquin valley, where most pear were carried out by the blight, has announced that blight can be arrested and controlled by picking the blighted specimens out of the clusters of blooms before the petals fall. This seems to rest upon the fact that the blight is generally introduced by insects visiting the bloom and the claim is that the affected flowers in each cluster can be distinguished from those unaffected without waiting for the embryo fruit and its stem to be blackened too far and the infection carried to its neighbors which spring from the same spur. Mr. Konda thinks, also, that he has found the reason for the occurrence of the blight in blackened patches on main limbs, from which it works downward into the trunk, etc. He explains it in this way, as described by a local writer:

"The fallen petals generally dry up, but Mr Konda found it to be a frequent occurrence that damp petals existed among the fallen ones and

at they failed to dry out even when exposed to e direct rays of the sun. He further found that ese damp petals eventually putrify and turn into quid form. Where the putrified petals rested on e tree this liquid dripped down and fell on the unk or branches beneath. In each case the spot ruck by the falling liquid turned into a blot and gan to decay, the disease spreading with great pidity and eventually causing the death of the hole tree.''

It is perfectly rational that this should happen; at the blighted embryo should drip germ-laden quid and that, in falling, it should smear germs on bark, and that these germs should enter—e only question is whether they actually do so. r. Konda says they do, and his claim should be sted by other observers, by actually putting ese blighted embryos upon marked places on the ark and see what happens. His claim is that he as saved the trees by removing these diseased nbryos while still in bloom—and then can grow-s afford to go to the vast labor of examining ch blossom cluster and extirpating the diseased es? If Mr. Konda's method is to be applied to rge trees it would take an anaconda to do it and cents a pear would not be too large a price for e fruit, probably. But the real question is hether Mr. Konda is an impressionist on pear ight as Mr. Rehart is in weather forecasts. ience, you know, is of Missourian birth: it will t be satisfied with claims; it must be shown. r. Cook, Mr. Peary, Mr. Rehart and Mr. Konda e all in the same class at this moment.

Queries and Replies

Fertilizing Vines.

To the Editor: In regard to commercial fer-lizers what kind would you advise for a vineyard Sonoma county? Does it take different kinds of rtilizers for different kinds of fruit and vines, as me tell me? Also if you quit using fertilizer ill it leave the soil poorer and in worse shape an it was before.—Experimenter, San Francisco.

The flesh of fruits is too similar in composition warrant any notable difference in the fertilizers mployed to produce it. Stone fruits differ some-hat from seed fruits in the greater requirement f some mineral matters to make the large amount f shell and kernel in a crop. Fruits grown for xtreme delicacy of flavors, like some wine grapes, re injured by too much nitrogeneous manures, nd yet adequte growth of the vine requires a fficiency of such matters in the soil. If your soil run down so that vigorous growth of trees or ines are not secured (when you are sure that the oil is moist enough to make it) apply stable anure, or, if you have no supply of that, use a complete fertilizer'' containing nitrogen, phos-horic acid and potash as reputable dealers espe-ially prepare for orchard and vineyard uses. When you find your vines are growing strongly nough, use phosphoric acid and potash without he nitrogen to serve fruiting purposes especially. f fertilizers help you to turn more of your soil ubstances into good fruit you are that much head. What is the use of having soil substance which is of no use to you? If your vines need nore and more fertilizer as they get older, give it o them. That is what fertilizers are for.

Sulphates of Iron and Copper.

To the Editor: We should like to know if the resence of sulphate of iron in commercial blue-tone, used in the Bordeaux mixture, would be of ny detriment?—Reader, San Francisco.

The presence of sulphate of iron in commercial luestone is debasing, that is, it makes sulphate of opper worthless and less according to the amount f sulphate of iron present. Sulphate of iron is nly a mild fungicide, while sulphate of copper is energetic. Sulphate of iron is only worth a fraction of the price of sulphate of copper, consequently the presence of sulphate of iron is an adulteration both from the point of view of efficiency and commercial value. Sulphate of iron is, however, neither destructive nor dangerous so that its presence is simply debasing.

A Promising Valley Apple.

To the Editor: I send an apple picked from my neighbor's place which seems to puzzle our nurserymen as regards its identification. Please tell me what is the name of it, or, if a seedling, what is your opinion of it? Is it worth propagating? The tree is six years old, a strong grower, free from blight as yet and a good bearer. At five years it produced ten 40-pound boxes of fruit, some of which kept till March without decay.—J. U. J., Fresno.

The apple is of the Winesap type, but whether one of the sub-varieties, less known in this State, or a seedling, we cannot be sure. It is certainly worth keeping under observation and of wide propagation if it lives up to the record of its youth in your locality. We shall hope to hear more of it in the future.

Apples on Northern Spy Roots.

To the Editor: Kindly tell me whether it is best or not, in planting a young apple orchard, to get the trees on the aphis-proof roots at 65 cents each, or on the ordinary roots at 18 or 20 cents each. The nurserymen claim that the Northern Spy apple root is aphis proof. Is this so?—Reader, Sonoma county.

There is no doubt but that a Northern Spy root derived not from the seedling of a Northern Spy apple, but from a rooted cutting of Northern Spy wood, is resistant to woolly aphis. In making such a tree it is usual first to start the cutting by root-grafting on a piece of any apple root, and when the cutting makes its own roots above, the old starter is cut away. This brings the cutting upon its own roots, which are resistant. It takes more time and trouble to get that sort of a tree than to bud upon an ordinary seedling. Presumably, therefore, such trees should cost something more than common stock. We understand, however, that in Australia and New Zealand, where this practice is general, there is no such difference made as in the prices which you state. Perhaps our nurserymen have not yet taken to propagation in this way to a sufficient extent to warrant them in selling at lower prices. Still it would seem that the difference which you mention is too great.

Almond and Sand Sandwich.

To the Editor: Please tell me at what time I should put almonds in boxes of sand so as to have them ready to plant out in nursery row about February 15.—Amateur, Wallace.

You should put down your almonds in sand at once if you desire to follow that method. In fact, it would have been better to have done so a month ago. The point is to preserve them from drying too much in order that they may sprout more readily. No one can tell when to put them in in order to have them ready to take out on the 15th of February. It depends on local heat conditions. They will sprout much earlier in some places than others. The main point is to keep them from drying and then plant out when they are ready.

Uses for Morning Glory.

To the Editor: I am gathering information on eradicating morning glory and would be thankful for any suggestion you have to make on the methods of killing it out. Everything we have tried so far has been ineffectual. Can any commercial use be made of it?—Farmer, Ventura county.

We give notes on morning glory from time to time in answers to questions. The Pacific Rural Press of September 11 contains a systematic review of the whole question of eradication. The only use now made of morning glory is to get alfalfa to growing with it and then work both into hay, which is readily eaten by stock. Alfalfa does not kill it, but it holds it down. The only commercial use we can think of would be to work it up into a new breakfast food; its name would sell it. The chief use of morning glory is moral; it teaches the foolishness and inefficacy of swearing.

A Good Fig for Crystallizing.

To the Editor: I am sending a sample of figs the name of which I am very anxious to learn. Being the last of the season they are much smaller than their normal size, and are a darker red. I have crystallized several varieties of figs, but find none so satisfactory for the purpose as these, but know of only a few trees and cannot learn the name. If you can give me the desired information I would be greatly indebted.—Grower, Stanislaus county.

It is impossible for us to recognize the fig. As you say in your letter it differs from the normal product of the tree, and for this reason would not be recognizable except to some one who is familiar with the variety in all its forms. It seems to be a most excellent fruit for the purposes you have in mind: small, sweet, thin skinned, and we do not wonder that you desire to secure more of the same kind. Fortunately you can do this by growing new plants from the trees which are now bearing the fruit which you desire, without reference to the name, which can be ascertained later. There is so much confusion in the nomenclature of the fig that this might be a much safer way than by buying trees, even if you knew the name and tried to match it.

A Small Hard-Shell Almond.

To the Editor: I am enclosing a few hard-shell almonds from a tree that originated in this county and the only almonds that fruit well in this section. They blossom late—with the peaches. I think they will bear well wherever peaches will. What I am interested in is finding out their probable commercial importance for shelled nuts. I have been told that kernels so small as these would not sell well, but do not see why a place could not be found for them. The trees are very prolific.—Enquirer, Orange county.

The almonds which you send are a small hard-shelled variety which would not sell to advantage in the shell. The small, shapely kernels would, it seems to us, be desirable for some confectioner's uses and would probably bring fair prices, but the amount of loss in the weight of the shell and the cost of shelling (which would be greater than the soft-shelled varieties) would make it a question as to how profitably the veriety could be handled. These are matters which could only be told by offering the kernels in a respectable quantity to some one in the trade.

Pomegranates.

To the Editor: Are pomegranates good for table use, or just to be eaten raw? If I send them to market how should I box them and how many in a box?—Subscriber, Denair.

Pomegranates are eaten just as they grow, by spooning the seeds and pulp out of the shell or by breaking up the shells and biting out the contents of the concave fragments thereof. The fruit is not in much demand. In spite of the tributes of the poets and exhortations of hygienists there are few people who like them, consequently only small quantities can be profitably sold. Those which come in early are sometimes sold at very good prices, but a few boxes will glut the market. A neat package is a peach box taking two tiers of large fruit, but they sometimes come in apple boxes. Once in a while some one tries hard to exalt the pomegranate in public esteem as having all the virtues to which fruit is heir. One of the most earnest promoters of pomegranates was ex-Governor Downey, but since his death by accident on the Tehachipi grade a quarter of a century ago, little has appeared in print about them.

Horticulture.

PRUNING TRAILING BERRIES.

To the Editor: In your edition of September 25 you gave an account of the Loganberry, Logan Blackberry and Mammoth, but nothing is said as to the manner of pruning. Will you kindly mention in your valued paper the best method of pruning the Loganberry, Mammoth, Himalaya and Phenomenal. If each should be pruned differently, please state each method separately.

Some people say that the laterals of the Himalaya and Mammoth should be cut off at the juncture of the main stem of this year's growth, and thus let this main stem be absolutely bare, and then the fruitbuds will come out next season. Is this correct? I cannot find anywhere full details on this subject and am anxious to work intelligently.

How long should the main shoots of each berry be allowed to grow? Should the laterals be cut off the first season of their appearance? How long should the laterals be allowed to grow before pinching? The shoots of the Loganberry are cut off each year after fruitage; should they be similarly cut off the Mammoth, Himalaya and Phenomenal? Full information on this subject applying to each plant will be much appreciated.—M. E. P., Alameda county.

There is no one best way with these trailing berries. There are several good ways, according to the desires and convenience of the growers, and this is the reason why there is an apparent conflict in which all contestants may be right, each from his own point of view. The varieties are sufficiently alike to be discussed together. What seem to us the essentials in pruning them are these:

First, they all bear on canes which grow the previous year, and the fruit comes on laterals which break from them. In this mild climate there is continuous break of laterals which may cover quite a long period and the same wood may seem to be bearing twice. This second bearing is of so little account that the general rule to remove old wood after its main fruiting is a good one.

Second, the wood which grows this year will therefore bear next year, and it will send out bearing laterals sufficiently with a number of treatments. The new cane may be pinched at any time during growth and it will then send wood laterals (not fruit laterals) at once and each of these laterals will have the same character that the main shoot would have had if it had not been pinched: that is, it will send out fruiting laterals at the same date the following season.

Third, it does not matter whether you make the new growth bunchy by laterals following pinching or whether you let it run out and cut off part of it at the end of the growing season or whether you shorten it in and at the same time cut away closely all the laterals which it may have made on its own account when it was running out. In all cases there will be dormant buds enough to give fruiting shoots on whatever part of the cane which you reserve.

Fourth, the way you prune, then, depends upon serving your own convenience in the training of these shoots up to a post, along on a wire or along on a ridge on the ground—whatever suits you best to keep the fruit out of the dirt, and to promote such cultivation as is desirable, etc., will be accepted by the plant as not interfering with its starting fruiting shoots from whatever dormant buds you have allowed it to retain on the wood which it matured the previous season.

Fifth, there is in addition the application of the principle that good large fruit is the product of a plant which is not carrying too much bearing wood; that is, is not endeavoring to perfect too much fruit at the same time. For this reason, as well as for convenience, it is desirable not to allow a plant to retain all the cane it grows, but to shorten it or to remove the laterals or part of them or to shorten the laterals or in any other way to require the plant to direct its energy to the better development of fewer fruits.

Sixth, growers are, of course, influenced by different considerations. Amateur growers delighting in running vines on fences or trellises would not prune as would a commercial grower, who cannot have canes running all over his fields. The amateur can pinch a main shoot and send the laterals up the arms of a fan-shaped trellis if he likes and make an object of rare garden beauty, and he can reduce the excess of bearing wood by cutting away the parts of the laterals which run beyond his arms or extra ones beyond those he can carry on his trellis. From the point of view of the plant, he does the same thing that the commercial grower does when he comes along with his scythe or sickle and cuts away indiscriminately all the growth which goes beyond the space where it is convenient for him to have the fruit.

Seventh, do not be too particular about exact methods to imitate; try rather to discern principles which may be served by many different methods.—Editor.]

THE BLACK HAMBURG AT HOME.

The old vine in the royal vinery, near Cumberland Lodge, in Windsor Great Park, where the Black Hamburg grapes are grown for the royal table, is this year in better condition than ever, and the grapes, too, are of finer quality than usual.

This is due to the King himself, who has greatly interested himself in the vine, which is finer than the one at Hampton Court. When his majesty came to the throne it was no uncommon thing for the vine to yield 1500 or 2000 bunches per year. His majesty considered this too many, for the great vine is nearly 150 years old, and during recent years the bunches have been kept below 800, while this year they have been reduced to about 500.

The consequence is that fresh shoots are pushing out in all directions, for, despite its wonderful age, the veteran has renewed its youth.

The vine is looked after like a child by a royal gardener.

"I am always anxious about it," he remarked. "I live close to it, and I watch it year in and year out, by night as well as by day."

Citrus Fruits.

CULTURAL NOTES.

Written for the Pacific Rural Press
By Mr. Edgar Wright, of Los Angeles.

I saw an orchard back of Glendale in the La Canada valley a week ago that was rubber stamped "care" all over it, and when I came to talk to the owner I was better able to see why this was so, for he is not only the owner of an orchard, but he is a business man from the ground up. His motto is "maximum results from the minimum of cost"; not meaning that he is stingy about expending for necessary work or plant food, but that the conducting of the orchard is upon the lines of a business institution, and every cent counts and he knows just where it has counted.

This orchard is all in lemons, Lisbon and Eureka, and this man is not a believer in severe pruning, saying that the more bearing surface he can get, the more lemons he will get at no extra cost. I heard him criticize his foreman for allowing the pruners to clip off any of the fruit wood around the sides of the trees, and the foreman explained that he thought it necessary to do this occasionally or else the trees would eventually grow so close together that there would be no room to cultivate or roads to haul the fruit from the orchard. The boss said in that case he would put men to work cultivating with hoes and that they could haul the fruit out in wheelbarrows. He said, "Prune nothing but dead wood and suckers."

Mr. W. A. Sparr of the Sparr Fruit Company is the man in question, and he tells me that when he bought the orchard it was in a very run down condition; that the late J. M. Riley of Covina ha been asked to look at the place with a view buying and that he had offered a certain sum money for the place on condition that they too all the trees off. So it must have been in prett bad shape, but it certainly looks like a winne now.

I asked Mr. Sparr which tree he preferred, th Lisbon or the Eureka, and he said that though th Lisbon was a better shaped lemon he would neve set out any more of that variety for the reaso that it was such a light summer bearer, althoug it gave just as much fruit during the course of th year. The summer time is when the lemons ar wanted and when the trees are bearing the leas amount, or rather when the least amount is avail able for picking, right when the demand is th heaviest. The next question was as to how he wa able to bring his grove from such an apparentl worthless condition to a point where the gloss o the leaves showed that the trees were all in th best of health, and he gave the old answer tha they all do, "cultivation, fertilization and irriga tion." Very simple, isn't it? They all say tha there is no secret about successful citrus frui growing, yet there are almost as many differen degrees of success (or failure) as there ar growers.

For fertilizer Mr. Sparr uses super-phosphate and nitrate of soda. He says that he would appl 10 pounds of the super in the fall and 10 pound in the spring, with the nitrate of soda added a that time. I took it from this that this was hi regular treatment year in and year out, and asked him if there was not a possiblity of gettin on too much fertilizer. He cited a case an pointed it all out to me, showing where the rain had taken the fertilizer from one row of trees an given it to another, so that this second row ha got a double dose. They were certainly loade right down to the ground and another dose woul have sure made them all fruit and no trees. Th trees that had been robbed had not suffered, fo when the theft was discovered they were refer tilized.

Mr. Sparr likes the spring-tooth harrow and h keeps it going all the time that the ground wil permit, and said that there could not be too muc cultivation done on an orchard. For irrigation h has a portable galvanized iron flume. It is i about 10-foot sections which fit neatly together V-shaped with the bottom about three inches broa and the top flanges about 6 or 7 inches apart. Thi can be swung around and placed in different part of the orchard, the vents every two feet or so alon the sides furnishing the outlet from the flume t the furrows.

Mr. Sparr has advanced ideas along cultura lines, and believes that every year will see im provements made in methods of growing citrus fruits. I asked him what he thought of the future of the grapefruit here and if he thought it could ever be grown to equal that of Florida. Mr. Sparr was at one time a resident of Florida and owned a grove there, so he is doubly qualified to speak on this subject. He said that there was nothing grown anywhere that could not be grown in California and grown as well as anywhere else. He owns that our grapefruit is not at this time up to that grown in Florida, but thinks that the time when it will be is close at hand. He said: "We are in our infancy as regards citrus culture and will in time revolutionize our present methods. I am convinced that our methods of fertilization will be greatly improved and that in time we will know just what ingredients to apply to any given soil and when to apply it and how much, so that the soil may gain the exact proportion of the lacking elements to make it just right for the growing of the product planted on that soil. I think that quality, both keeping and eating, are made in the growing and that we will continue to raise better fruit as we continue to find out how to do it. This is the age of progress, and we do not have to wait as many years for a given result to be attained as we formerly did. Within a given period, say 50 years, our experts will have solved the problem of citrus culture, will know the possibilities of each soil condition, where to grow given varieties and how to grow them; when to cultivate, when to irrigate and when to fertilize and what to use. They will have overcome insect pests and a grower will only have to follow the book like a soldier learning his tactics by rote."

The La Canada ranch is beautifully situated in

e Verduga pass only a few miles from Los An-
les, and will no doubt at some not far distant
y be cut up into villa lots for seekers of moun-
n air and beautiful views. It seems to be ideal
l and the right location for lemon culture, the
nons being smooth and the tree production very
avy. I have heard it stated lately that the lemon
tput was not going to be as large this coming
ar as during the year just passed, when over
00 cars of lemons were marketed, the largest
op ever produced in California.

Just now lemons are valuable property, the sum-
r pick this year being light and the importa-
ns not large, and, while the demand is not
avy, what lemons are being sold are bringing
er $4 a box at this end. The main crop will soon
ready for picking and in another three or four
eks there will be lemons a plenty. Mr. Sparr
ys that the lemons picked in November and De-
mber are always very good keepers, no matter
w they are handled, and one of the problems
r the experts to solve is to find means of bring-
g lemons picked in other months to a like state
perfection. This past year in particular was a
ry bad one for lemons and hundreds of cars
ted in the store rooms and were thrown away.
e storing of lemons is one bad feature about the
non growing business. The production is heavy
hen the demand is light. The main crop is
ked in November and December and the main
mand is in July and August. In consequence
mense quantities are carried in store, and they
ve to be handled and rehandled many times so
t the decayed lemons may be promptly removed
fore contaminating others. Mr. Sparr says that
nons are held too long, that they should go out
adily regardless of market conditions. I con-
ss that I cannot see the point of his contention,
d do not believe that he would want to be one
ship steadily under all conditions.

Agricultural Engineer.

GREAT PLAN FOR THE GREAT VALLEY.

Mr. A. D. Foote of Grass Valley, an engineer
prominence in irrigation and allied enterprises,
no did notable work in the plateau States before
ming to California, has just published through
e American Society of Civil Engineers, of which
is a member, an exceedingly interesting and
tional plan for the improvement of the great
lley of California. This plan differs from others
r the relief of the lower lands from overflow
hich are either to hold back the floods in high
servoirs or to carry them most speedily to the
y, or both), in that it proposes to use the water
its way down and to take from it on the fields
s rich burden of sediment rather than to deposit
is sediment on these high reservoir bottoms or
mp it for the shoaling of navigable waters be-
w. Those who desire the engineering details of
e scheme can find them in the original publica-
on. We choose parts which are better for the
pular understanding of the general plan.—
DITOR.]

Redemption of Great Valley of California.—
here can be no reasonable doubt but that the
oods in the great valley will continue at irregu-
r intervals, and the time will come when the
mbination of the rain conditions will be such as
destroy, at different times, perhaps, every town
nd village on its lower levels. No levee system
lone can be built that will withstand the great
oods. As Mr. Ellery, state engineer, in his last
port, so well shows, a channel large enough to
rry the flood of the past winter between levees
an engineering absurdity. There must be some
ther method.

It is believed that "the solution of the problem
r the tiller of the soil" is in harmony with and
lves all other problems in the great valley, and
is because this problem has been slighted or left
ut entirely that so little has been accomplished,
nd so many antagonisms aroused, in the attempts
us far made toward the conservation of its vast
atural riches.

During the winter of 1908-09 a correspondent of
ne of the newspapers mentioned the flooding of
000 acres of wheat, but that the owner did not regret it much, as the next crop would be more than doubled by the fertilizer deposited by the water. In this simple statement lies the secret of the redemption of the valley. It is no exaggeration to state that the floods of last winter carried down enough fertilizing material to produce millions of bushels of wheat, could it have been placed at the disposal of the tiller of the soil.

A Lesson From the Past.—In Egypt these floods of red water would have been welcomed with feasting and thanksgivings in the mosques, for they would give assurance of bountiful crops. If engineers would study Egypt and follow the teachings of her long experience, in so far as conditions admit, they would be trying no experiment. Willcocks, in his great work, "Egyptian Irrigation," says:

"One cannot study the principles of basin irrigation without admiring the skill and order of the whole operation. However much fault may be found with the unskillful treatment of the new summer irrigation of Lower Egypt, the basin irrigation of Upper Egypt, gradually developed through 5000 years, commands sincere admiration."

Basin irrigation is dividing the land with dikes into so-called basins and introducing flood water, usually carrying considerable sediment, from 2 to 6 feet deep over the entire area, and letting it stand for several weeks until the sediment has settled and the water soaked into the soil as much as it will. The water is then drained off quickly, and the crop is sown on the mud, often before it is dried sufficiently even to harrow. The areas of these basins depend largely on the slope of the land. In Egypt they vary from a few acres to, in one instance, 40,000, the average being aboue 5000 acres. This system of irrigation would be especially beneficial to alkali lands. The experience in Egypt is that where land has deteriorated and shows white efflorescence from perennial irrigation, one or two years of basin flooding restores it to its former state, and in no case has basin irrigation produced alkali lands. So marked is this result that Willcocks intimates that Lower Egypt may yet have to return to basin irrigation, and to wheat raising instead of cotton, tobacco and sugar, which are much more profitable, but require perennial irrigation. Since that time a compromise method of flooding a portion of the land every year has been brought about by raising the Nile at the barrage each year so as to deliver the red water on the delta lands, thereby fulfilling Willcock's famous saying, that the work of the English engineers was to deposit the sediment on the lands and not in the canals. It will be seen, therefore, that in those districts where perennial irrigation has raised the land-water level and brought on the alkali, the basin system will dovetail in and enable the tiller of the soil to wash away his alkali whenever troublesome, and at the same time probably lower the land-water level by its quick drainage, as one of the fundamental elements of the basin system is ample drainage channels from every part of the watered area.

The Problem of the Nile.—No one appears to have realized the great physical and climatic similarity between Egypt and the great valley, nor how perfectly the basin system of Egypt adapts itself to and solves the problem in California. Except where perennial irrigation obtains, both countries are limited by the climate to one short season crop, generally some food grain, and, as far as can now be judged, this limitation will always hold.

The Egyptians welcome the muddy flood, and gently spread it out over the valley under perfect control, keeping it until it has watered and enriched the land, and then sending it quietly to the sea. Sowing their grain upon the ooze ere the water has barely left it, their crop comes to maturity without other aid. In this way the flood can be mastered and controlled and made to spread peacefully over the floor of the great valley, where it will water and enrich the land, and then pass on to the sea, leaving the certainty of full crops behind it. Contrast this with placing dependence on a precarious rainfall to grow an inferior crop on a deteriorated soil, and unsuccessfully fending off the flood in terror lest it destroy the country!

There is one important difference, however, between the Nile and the great valley. In the former the river is expected to fall in time to drain the water from the basins back into it, thus it is both the feeding and draining channel for the basins. Sometimes the expected does not occur, and loss of crops follow. In California the rivers do not usually fall sufficiently to drain the adjoining land in time for a crop to be planted in the same season, and this may be the reason why the basin system has not been adopted. Other drainage or escape channels must be provided which will drain the basins early in the spring. While these channels will prove expensive, there is ample compensation for them in the fact that the rivers, being high late in the season, can furnish a second irrigation for the wheat in June, which will be of vast benefit to the maturing grain.

The Plan in Outline.—It is proposed, therefore, to construct dikes to form basins, as in Egypt, over the entire floor of the great valley, comprising some 3,000,000 acres; and to feed these basins, during the winter or flood time, by suitable regulating gates and dams, from the various rivers and creeks entering the valley; and to regulate and control the feeding of the basins so as to relieve the rivers of flood waters, as much as possible, and hold these flood waters in the basins, or let them move slowly through, that they may deposit the silt and soak the land, and finally drain through escape channels in time for the crops to be sown in the spring. It is proposed to provide escape channels, through the lowest parts of the valley, of sufficient capacity to drain the basins rapidly, if required, and assist the rivers in times of excessive floods.

In the Sacramento and San Joaquin river, it is proposed to construct, in connection with the basin-feeding regulators, movable dams with locks, which will give slack-water navigation at low stages of water and offer no obstructions during floods. It is also proposed to construct dams or barriers in the rivers, at the margin of the valley, which will prevent the movement of mining debris or other material now in the rivers, and to raise these barriers as needed, to prevent the future wash from the hills from flowing into the navigable channels.

It is impossible, of course, in this paper to lay out in accurate detail a plan of basin irrigation and its auxiliary works, for the great valley, but it is thought that sufficient may be shown to prove the feasibility of the redemption of the valley by the means which have been in use for centuries in the valley of the Nile. The success there proves, before work is begun, that it would not be an experiment.

Viticulture.

SHIPPING GRAPE EXPERIMENTS.

Prof. A. V. Stubenrauch, pomologist in charge of the Government experiment work in the Lodi district in transportation and storage of table grapes, has this to say in regard to the experiments conducted there during the present shipping season:

"The investigation of the relation of hauling and packing to decay and mold in transit, begun by the Bureau of Plant Industry of the United States Department of Agriculture last year, is being continued this season for the purpose of corroborating the results of last season's work (given in the PACIFIC RURAL PRESS of May 15, 1909), and a further demonstration of the results of careful handling for the benefit of the grape owners and shippers.

"In addition, the bureau has brought its portable pre-cooling plant to Lodi, in order to gather data on the effect of pre-cooling grapes before shipment. So far the work this season has fully corroborated last year's results. The effects of careful handling are again apparent. In last season's work the average decay and deterioration in all the experimental shipment was about one-third of that shown in the commercial lots. This season the first series taken out shows less than 2% decay in the carefully handled while the commercial pack of the same fruit shows more than 8% on the first day taken from the car. After holding two days the carefully handled shows about 2.5%, while the commercial pack has increased to over 21%. In the carefully handled there was little injured fruit, while the commercial crate showed over 20% injured.

"Our recommendation regarding the use of the two-basket crate is being confirmed. The extra pressing and squeezing necessary to fit the bunches into the smaller baskets is liable to result in breaking many berries."

AGRICULTURAL REVIEW.

Horticultural Notes.

A car of oranges of the new crop was shipped from Porterville last week by the Randolph Fruit Co.

The grape men of San Diego county have cured the finest and largest crop of raisins this season that has been produced for years.

Fresno railway officials state that 40 cars of dried fruits, principally peaches, pears and grapes are being shipped to the East daily from that locality.

Up to last Saturday over 1600 carloads of apples had been shipped from Watsonville, some of the fruit having been sent to England, where it sold for top prices.

The Mineral King orchard of Tulare county, consisting of 650 acres of 20-year-old peach and prune trees, is being uprooted and the entire acreage is to be planted to eucalyptus trees.

The rain around Lodi last week put an end to shipping of the first crop of Tokay grapes, but the second crop was not damaged, and if good weather continues growers will get good returns from it.

C. C. Brown, a prune grower of the Durham district in Butte county, reports making a profit of $3795 from his fifteen-acre prune orchard this year. He expects to increase his acreage next season.

The citrus fair pavilion at Cloverdale, which was destroyed by fire last winter, is to be rebuilt in time to hold the annual exhibition next February. The new building is to be of reinforced concrete, 75x175 feet.

The first shipment of oranges of the new crop from the State left Fair Oaks, Sacramento county, October 20. The crop from Fair Oaks is estimated at 100 cars, and from Oroville 350 cars. Picking and shipping from these districts will commence generally about November 1.

According to the Sutter County Farmer the growers of Thompson's seedless raisins have been securing from 5½ to 7 cents for their crop that has been sold East. The bulk of the crop is yet in local hands, being cured and packed and the prospects are for a banner season for this variety in that locality.

From a bumper crop the past season, aggregating 38,000 cars, which brought gross to the shippers $22,327,200, the coming citrus crop of California is now estimated at about 30,000 cars. However, the crop may net the growers as much money the coming year as it did the one just closed, as the prices will doubtless rule higher and the cost of packing and transportation will be less.

According to a report in an estimate prepared by County Horticultural Commissioner C. H. Stuart, the aggregate yield of oranges in San Diego county for the year is 115,000 boxes, the average price being $2.25 per box. This brings the orange production up to a valuation of $258,750. The total shipment of lemons aggregates 420,000 boxes sold at an estimated price of $1.25 per box, or a total valuation of $525,000.

General Agriculture.

From the Coachella valley is being shipped 25 cars of egg plant to market.

A representative of the Hamilton beet sugar factory has been interviewing farmers around Marysville to get them to raise a greater acreage of beets next year.

The hay baling season has closed in Yuba county, where a large crop was put up. One firm of balers handled 2000 tons and another pressed nearly 6000 tons.

They do raise beans in Ventura county. One of the large warehouses at Saticoy now has 125,000 sacks in storage. Very few cars of this season's crop have been shipped so far.

A shipment of 150 cars of hay from Lassen county is being made to the Philippine islands. This will make one of the largest shipments of hay ever made from a California county.

About 4000 acres of the Rosenthal tract in Tehama county was recently purchased by San Francisco parties, who expect to develop water and plant alfalfa. The tract is to be cut up into small farms for settlers.

Growers are preparing to plant cabbages in the Fullerton district for the coming season. It is thought that an acreage fully as large as last year will be set out and a crop of several hundred carloads produced.

As growers of hops made a handsome profit this year, the arceage which had been shortened during the past five years of low prices, will now be largely increased. Already preparations for heavy planting are being made in several districts of this State.

The Ludwig orchard of 600 acres in Shasta county, near Anderson, has been purchased by Sacramento parties, who will cut it up into 10 and 20 acre tracts for settlers. This land is on the Sacramento river bottom and is known as one of the best in the valley.

The October apple report issued by the Department of Agriculture at Ottawa, Canada, states that the crop will be short, as will the crop in Great Britain, Germany, Belgium, Holland and France. Prospects are good for high prices for the American crop this year.

The farmers around Kennett, Shasta county, who have been damaged by fumes from the smelter there, have practically won their fight to have the nuisance abated. At a meeting last week between the farmers and smelter representatives, the former were assured that with new appliances to be installed the fumes would be controlled in the future.

Stock and Dairy Notes.

A new co-operative creamery is to be established at Tulare this fall, if the remaining stock can be sold to dairymen in

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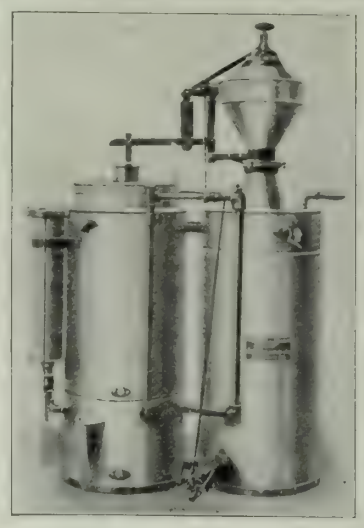
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hat vicinity. Over $7000 of the $10,000 ecessary for the plant has been pledged.

The turkey crop of western Placer ounty promises to be a very large, fat nd profitable one this fall.

The Chandon ranch near Live Oak, Sutter county, has been leased to John Borba f the Western Creameries Company. The ew manager of the ranch will go into the airy business extensively, having already ecured 100 cows and put in new barns nd a separator outfit.

The Big Four stock farm located near resno has been leased by the Big Four o-operative Creamery Co., and the 600 cres in the ranch will be used for dairy urposes. Already a large herd of cows as been secured and the ranch will be onverted into a modern dairy place.

Miscellaneous.

The Imperial County Fair Association ill hold its annual fair at El Centro from ecember 8 to 11.

It is stated that a new industry is to e started at Lodi, by the manufacture of ream of tartar from the pomace of grapes t the wineries there.

Sifford & Chrisman have just received big "caterpillar" traction engine to take he place of mules in plowing the large creage of bean land in Ventura county.

The Hyman tract of land near Arbuckle, olusa county, consisting of 6173 acres, was purchased by a land company last week for $140,000 and will be subdivided nd sold to settlers.

The remainder of the season's honey rop of Kings county was sold last week o the Guggenheim people of San Franisco at 4⅞ cents per pound, and mounted to $12,250.

The record breaking sugar campaign of he Oxnard sugar factory will be brought o a close this week. Many days during he season the 2000 tons capacity of the lant has been exceeded.

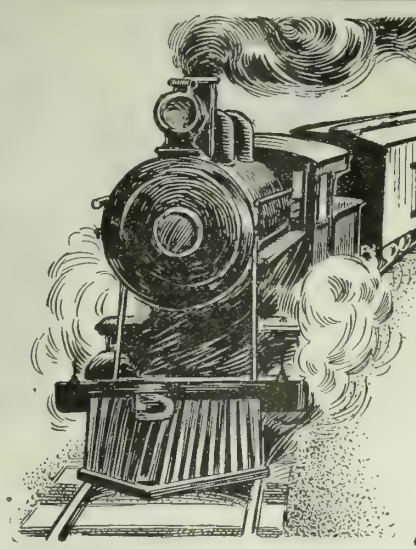
Artesian Water Day is to be celebrated t San Jacinto, Riverside county, soon. n that vicinity 1500 inches of water from rtesian wells has been developed and 500 inches of the amount has been secured within the past twelve months.

Owing to the early closing of the cannery at Napa this season, many carloads of tomatoes were without market. To save the loss of the fruit they were shipped East and found a ready sale at fair prices. Already fourteen cars have been shipped and more are being prepared.

The directors of the new million dollar raisin corporation at Fresno report that last Friday over a thousand acres were signed up by growers and that an even heavier acreage was secured on Saturday. At this rate it will not take long for the required 65 per cent of the total acreage to be secured.

Property owners of the section near Marysville, on the Yuba river from Daguerre Point to the north end of the Diggs ranch, are considering the formation of an irrigation district. Surveyors are now in the field, and when their work is completed, if the cost is not found too heavy, a ditch will be built that will carry water to thousands of acres of good land that now only raises partial crops.

The George West & Sons winery near Stockton was partially destroyed by fire last week, entailing a loss of $400,000. The fire was caused by an explosion in the sherry rooms due to overheating. This was one of the largest wineries of the State and the loss is comparatively small, owing to the fact that much of the wine kept on hand was stored in places far enough away from the conflagration to escape injury.



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CALIFORNIA STATE GRANGE.

To the Editor: The thirty-seventh annual meeting of the California State Grange was held at Petaluma from October 5th to 9th, 1909. The attendance was excellent, 31 out of 34 granges being represented, and the entire session was marked by harmony and the spirit of good fellowship.

The masters' reports were very interesting—from them we learn that San Jose Grange has the distinction of being the only grange in the State that holds regular weekly meetings, that several granges own their own halls, and that others expect to before another year goes by; that Soquel Grange is carrying on a very successful co-operative buying and selling establishment, that Roseville Grange owns its own hall and a 10 acre tract of land which it has recently planted to eucalyptus trees, that Tulare Grange has been instrumental in preserving a beautiful 100 acre grove of oaks, which will hereafter be a public park, that Dinuba Grange has sent one of its members to the agricultural college at Davis and paid his expenses while taking a course in horticulture and that the members of Dinuba Grange feel greatly benefitted by the information that he brought back to them.

The reports of the various committees and the resolutions adopted proved that although the grange is not as strong in California as it is in some of our Eastern States, it is doing its part in making and enforcing laws so necessary to the welfare of the American people.

The very complete report of the committee of conservation contained the following resolutions:

Resolved, 1. That the California State Grange pledges its hearty support to those who are patriotically fighting to save the natural resources of our country. 2. That the grange demands of the State and Nation that no more water power sites and rights be granted to private individuals or corporations in perpetuity, but they be leased for a definite and limited time to those who desire to make use of them, as is the case in Canada. 3. That we urge upon our California patrons of husbandry the study and practice of advanced scientific farming, that, while drawing an adequate support from them, we may yet leave our broad acres more productive than we found them, and assist in conserving the greatest natural resources of our country. 4. That we also urge an unceasing watchfulness and a strict enforcement of the laws regulating the preservation of our forests and other natural resources, by the officers appointed for that purpose. The report was unanimously adopted by the grange.

During the past two years the State Grange has made a strong fight to establish a Fraternal Fire Insurance Law similar to those existing in other States and succeeded in getting a bill through both houses, but for some unknown reason the Governor failed to sign it. Brother John Tuohy, of Tulare City, deserves special mention for his faithful, unselfish work upon all grange measures, but especially does he merit praise for the unlimited amount of good work that he did upon the insurance bill both before and after it was formulated.

The grange is also looking after the future recreation of its members and before another session of the State Grange steps will no doubt be taken to procure permanent pleasure grounds for the use of the members of the Order of Patrons of Husbandry in this State.

The busy sessions were interspersed with visits to the silk factory, overall factory, shoe factory, Petaluma gas and oil wells, Petaluma incubator plant, the model poultry farm of Mr. Danger and the largest chicken hatchery in the world.

The officers for the ensuing year are: Master, E. T. Pettie, Cupertino; overseer, F. H. Stiles, Tulare City; lecturer, F. H. Babb, San Jose; steward, W. E. Stewart, Danville; assistant steward, Geo. Sehlmeyer, Elk Grove; chaplain, Mrs. Caroline F. Emery, Oakland; treasurer, Joseph Holmes, Sacramento; secretary, Emily L. Burnham, Healdsburg; gate keeper, Cornelius Van Keppel, Santa Rosa; Pomona, Mrs. M. L. Gamble, Santa Rosa; Flora, Mrs. A. Van Maren, Fair Oaks; Ceres, Mrs. D. M. Winans, Petaluma; lady assistant steward, Miss Etta Branscombe, Elk Grove; organist, Miss Nellie Grover, Petaluma; executive committeemen, Thomas Jacob, Visalia; Michael Farrell, Mountain View; G. N. Whitaker, Santa Rosa.

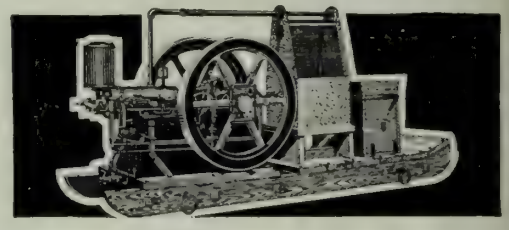
E. L. B.

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EUCALYPTUS with ROOTS

Send for Circular.

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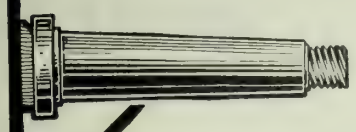
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Water gates for pipe lines. Send for catalog.

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SQUIRREL POISON.

A poison largely used in the central west for prairie dogs may be helpful in Califorina for ground squirrels. It is somewhat simpler and cheaper than the very effective combination of strychnine and cyanide which is largely used in this State and some may desire to make trial to see if it will do as well:

Dissolve one and one-half ounces of strychnia sulphate in a quart of hot water. Add a quart of syrup—molasses, sorghum or thick sugar and water—and a teaspoonful of oil of anise. Thoroughly heat and mix the liquid. While hot pour it over a bushel of clean wheat and mix completely. Then stir in two or more pounds of fine corn meal, depending upon the amount of extra moisture present. There should be enough to wet every grain of the wheat and no more. Care should be taken that there is no leakage from the vessel in which the wheat is mixed. Let the poisoned grain stand over night and distribute it in the early morning of a bright day. Use a tablespoonful of the wheat to each hole occupied by prairie dogs, putting it near the mouth of the burrow. Do not put out the poison in very cold or stormy weather. It will keep for a considerable time and is much more effective after a cold period, as the animals are then hungry and eat the grain readily. A bushel of wheat should be enough to poison 1000 to 1200 holes.

In preparing the poison great care should be taken that the exact proportions are used; that the poison is completely dissolved; that no more water and syrup are used than the recipe calls for, as one bushel of wheat will not take up and carry more than this amount of liquid. After the dope has been poured into the wheat the whole should be well stirred until all of the wheat has come in contact with the syrup and the poison is equally distributed through the whole mass. It should be used the same day it is prepared in order to obtain the best results. The way to apply this is to take some of the wheat in a tin pail and sprinkle around each hole. Do not leave it in lumps or bunches, as cattle or other stock might possibly eat it, although the danger from this is not great, as cattle have ranged over towns thus treated and none were injured.

EXPERIENCE IN DISKING ALFALFA.

Some time ago Professor C. C. Willis went from the Illinois University to take charge of the agronomy department of the South Dakota Experiment Station. The alfalfa there had never been disked, and he ordered it done. The man went one round and then came to Mr. Willis and told him he was killing the alfalfa, tearing it all out of the ground. Mr. Willis started him again and kept pushing up the lever another notch until the disk stood at the largest angle. Finally the hired man refused to drive and told Mr. Willis to disk it himself if he wanted it done, and the latter actually disked one-half the field, and told the man he would leave the other half to compare the results, and had him smooth it up and mash the clods with a harrow. In a month the alfalfa on the disked half of the field was six inches taller than that on the other half and of a richer, darker green color, the remark of all the men, including the president. It was a revalation to them that such results could be produced by disking.

The young alfalfa is disked lightly the first year; this heavier disking follows the clipping of an established field as explained in a university bulletin.

Mr. A. P. Grout said this was his experience exactly. He had known for some years that alfalfa should be disked, but it was difficult to get it done. His men thought it would injure the alfalfa. But finally, he himself got into a buggy and followed the disk and kept pushing the lever forward, and thus got a field disked. "The men wouldn't have given anything for the field, but the alfalfa is coming on and looking a great deal better than the alfalfa elsewhere. I tried alfalfa 15 or 20 years ago, and in four or five years practically all died, but it did better a second time."

GOING FOR MORE EUCALYPTUS.

Robert S. Webb, an expert on eucalyptus trees, has gone to Australia, where he is to secure several hundred pounds of seed of the frost-resisting gum trees to be planted in the National forest reserves. Gifford Pinchot, chief United States forester had a conference with Mr. Webb on the subject. After his return to Washington Pinchot instructed Supervisor Charlton of the Angeles reserve to engage Webb to go to Australia to make a study of the varieties of eucalyptus trees grown there under conditions similar to those to be found on the reserve, namely, in high altitudes, where there is much snow and frost.

Chief Engineer Mulholland, of the Los Angeles aqueduct, has also instructed Webb to study the kinds of eucalyptus which are grown there under conditions such as obtain along the big aqueduct and to bring back a liberal supply of seed for planting along the waterway.

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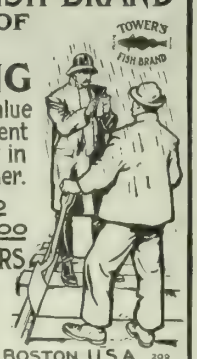
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Blake McFall & Co., Portland, Oregon

Live Stock and Dairy.

IMPROVED BUSINESS METHODS FOR THE DAIRYMEN.

(Continued From Page 273.)

feed can be picked out immediately. By these tests one is able to tell the effects of the various rations on the cows. Certain feeds effect the milk of some cows and not of others. Extra precautions should be taken to see that the cows effected do not get similar feed the next season.

Already the system of testing and eliminating the poor milkers is being felt over the United States. The average yield of butter in some States has increased perceptibly. Cows of the type of Missouri Chief Josephine, with 7710 quarts a year, is the goal of the progressive dairymen. Men are sticking to one breed of dairy cows, by keeping a record of the various types and breeds, and by this means they are able to pick out the cow which will do better under the conditions they have to offer. The cow which does not come up to a certain standard is spayed and sold for beef, while the good milk producer is studied and bred so that her calf will even produce more milk than the mother. Every dairyman who has a good milker should breed her to the best bull he can find no matter if it does cost a few dollars extra, because he will more than be amply repaid in the increased milk yield.

Care should be exercised in eliminating cows, especially heifers with the first calf, because many young cows do not give their full yield until the fourth year. Also dairymen should not be too hasty to weed out cows who have fallen off in their milk yield, as "off years" are very common among dairy cows. "Off years" seldom come in succession, so when a cow keeps retrograding over a year, her prime has evidently been reached, and there is not much loss or danger in selling her to the butcher.

ANOTHER REVIEW OF MACHINE MILKING.

For two years the Wisconsin Experiment Station has been conducting a careful experiment with cows and the results, together with the experience of dairymen of the State, are reported by F. W. Woll and G. C. Humphrey in Bulletin 173. The cows used in the experiment included some very high yielding individuals giving as high as 12 pounds of butter fat a week, as an average for 33 weeks.

As compared with the yield of the same cows from hand milking in other years, the results show that a satisfactory average production was maintained during the period of machine-milking, even though it was not quite up to the yield which hand milking would probably have given. The decrease in yield as the period of lactation advanced was exactly the same with machine as with hand milking.

The machine milking was followed up by hand stripping, as some cows do not give down their milk completely to the machine. An occasional cow does not take kindly to the machine work and those with abnormally shaped, warty or meaty teats, teats very close together, or fleshy udders are not milked very clean by the machine. While the average amount of milk obtained by hand stripping was not large, being about two ounces per milking, it would not be wise to neglect it altogether, because of the damage that would result to those cows in which the machine left the most milk. The average work done by the machine was even better than that done by average hand milkers. The hand-milked cows on 13 dairy farms were stripped after milking for comparison and yielded three times as much strippings per cow as cows milked by experts with the machine. Cows milked by expert hand milkers yielded on the average the same amount of stripping as the cows milked by machines.

The experiment showed as much benefit as injury to udders. Three cows seemed to have their udders improved by machine milking and in two cases there was possibly an aggravation of previously noted abnormal conditions. In the earliest work with milking machines it was feared by dairymen that the bacterial content of machine milk was certain to be large, but with properly managed machines, washed both before and after milking, there were slightly less bacteria in machine than hand-drawn milk and any differences observed in keeping quality favored the machine.

The economy of machine work depends largely on local conditions. To install a complete outfit with three milkers costs about $500, but the bill for power and repairs is small. The time required for machine milking where one man operated two or three milkers so that four or six cows were milked at once was about three minutes per cow. About 20 minutes were required to get the machines ready to start and as much time to clean them up after the milking was all done.

Reports of 41 Wisconsin farmers on their experiences with machines showed that 27 were successful with them and favored their use, six considered them a failure under their conditions, while the others were undecided. Three who reported unfavorably had pure-bred herds and gave up the use of the machine after a few months' trial for fear it would reduce the milk yields. The other three were careful dairy men who were not satisfied with the machine yields.

In summarizing their work the experi-

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That tells the whole story, and it is the experience that hundreds of thousands have had in the past 40 years, and it's the experience you will have—"It is the only sure remedy"—

For Spavin, Ringbone, Curb, Splint, Swellings and All Lameness

Sold By Druggists—$1.00 a Bottle, 6 bottles for $5.00. Keep it on hand always. Be ready for the emergency. Kendall's stops the pain, starts the circulation, penetrates and removes the cause of the disorders. Ask for a free copy of "A Treatise on the Horse." If not at dealers write to—

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JOHN LYNCH, breeder of Registered Shorthorns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

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N. H. LOCKE CO., Lockeford, Cal. Jerseys, Service Bulls and young stock for sale.

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C. A. STOWE, Stockton. Berkshire and Poland-China Hogs, Shropshire Sheep.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

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17 Heifers, 8 months to 2 years old, 2 fresh, few springing.
1 Bull, 2 years old. 2 Bull Calves.
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27 Horses die from Colic where one dies from Fire.

Why not insure against Colic?

Daniels' colic cure is SURE, SAFE and QUICK!

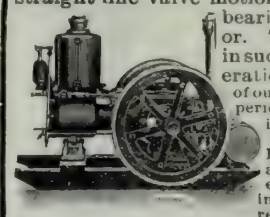
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are given the preference by 80 per cent of California stockmen because they give better results than others do.

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menters concluded that the adoption of machine milking at present can only be recommended under conditions where the farmer is able to give personal attention to the operation of the machine, or has reliable, intelligent help who can and will follow the directions of the manufacturers as to the care of the machine. Where such is the case the milking machine can be recommended for the general dairy farmer who has a large herd, or for farmers owning smaller herds, 30 head or perhaps less, who will be able to attend to the milking of the herd, alone or with the help of a boy, by means of the machine and thus avoid keeping extra help for this purpose.

"The success of machine milking will depend largely upon the man operating the machine and on his attitude toward machine milking. If the machine is given a fair trial and the directions of the manufacturers are carefully followed, machine milking will, as a general rule, be a success, at least to the extent of approximating the results obtained by good hand milkers and perhaps even improving on those secured by general farm help.

SUGGESTIONS REGARDING TUBERCULOSIS.

State Veterinarian W. H. Lytle, of Oregon, has issued the following circular especially to dairymen:

Tuberculosis in cattle is a preventable disease. A herd when once freed or found free, will not become infected unless diseased animals are introduced.

Tuberculosis is a disease of close domestication, and it cannot thrive in animals or spread so rapidly where the animals are out in the open or where they are housed in buildings that closely simulate and embody the protective forces of nature, such as pure air, sunlight and freedom from dust and excessive moisture.

Your barns should be regularly whitewashed, thus giving a greater surface and encapsulating all dust and infective materials that may be on the inner surface of the building.

You should provide sufficient window lighting space in your barns—four square feet for each animal—as sunlight or daylight is one of the enemies to tuberculosis and other diseases. By hinging the windows at the bottom and allowing them to open in at the top, and inclosing the side of the windows with a V-shaped inclosure, a cheap and effective form of ventilation may be had, especially if the barn is provided with a roof-ventilating cupola. Window frames covered with white muslin assist in ventilation and give sufficient light.

Manure and litter should be cleaned out daily, as the same from tuberculous animals, if allowed to soil the food of other animals, may be the means of carrying the disease to them.

Animals should also be confined to one particular stall or feed rack, as by changing about they may expose other animals, should they chance to be diseased.

Animals that are unthrifty and continuing poor in flesh, and those with chronic coughs, should be regarded with suspicion, and should be tested for tuberculosis or clinically examined for the same. However many animals in good flesh and free from visible symptoms of tuberculosis will be found diseased if tested.

Animals that die when in a state of emaciation (poor in flesh) should not be fed to hogs, as they may transmit the disease to them.

Any person desiring his herd of cattle tested for tuberculosis may have the same done without cost to himself by making application either to the State veterinarian or county veterinarian, or by making application to the United States Bureau of Animal Industry.

CATTLE IN JAPAN.

The head of the cattle-breeding department of the Japanese government, Mr. Hashimoto, is at present visiting England, says the London and China Telegraph, to make purchases of stock. Mr. Hashimoto discussed his mission with a newspaper representative as follows:

"Meat eating is on the increase in Japan. Its popularity is increased by the recently advanced theory that an over-great consumption of rice is a source of beriberi. The upper and middle classes, who have hitherto eaten large quantities of rice, are now slowly beginning to add meat to their dietary. Beef is the favorite dish. It is now ten or twelve years since we began to import European cattle into Japan to improve our native breeds. Our object is a dual one. We wish to produce a beast which will be serviceable for draft purposes, and will at the same time be of value when subsequently killed for meat. We also want to produce a good milch cow. For the first purpose a brown breed of Swiss cattle is found to make the best cross; for the milkers we are introducing Ayrshires. On an average we send over 100 beasts a year, and I have paid as much as $750 gold for a very good heifer. We also import Berkshire and Yorkshire pigs, and sheep from Russia."

THAT UTAH SHEEP DISEASE.

It is telegraphed from Salt Lake that Utah sheepmen are no longer disposed to treat lightly the alarming reports of the prevalency of lip and leg disease among the flocks of the State. Testimony confirming the stories of havoc wrought by the disease was furnished by the flockmasters who conferred recently with the State Veterinarian and the State Sheep Commission. The note of warning against a possible quarantine on the State was sounded by many who bore a part in the discussion. An interested listener at the meeting was Chief Murray of the United States Bureau of Animal Industry.

STATE GAME BREEDING.

A large consignment of quail from Guatemala was received recently by Superintendent J. R. Argabrite, of the State Game Farm, near Haywards, for breeding purposes. Many of the quail are larger than the domestic birds and have slightly different plumage.

Three dozen fancy pheasants were shipped Monday to Hot Springs, Lassen county, and 180 quail to Angels Camp, making a total of 2000 birds distributed throughout the State since the farm was started last year. Preparations are being made to accommodate 8000 birds during 1910, twice the number raised this year.

U.S. U.S.

PROSPERITY

Are You Going to Share in It?

From every side come predictions of unexampled prices for dairy products this winter.

Fifty cent butter will be no longer a dream, but a reality.

The **profits** of the **dairy farmer** will **depend** on the quality of his **cows** and the kind of **cream separator** he uses.

It is too late to change the herd now—but it is just the time to get the **best cream separator in the world,** the

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Ownership of a United States Separator will guarantee that **every last cent** of profit goes into your pocket; because—

It is the **cleanest skimmer** in the world.
It is **built on honor—repairs** are **rare.**
It **runs easy, washes easy,** and **runs** a **heavier cream** than **any other separator.**

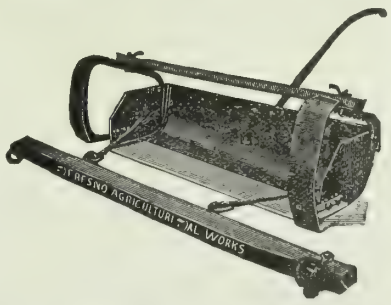
With any other separator than the United States you will not be sharing fully in the coming prosperity.

Ask our agents in your town to set up a United States Separator **in your home** and give you a **free trial** to demonstrate that the machine will almost **pay for itself** in the coming six prosperity months. If there is no agent near you, write direct to us. Ask for Catalog No **148** too.

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The Poultry Yard.

THE CALIFORNIA HEN.

Written for the Pacific Rural Press
By M. Russell James.

What are the average profits of the California hen? Perhaps this is the question, in varying form, which comes most often to the agricultural editor and the poultry writer of our State. And it is one which, it must be confessed, is usually answered in a manner very unsatisfactory from the inquirer's viewpoint. In order to give the inquirers and readers of the Pacific Rural Press facts and figures in place of generalities, the writer has kept an accurate record of a flock of hens for the year ending September the 30th.

This flock consisted of 50 White Leghorn pullets, and is large enough to be taken as the unit of a commercial egg farm. The pullets were hatched March 22, 1908, of good utility pure-bred stock, from an established egg farm. They were not picked birds, but simply an incubator run, and while all were healthy, there were several of plainly weak constitution which would have been eliminated from a selected pen.

Their quarters consisted of a yard 35 feet by 100 feet, and a tight house 6 feet by 14 feet, elevation from floor 7 feet front, 5 feet back, and set up 18 inches from the ground, with the north end partly open and protected by 2-inch mesh wire; a trap door 12 by 18 inches was also in that end and kept always open. Midway in the west front was a large door that sunned the house effectually when open on fair days. After the first winter rain the fowls were cut down to half the yard space and both portions of the yard plowed and the reserved part sown to barley; but for an hour each evening during the rainy spell, they were allowed the range of a grass plot until spring, when the temporary fence was removed from their yard and they were turned onto the barley which was just started to head.

The fowls were given no stimulants, egg foods nor any medicines except in dry hot spells a little sulphur was occasionally mixed with the shorts used in the mash. No pepper was put in the mash, but the latter was always salted as if for one's own use. Very little meat food, almost too little, was given during the entire time. Five cents' worth of fresh meat scraps per week and four cakes of beef cracklings being the sum of the meat supply for them and the collie dog for the year. During the first season until the late rains of last winter, they were short on fresh green feed, as we had moved to a new location the first of June where there was no spear of green and the huckster and butcher carts passed not by. The main dependence had to be alfalfa hay and sprouted barley. But they were fed regularly and well; their feed hoppers and drinking vessels were kept clean, their water pure and their food sound and sweet; their house was cleaned daily and kept entirely free of all kinds of insects.

In the following record we have not only given the number of eggs laid for year, with their values, but we have given the monthly output together with the average wholesale price for "extras" for each month of the year and also the average price for the year. These prices change little from year to year, and the person figuring upon going into the poultry business may learn from them how to estimate his possible sales. The given prices are for first-class white eggs. Brown eggs, mixed colors, soiled eggs, and small eggs would all grade 2 cents and more per dozen below these quotations.

FLOCK RECORD FOR FIFTY CALIFORNIA HENS.

Month.	Eggs Laid.	Av. Price, cts.	Value.
October	695	49	$28.42
November	908	54	40.86
December	896	47	35.08
January	711	43	25.51
February	773	33	21.27
March	820	23	15.71
April	821	23	15.72
May	684	26	14.82
June	902	28	21.04
July	824	30	20.60
August	762	36	22.83
September	454	40	15.00
Totals	9250	*36	$276.86

*Yearly average.

Average number of eggs per hen per year, 185; average number of eggs per hen per month, 15.6; average gross receipts per hen per year, $5.54; average cost per hen per year, for feed, $1.95; average net receipts per hen per year, $3.59.

Remarks.—For so large a number of unculled pullets kept together in a comparatively limited space and not forced for egg production, 185 eggs per hen is a mighty good yearly average, even if the whole 50 had gone through the year. As a matter of fact less than 45 pullets completed the laying year. In January and February 7 birds went into a partial molt as may be seen by the drop of some 200 eggs in the yield for each of those two months. One pullet devoted her time during March and April to hatching and rearing a brood of chicks, and between the 15th of June and the 15th of September 6 hens for one and another cause became incapaciated and were dropped out of the yard. While there were a number of inferior birds in the lot it is very plain that there were a few that left the 200-egg mark far behind them, and we opine that if six of these had been in a yard by themselves, as in the Australian competition, they would have given the pen holding the world's laying record a pretty good run.

The Monthly Average.—A study of this presents some important points. In no month of the year did the pullets do any phenomenal laying; the highest monthly average per hen was a fraction over 18 eggs in November and 10 eggs in September when the most of the birds were in full molt, but they kept right on, and there was something doing every month in the year. In February, March and April almost any old setfast that had loafed six months during the fall and winter would have left these pullets far behind in a monthly record, and this brings another point.

The Leghorn as a Winter Layer.—In glancing over a good many poultry publications, we note that inquirers are almost invariably told that the Leghorn, while an excellent summer layer, is not so good a winter layer as breeds of the heavier classes. The monthly records of this flock refutes this assertion. Allowing for the seven birds that went into molt during January and February, the pullets, while doing excellent work in the spring and summer, did their heaviest laying in the

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CHARLES GLOECKNER.

five late fall and winter months when the market ruled highest.

THE WINTER MOLTERS.—We noted that the pullets that went into a partial molt at that season were those of weak constitution, thin combs and narrow bodies. Whether this point will prove out in other tests, only repeated experiments can decide, but it would be well for the poultry raiser to make a note of it and see if it holds good in his yards.

THE MAY CHICK.—It has passed into a proverb among our ranchers who keep poultry that the May chick is no good. Glancing at the above record we see that the egg yield was least in May of any month in the year until the fowls went into molt. Many of the hens became broody in that month, and all of them took a longer or shorter lay-off during some portion of that month. The secret of the lack of stamina in chicks that come in May is made plain; the run-down hens cannot impart the stamina to the egg. After raising a brood or taking a rest, if well cared for, the hens will make a new start and produce eggs of more stamina.

INDIVIDUALITY OF THE HEN.—Though these pullets were hatched from eggs from the same breeding pens, and the same incubator hatch and kept under the same conditions there was two months time between the start in laying of the earliest maturing pullet and the latest maturing one. The same difference is shown in the molting of the birds. Some of them began dropping feathers in July, and one hen completed her molt by the middle of September; several went into full molt in August and many in the second week in September, while a few have as yet shown no signs of molting. Young hens as a rule molt much earlier than older ones.

PERCENTAGE OF LOSS.—This was 6 fowls or 12 per cent. Two of these died suddenly without "symptoms," as often happens among a healthy flock of fowls. Nursing might have done something for the four ailing ones which were afflicted with wasting and weakness of the oviduct, but in nearly all such cases the only profitable cure is the hatchet. All but one of the six birds were pullets of less vigorous make-up, before mentioned. Such pullets may do very well for awhile under good treatment, but they have not the stamina to hold out. Close culling of the pullet chicks would eliminate such stock from the flock.

LOCATION AND SOIL.—A location sheltered from the trade winds, where the ground slopes gently and is sandy or friable, is ideal for fowl; but such locations contiguous to our best markets are not plenty, and the market is worth more than the location, as was proved with this flock of fowls which were kept on a spot near the bay and where the winds through the Golden Gate had full sweep. The soil, too, is heavy adobe and undrained, yet in the past winter, which was one of the most trying upon poultry that we have ever had, not a pullet had even the slightest cold, or has had at any time. This proves that proper housing will overcome the disadvantages of an unsuitable location.

COST OF FEED.—This is given at the maximum, as bought by the sack from the grocer. In poultry centers it would average considerably cheaper, and in the case of the farmer who raises his own feed and has many waste products besides with which to feed his fowls, there would be a great reduction in the cost of feed. Still, at the maximum cost, we have a profit of $3.54 above cost of feed from each hen to pay for her care and lodging. Plainly, with fair and rational treatment, from 12 to 50 laying hens for the suburban, and from 50 to 200 for the farmer, are a safe and gilt-edged proposition.

This flock record, which is accurate to the fraction of a cent, is proof conclusive that, if given fair play, the California hen is a money maker.

The Home Circle.

His Unlucky Day.

Wunst I got mad at maw,
I don't remember why,
But I jist walked right off to school
'Thout tellin' her good-bye.

A big ol' lump came in my throat
An' purt' near made me cry,
Fer me an' maw is awful pals
An' allus kiss good-bye.

An' migh' near ever-thing I did
Went wrong, looked like to me;
I stubbed my toe an' tore my waist,
An' fell an' skinned my knee.

I missed in 'rithmetic an' lost
A chanst to get up head,
An' in the spellin' class I left
A letter out of "dead."

An' that ol' lump growed, an' I says:
"S'pose if my maw should die
Right now, an' me a-leavin' her
'Thout kissin' her good-bye?"

Gee! That's the longes' mornin'
'At I ever spent, I know,
It seemed like more'n fifty years
'Fore it was time to go.

An' never mind what happened
When I seen my maw, but I
'Ist bet I won't go way no more
'Thout kissin' her good-bye.

—*From the Chicago News.*

Determined to Wed.

Arnold Treat was 35 and an eminent man. When he spoke in court the people turned out to hear him and were spellbound at his eloquence. A number of young women set their caps for him, but he would have none of them.

At last he met Eugenia Duffield and was captured. Miss Duffield was 28 and director on the boards of hospitals and helping-hand societies. She had a fine figure, a firm step and carried her head erect on her shoulders. Her administrative ability was remarkable and it was this that made her valuable as a manager.

When Miss Duffield and Mr. Treat announced their engagement the world said, "What a splendid match!"

All went well with the lovers till one day a suit was brought against one of the institutions of which the lady was managing director, and she put the case in the hands of Mr. Treat. In submitting it she told him the incidents leading up to the trouble, to which he listened attentively. Then she gave him the line of defense he was to pursue, to which he listened respectfully. She finished by stating what she conceived to be the law bearing on the case, and he appeared a trifle bored. As a last word she directer him to proceed in every particular on the lines she had laid down.

"Do I understand," he asked, "that I am to try the case as your assistant or your attorney?"

Miss Duffield without a word folded up the papers and marched away with the remark, "You'll not try it at all."

Before the end of a week it was announced that the engagement was broken. Nevertheless the breaking of it was a great disappointment to both Mr. Treat and Miss Duffield. It was finally renewed after she had acknowledged herself in the wrong, for her brother was a lawyer and told her she had acted like a fool. For awhile the couple were very happy. Their trouble came again, this time from the side of the man. He had a protegee, whom he endeavored to get into Miss Duffield's hospital. She informed him that under the rules the patient was not admissible, whereupon Mr. Treat remarked that he would apply at a hospital where there were more elastic rules.

"Do you mean to imply," asked Miss Duffield, "that our rules are not proper ones?"

"They are not such as I would approve. I am on the board at St. Luke's, you know."

"Our institution doesn't follow the leadership of St. Luke's by any means. I think you had better take your patient to your own hospital."

"I did not ask your advice. I asked admittance for the patient at your hospital."

Immediately after this interview it was announced again that the engagement was broken. "That will never be a match," said a veteran matrimonial observer. "You might as well put two captains in command of the same ship."

However, the two lovers were miserable apart, and this time at the suit of the man they came together again. Then they concluded that once married they would learn to work in double harness and decided to make a plunge into matrimony, and the wedding day was set. One day Mr. Treat drove up to Miss Duffield's residence and, alighting from the carriage, ran up the steps and rang the bell.

"I have just heard," he said when his lady love came down, "that our wedding is to be the largest and most brilliant ever held in this city. This I hear from others, while I, the principal participant, have not been consulted."

"First," replied Miss Duffield, "I was not aware that you were to be the principal participant; second, I consider you on such an occasion without any rights whatever, and, third, the woman's will as to marriage ceremonies being absolute, I did not think it necessary to inform you."

"I think it necessary," said the groom expectant, flushing, "to inform you that I detest spectacular performances and would not consent to make a guy of myself on any account."

"You'll neither make a guy nor a groom of yourself with me," replied the lady. "We will consider this affair off for the third and last time."

The next step in this affair, after weeks of misery on the part of both, was a note from the man, which by a singular coincidence crossed one from the woman. The man's note asked for an interview; the woman's invited him to call. When they met the man began:

"I have called to say that I have found it impossible for me to live without you. I confess that I expected to find it impossible to live with you and have my own way about anything. Therefore I have called to beg for one more trial. The first time I attempt to have my own way you may break the engagement."

"I have come to a similar conclusion," said the woman. "I confess that I have been very miserable. I have sent for you to say that if you care to try it once more we will be married as privately as you wish."

"That is the woman's part. I am ready to submit to as resplendent an affair as you desire."

They were married before a few friends and went on their wedding trip. That was five years ago. They are married today and comparatively happy. But they do not live as married people usually live. The man lives at his club, the woman at her own home. He dines with her twice a week and frequently takes her to the opera or the theatre.—*Mary T. Pierson in Encinal.*

Tomatoes.

At this season of the year when tomatoes are both plentiful and good, the housewife should not confine herself to serving them in a few ways. There are many palatable and satisfying dishes that can be prepared from the tomato, that will give variety without extra expense.

TOMATO SOUP.—Either with or without meat stocks, an excellent soup can be made from tomatoes. For cream tomato, or tomato bisque, as it is sometimes called, cook the tomatoes until soft enough to be pressed through a sieve or fine colander. To this add a small amount of soda, enough to counteract the acid in the tomato, and add sufficient rich milk to answer your needs. Season with salt and pepper and add a little thickening of flour and butter, well rubbed together and cooked smoothly with the milk. Serve very hot with crackers.

When meat stock is used the quantity can be largely augmented by the addition of tomato and other vegetables also if desired, such as carrot, onion and celery. When the vegetables are done, after simmering slowly, put through the sieve and thicken in the same manner as before described.

Tomatoes may be baked plain, side by side in a baking dish, or the centers may be taken out, and the shells filled with a rich stuffing of meat of some sort combined with cracker crumbs and a well beaten egg. Season with salt and pepper in either case and serve hot with a lump of butter on each. Escalloped tomatoes consist of alternate layers of peeled sliced tomatoes and well seasoned bread crumbs baked slowly for an hour. The addition of a little sausage or bacon is relished by some.

As a salad the tomato may be served whole or sliced on lettuce leaves or hollowed out and filled with chopped celery or thinly sliced cucumbers. Serve with mayonaise or French dressing as preferred. In scalding tomatoes to remove the skin, care should be taken that there is sufficient time for them to become thoroughly cold before serving.

Home Plants.

All flowering plants should be grown in as small pots as possible to have the best results. The reason for this is that not until the roots become pot bound and rapid growth is checked, do they flower freely. So true is this, that gardeners often starve plants after they have made a good growth, knowing that the strength which has been used in growing will be turned into producing flowers. Ferns and palms should be placed in reasonably small pots also, for two reasons—first, because the soil in a small pot is much less likely to sour from over watering and thus kill the roots and second, that they make their best growth after the pot is full of roots.

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THE MARKETS.

San Francisco, Oct. 27, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Fair activity is reported in the Northern export market, but the situation has been eased somewhat by a cessation of the movement to the East. The local market is not very active at present, and California grades are unchanged, though some of the Northern grades are held at a little higher figures.

California Club	$1.75	@1.80
Sonora	1.85	@1.95
White Australian	1.85	@1.95
Northern Club	1.70	@1.72½
Northern Bluestem	1.82½	@1.87½
Russian Red	1.67½	@1.70

BARLEY.

This market continues very firm, with a good demand for all descriptions. Futures are higher and brewing and shipping grades of the cash grain are a little stronger. Holders of feed are also asking an advance, but so far none has been sold above the former figures. The movement is more active all over the Coast.

Brewing	$1.46½	@1.47½
Shipping	1.46½	@1.47½
Chevalier	Nominal	
Good to Choice Feed, per ctl.	1.42½	@1.45
Common Feed	1.35	@1.40

OATS.

No further advance has occurred in oats, as the supply appears sufficient for all present demands, though prices are steadily held. An active movement is going on in the north, and seed grain is in good demand here, but feed grades are now rather quiet.

Red, choice	$1.65	@1.75
Common	1.55	@1.65
Red, seed	1.90	@2.10
Black	2.40	@2.75
Gray	Nominal	
White	1.57½	@1.62½

CORN.

The supply here is still very light, and the local demand is confined to narrow limits, with very little coming in. Local descriptions are unchanged, but Western grades are offered at considerably lower prices than before.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.57
Mixed, in bulk		1.55
White, in bulk		1.61

RYE.

No definite quotations are given on this grain, as there is little on hand, and holders generally are asking high prices, which few buyers are willing to pay. Some offers of Western grain are reported about $1.80.

Rye, per ctl	Nominal

BEANS.

The market is very active, as large supplies are now coming forward out of the new crop, and the arrivals here this week have been extremely heavy. Numerous important changes are noted in the values of several varieties. White beans are higher, and several of the colored varieties also show some advance. Limas are very firm, with a better demand than was expected in some quarters. There is a large inquiry for all descriptions, as usual after an advance, but many buyers are still holding off, as they consider prices higher than conditions warrant. The quotations are exceptionally high for this season, and more or less reduction is anticipated.

Bayos, per ctl	$4.10	@4.25
Blackeyes	4.00	@4.10
Cranberry Beans	3.50	@3.75
Garvanos	2.75	@3.00
Horse Beans	1.50	@2.25
Small Whites	4.10	@4.25
Large Whites	3.00	@3.25
Limas	4.15	@4.25
Pea	Nominal	
Pink	3.10	@3.25
Red	Nominal	
Red Kidneys	3.75	@4.25

SEEDS.

A very fair movement is taking place in several varieties, and increasing activity is expected for the next month or more. Prices show no quotable change since last report.

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb		4 c
Canary	4¼	@4½c
Flaxseed		4 c
Hemp	3¾	@4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

Prices show a considerable decline, and the movement is quite active, as buyers are taking on supplies for the requirements of the next few months. No further decline is anticipated, and an upward movement is looked for before long.

Cal. Family Extras	$5.80	@6.30
Bakers' Extras	5.40	@5.80
Superfine	4.80	@5.10
Oregon and Washington	5.30	@5.50

HAY.

Arrivals have been about the same this week as for the two weeks preceding. The market has been quiet since last report, and this condition may continue for several days. The large buying movement of a few weeks ago has provided the larger consumers here with ample supplies for some time to come, and supplies from now on must come from storage, which will prevent much activity in the near future. Conditions generally are encouraging, with prospects of a good demand both here and in the country. The better grades are still firm, with small supplies, but stock hay and low-grade offerings are likely to find slow market. Alfalfa is being pressed for sale, and is frequently disposed of at concessions from the quotations. Otherwise there is little change.

Choice Wheat, per ton	$19.00	@20.50
Other Grade Wheat	13.00	@18.50
Wheat and Oats	14.00	@16.50
Tame Oat	14.00	@17.00
Barley	10.00	@13.50
Wild Oat	10.00	@13.00
Alfalfa	9.00	@12.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 70c

MILLSTUFFS.

The leading descriptions continue firm, the local demand being partly supplied by large shipments from the North. Rolled barley shows a further slight advance, but other descriptions are unchanged.

Alfalfa Meal, or mealfalfa, per ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl	Nominal	
Cocoanut Cake or Meal at Mills	25.00	@26.00
Corn Meal	38.00	@39.00
Cracked Corn	39.00	@40.00
Middlings	36.50	@37.50
Mixed Feeds	28.00	@32.00
Oil Cake, per ton	39.50	@41.00
Rolled Barley	30.00	@31.00
Shorts	31.50	@33.00

VEGETABLES.

The demand continues larger than usual, but the arrivals have also been exceptionally heavy for the last few days and prices show no particular improvement. Tomatoes are again coming in large quantities, and the market is heavily overstocked, with large lots going to the canneries at low prices. Onions are still moving freely at former prices. Green peas are higher, but string beans are unchanged. Some stock is now arriving from the South. Green okra is firm at higher prices, but egg plant is easy.

Onions—New Yellow, per ctl	75	@ 85c
Garlic, per lb	4	@ 5c
Green Peas, per lb	3	@ 6c
String Beans, per lb	3	@ 5c
Lima Beans, per lb	6	@ 7c
Turnips, per sack		75c
Summer Squash, large box	50	@ 65c
Tomatoes, per box	25	@ 50c
Cucumbers, large box	50	@ 60c
Egg Plant, per box	40	@ 60c
Okra, per box	75c	@ 1.00

POULTRY.

Arrivals of Eastern poultry continues very large, most of the receipts being of fine size and quality. Local stock also has been coming in quite freely of late, and with some stock held over from last week the market is inclined to easiness. Broilers and fryers, large hens and roosters are all slightly lower than last week, and no immediate improvement is anticipated. Large dressed turkeys are now in fairly good demand.

Broilers	$ 4.00	@ 4.50
Small Broilers	3.00	@ 4.00
Fryers	5.00	@ 5.50
Hens, extra	7.00	@ 9.00
Hens, per doz	6.00	@ 6.50
Small Hens	5.00	@ 6.00
Old Roosters	4.00	@ 5.00
Young Roosters	6.50	@ 7.50
Young Roosters, full grown	7.50	@ 8.50
Pigeons		1.25
Squabs		2.50
Ducks	5.00	@ 8.00
Geese, per pair	2.00	@ 2.50
Spring Turkeys, per lb	22	@ 24c
Gobblers, live	20	@ 21c
Dressed Turkeys, lb	24	@ 26c

BUTTER.

Extra butter has been inclined to sag for the past week, quotations running below those last given most of the time, as the supply has been quite liberal, with less demand than was expected. The present quotation is 4 cents lower than last week. Firsts are also easier, but seconds have been in good demand and are ½ cent higher.

California (extras), per lb	31 c
Firsts	30½c
Seconds	29 c
California Storage (extras)	30 c

EGGS.

Extras have had something of a slump, but a larger buying movement has started and prices show considerable improvement, being quoted at an advance of 2 cents, though they are only steady at this figure. Firsts and low-grade stock are also higher and in good demand, while storage stock is moving about as before.

California (extras), per doz	55 c
Firsts	50 c
Seconds	30 c
Thirds	28 c
California Storage (extras)	31 c

CHEESE.

Cheese shows little change this week, new stock being comparatively quiet on the exchange. Local first flats are a little stronger. Local storage stock is now moving to some extent at the quotations given. The following prices are quoted by the San Francisco Dairy Exchange.

Fancy California Flats, per lb.	16 c
Firsts	15½c
New Young Americas, fancy	17½c
Oregon Flats	16 c
Oregon Young Americas	17½c
N. Y., fancy	18½c
Storage, Fancy Flats	15½c
Young Americas	16½c

POTATOES.

Potatoes are rather quiet this week, no special demand being reported for any description. All ordinary stock is easy, with some reduction from the last quotations.

Potatoes—River Whites	55	@ 70c
Salinas Burbanks	$ 1.25	@ 1.35
Oregon Burbanks	90c	@ 1.05
Sweet Potatoes, ctl	1.25	@ 1.60

FRESH FRUITS.

The week opened with a brisk demand, but the movement at present is limited, and prices on some descriptions are lower. A few figs and red plums are still arriving, and the former find a ready market. Quinces are lower, and there is little demand for persimmons or pomegranates. Nutmeg melons are easy, offerings receiving little interest. Raspberries are also easy, and strawberries show a wider range, according to quality. Cranberries are in more demand and stronger. Grapes are in good demand, with little change in prices for table varieties. Fancy apples still move freely, but ordinary lots are slow, pears being in a similar condition.

Melons, Nutmeg, per box	35	@ 60c
Raspberries, per chest	$ 5.00	@ 7.00
Cranberries, per bbl	9.50	@11.00
Strawberries	2.50	@ 7.00
Huckleberries, per lb	7	@ 10c
Grapes, per crate	40	@ 75c
Lug boxes	50c	@ 1.50
Wine Grapes, per ton	7.00	@15.00
Apples—		
Fancy, per box	1.00	@ 1.50
Choice	75	@ 90c
Common	40	@ 65c
Pears—		
Winter Nelis	1.25	@ 1.50
Other varieties	50c	@ 1.00
Quinces, per box	50	@ 75c
Pomegranates, small box	50	@ 65c
Persimmons	1.00	@ 1.25

CITRUS FRUITS.

The first lot of new navel oranges, has been shipped from the Sacramento valley, going to Australia, and a small lot has been placed on the local market this week, being held at $3.00 to $3.25. Valencias are selling in a limited way at a narrower range of prices, and other descriptions are unchanged.

Choice Lemons	$ 3.50	@ 4.00
Fancy Lemons	4.50	@ 5.00
Standard	2.00	@ 3.00
Limes	6.00	@ 6.50
Oranges, Valencias	2.25	@ 3.00
Grape Fruit	2.50	@ 3.50

DRIED FRUITS.

While reports from the East indicate comparatively light trading, the local market is still active on nearly all descriptions, though some varieties are becoming rather scarce. Prices generally are firm but remain about as last quoted. Prunes are extremely firm, with considerable demand for the larger sizes, which are hard to get. The high prices on apples and apricots are causing a greater demand for peaches, which are now moving freely, with supplies in growers' hands rapidly diminishing. There is also considerable inquiry for pears, of which the supply is short, owing to the large demand for the green fruit. The raisin situation is attracting more attention, and the consumptive demand is large, though Eastern buyers are unwilling to buy except for immediate needs. A moderate but steady movement is taking place here, but prices remain extremely low, and so far there is little prospect of an improvement.

Evaporated Apples, per lb	8	@ 9 c
Figs, black, new crop		2 c
Figs, black, new crop		3 c
Apricots, new crop	9½	@10 c
Peaches, new crop	5	@ 5½c
Prunes, 4-size basis	2½	@ 2¾c
Pears	6	@ 8 c
Raisins (New crop)—		
Loose Muscatels, in sweatbox		2 c
Thompson Seedless		2 c
Seedless Sultanas		1¼c
London Layers, 3 crown	85	@ 95c

NUTS.

Walnuts are in very large demand, and as the arrivals so far have been rather light dealers find difficulty in filling orders. The old stock is entirely cleaned up, and new supplies are anxiously awaited. Almonds are moving freely, with large inquiries from all quarters, and most of the crop has been bought up in the interior. Prices in general are firmly held, but some buyers report occasional purchases slightly below the current quotations.

Almonds (new crop)—	
Nonpareils	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c

WALNUTS.

Softshell, No. 1	11½c
Softshell, No. 2	7½c

HONEY.

The local market remains very dull, with prices steadily held by dealers. The lower grades, of which there is a plentiful supply, are hard to move, while white honey is scarce.

Comb	10	@14 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

Holders are asking a further advance on this year's crop, but the movement at the present quotations is very slow. The market is in a strong position, however, and the crop is expected to sell off without difficulty. Most of the growers have already disposed of their crops.

Hops, Old, per lb	14	@18 c
New crop	24	@27 c

WOOL.

The greater part of the fall clip is neglected in the Eastern markets, and local buyers are taking little interest. Most of the better clips have been cleaned up. Prices are unchanged.

Fall clip, Northern Free	12	@15 c
Fall Lambs—Northern, per lb	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

The only change in dressed meats is a slight advance in mutton and lamb. Arrivals of hogs have been fairly large, but the demand is better, and heavy live stock brings better prices.

Beef: Steers, per lb	6½	@ 7½c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal	7½	@10½c
Mutton: Wethers	8½	@ 9½c
Ewes	7½	@ 8½c
Lambs	10	@11 c
Hogs, dressed	9	@11½c

LIVESTOCK.

Steers: No. 1	4	@ 4½c
No. 2		3¾c
Cows and Heifers: No. 1	3⅜	@ 3½c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5½c
Medium		5 c
Heavy	4	@ 4½c
Sheep: Wethers	4½	@ 4¾c
Ewes		3¾c
Lambs	5¼	@ 5½c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs	7¼	@ 7½c
250 to 325 lbs		7 c
Common Hogs, lb	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., October 27.—The valencia market is very strong and active, prices being higher than at any time during the season. The brokers say that orders are quite plentiful at $2.50 f. o. b. or $2.35 cash, California, but that the supply is very limited outside of what fruit may be in the hands of the California Fruit Growers' Exchange. In all there are probably not over 150 to 200 cars left in the State.

They are commencing on the new crop up in Tulare county and shipments have already started. It is reported that the Exchange will hold back and will not pack as early as was expected, and it is predicted that after the first few cars go out to fill the few orders on hand that there will be a let-up in the outgo for awhile, or until orders begin to come in a little stronger. They realize that it would be a case of hari kari to ship green fruit on an unappreciative market. Quotations to the trade have been made at $1.75 cash to $2 f. o. b. usual terms.

Southern navels are sizing up and will be ready earlier than common. Prices are being made at $1.75 for Thanksgiving delivery and $1.50 for Christmas shipments; this on Orange county fruit; no quotations have yet been made on Redlands navels.

The citrus fruit shipments to this date have been 31,741 cars of oranges and 6130 cars of lemons. To same time last year, 24,508 cars of oranges and 4866 cars of lemons. The total shipments last year to the end of the season were 24,538 cars of oranges and 4959 cars of lemons.

PUBLISHER'S DEPARTMENT.

Mr. A. H. Averill, manager of the A. H. Averill Machinery Co., of Portland, Ore., has been in San Francisco and at San Jose, at which place his company maintains a branch office.

On our last page is the attractive advertisement of the Johnson Tractor Plow now being manufactured at Sunnyvale. To those who have large acreages to plow this new machine will be of interest.

On the inside of the last page of this issue will be found the announcement of the Union Carbide Sales Co. This is one of the strongest companies in the country and they will live up to the claims made. Write them for further particulars.

Mr. Clarence Murray, electrical, civil and hydraulic engineer of Fresno, is agent in several counties in California for the Luitwiler pumping engine. Mr. Murray is managing an extended clientele professionally and is selling a number of the Luitwiler pumps in that part of the State. He is a graduate of the State University of California, and thoroughly understands hydraulic propositions.

The Superior Light and Heat Co., of Los Angeles, manufacturers of acetylene generators, etc., has opened a branch office in the Monadnock block, San Francisco. The Superior Light and Heat Co. is a California enterprise, and is manufacturing its wonderful devices here on the coast. Mr. Badger, the manager, will be a frequent visitor to San Francisco, and will put his industrial feature in close touch with Pacific coast people. See the advertisement of this company on another page.

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403 Monadnock Bldg., Market at Third St., SAN FRANCISCO.



Home-made Light for the Farm

Take a look at the picture above.

Notice the prosperous farmer who has just returned from town after dark.

He is in the act of lighting up his barn, and the space in front.

This he does without a match of any kind.

He simply walks up and pulls a little short chain, and presto, he has it—a flood of beautiful, white Acetylene Light.

Light that actually shows up every buckle on the team's harness, and everything inside the barn just as plainly as all these things would show in broad daylight.

If you have ever lived on a farm you will appreciate the advantages, the comfort and the satisfaction of a barn light that can be turned on without a match.

You can probably recall many a cold winter night when you came home numb with the cold, and with fingers all thumbs tried to unbutton two coats to find a match, which you tried to scratch on a damp board. After which you probably fought a few rounds with a smoky lightning-bug lantern, and put in an hour doing chores, that you could have done in half the time with such a light as the one shown in the picture.

An Acetylene Lighting System like the one shown in the illustration often includes a light on the back porch where it can be instantly turned on to illuminate the yard, and a light in the cow barn to make milking easy, as well as one inside and one in front of the horse barn.

All these lights come in mighty handy too when there is trouble among the stock, or a sick animal to take care of through the night.

These barn and out-building lights are of course enclosed in solid globes, and can be fastened anywhere they are wanted—in front of the stalls, in the harness room, to the barn ceiling, to a post, or to the top of any door, inside or outside.

It may surprise you to know that just such lighting plants as the one we have illustrated have been installed in over **175,000 farms and country homes** in the United States.

In every case an automatic tank-like machine, called a generator, is set up in one corner of the basement, or in an out-building, and from this machine the Acetylene which makes the light is carried through common gas pipes to burners located all over the place.

That's all there is to an **Acetylene Light Plant.** Just the **generator,** the **pipes,** and the **fixtures.**

Such a plant can be set up in from two to four days by any man who can cut and fit pipe.

The work can be done without inconveniencing the family, or injuring the walls or carpets.

All burners are handsome and ornamental, and are permanently attached to walls or ceilings.

In barns, etc., the light is, for safety's sake, always enclosed in a tight globe.

For these reasons Acetylene Light is very much safer than kerosene lamps or lanterns, both of which are so often tipped over with disastrous results.

As a matter of fact, enclosed Acetylene Burners, fixed to light by the pull of a chain without matches, are the safest lights ever installed on a farm.

Most **fires** on farms are **caused** by the careless handling of **lanterns** and **matches** by hired help.

Consequently, any scheme of lighting that can be operated without matches, lanterns, or lamps, reduces the risk of fire to the minimum.

But this is only one of the advantages responsible for the popularity of Acetylene as a farm illuminant.

Acetylene is so much like sunlight in color that it will actually **grow plants** almost as well and as fast as the sun itself.

This has been proven by extensive experiments conducted by the Department of Agriculture of the Cornell University.

On account of its sunlike quality, Acetylene is the only perfect artificial light to read by. And, for the same reason, it is a germicide, and has the same health-giving quality as true Sunlight itself.

Then, best of all, **Acetylene costs less** than any of the inferior illuminants.

An Acetylene plant once installed will furnish light, candle power considered, for one-third less than kerosene oil.

There are several kinds of Acetylene Generators on the market.

To give perfect satisfaction under all circumstances, a good generator should have the following features:

It should be made of heavy sheet steel strong enough to last over twenty years.

It should be automatic in every way. It should make the gas only while the burners are lighted and should stop making gas when the burners are shut off.

The machine should practically do all the work itself and should not require more than fifteen minutes attention once a month. All the work necessary would be the recharging of the machine with Union Carbide and the cleaning out of the residue. All of which will be easy work for any school boy.

The cost of such a lighting plant depends upon the size of the machine wanted, its location and minor conditions.

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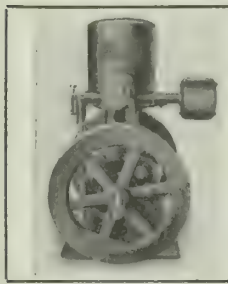
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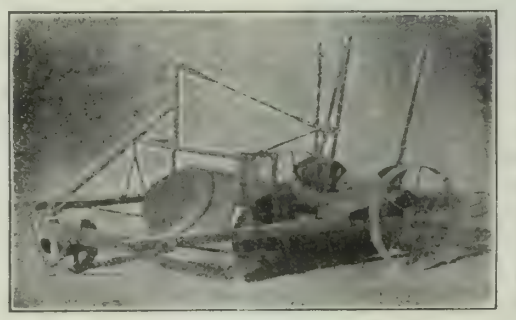
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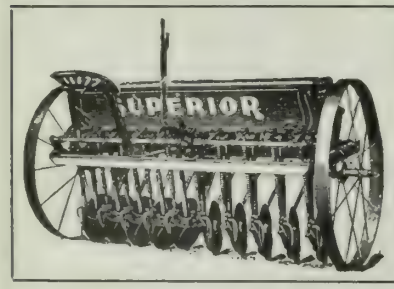
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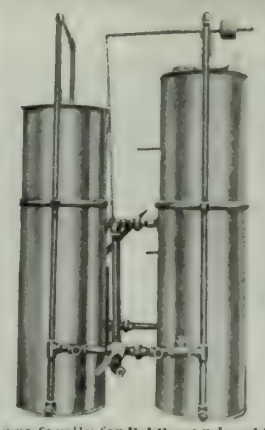
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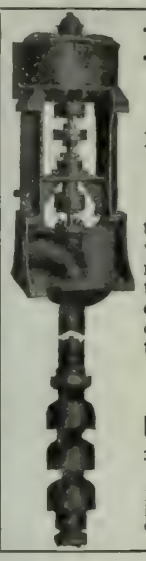
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It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

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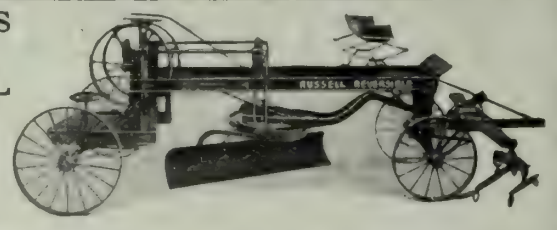
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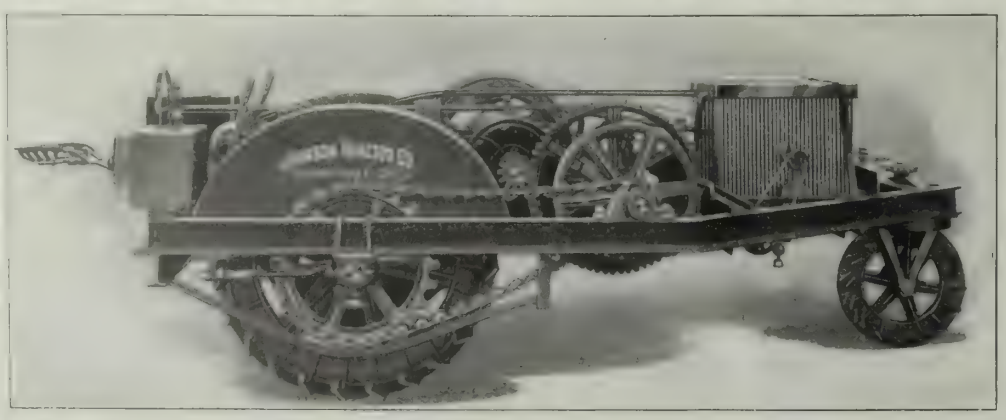
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CALIFORNIA STATE

THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 19. SAN FRANCISCO, SATURDAY, NOVEMBER 6, 1909. Thirty-ninth Year.

California Grapes East of the Sierras.

Written for the PACIFIC RURAL PRESS
By Prof. F. T. BIOLETTI.

During the last decade, increasingly numerous attempts have been made to grow our California Vinifera grapes beyond the protecting wall of the Sierra Nevadas. These attempts have met with very varying degrees of success. The most successful have been made from Idaho to Texas, in Utah, Colorado, Arizona, and New Mexico. Plantations made farther east, notably, in North Carolina, have not been encouraging.

A few of these attempts have been made with a full knowledge of the difficulties to be overcome, but most of them have been haphazard ventures predoomed, for the most part, to failure.

It is a mistake, however, for Californians to believe that they have an absolute and unassailable monopoly of growing vinifera grapes. Grapes of this species suitable for wine, table and raisins can be, and are being, grown outside of our borders. Oregon has produced wines of Moselle and Rhine type that we have difficulty in excelling. Idaho and Colorado have exhibited Tokay grapes which have been awarded prizes in competition with grapes grown in California. There are parts of Arizona where excellent raisins can be produced and where table varieties can be put on the market earlier than any part of California except the Imperial valley. Texas and New Mexico have grown our old Mission grape longer than California, and are lately making strenuous attempts to grow our modern varieties.



How the Vinifera Grapes Bear in California.

While these things can be and are being done, the difficulties and dangers to be overcome or avoided are such that there is no probability of any of these States ever becoming serious competitors of California in grape growing on a large industrial scale. With a better understanding of their defective conditions and an increased knowledge of methods of combatting them, however, there are many localities in the States mentioned which may find it profitable to supply local markets with the products of vinifera varieties of vines.

The principal obstacles to the growing of these varieties outside of California are due directly or indirectly to weather conditions. The moderation of the temperature of most parts of California is due to the prevailing drift from west to east of the air lying over the Pacific ocean. This great body of water is a reservoir of heat which prevents the air above it from becoming very cold in winter or very hot in summer. The farther we go from the coast, however, the less this equalizing effect of the ocean is felt, until when we cross the snowy rampart which runs north and south along our eastern frontier this effect disappears completely. In consequence, severe winter frosts occur from Idaho to Texas, and vinifera varieties run the risk of being killed in the dormant season.

When the temperature falls to 10° or 15° F., vinifera vines are liable to injury, especially if growing in damp locations. This injury is usually confined to the killing of buds, but spurs may be killed even at this temperature if the wood is not well ripened. Varieties ripening their wood late, such as most California table grapes, are especially liable to injury. Pruned vines are more susceptible than unpruned.

Temperatures of 5° F. or below often result in the killing of the whole above-ground portion of the vine. Such vines may often be revived by grafting below the surface of the ground.

Where such winter temperatures are frequent, vines may be protected by covering in winter. In some cases wrapping the trunk and arms with straw and sacks is sufficient. In others it is necessary to completely cover the vines with earth. For this purpose the vines may be pruned to a low stump only a few inches above the surface of the soil, or the trunk may be given the form of a horizontal cordon on a trellis. This cordon should be sufficiently low and slender to be bent down to the ground in winter to make it possible to bury completely with soil. When the vine has been brought safely through the winter, a new series of dangers arises in the growing season. Among the worst of these are the various fungus diseases, Peronospora, black rot, etc., which attack the vine in the moist, warm atmosphere common in much of the East in summer. The same treatment for these diseases used on the Eastern varieties can be used on vinifera, but the later are much more susceptible, and in bad seasons it is very difficult to protect them. In fact, in a recent careful attempt to install these vines in North Carolina failure was acknowledged chiefly because of this difficulty.

Another serious enemy of the grape is the hail which in many regions will often strip the leaves completely from the vines. This and the severe summer storms of wind and rain are obstacles which prevent the growing of grapes in many regions, such as the main plateau of South Africa, which otherwise would be admirably suited to this branch of horticulture.

The phylloxera is a danger which our sister States have in common with us. In the parts where the winters are severe the phylloxera is less virulent in its attacks than with us, but in the southwesterly regions, where the weather conditions are more favorable to vinifera varieties, the phylloxera is as destructive to them as in California. It will be necessary there, as here and in Mexico, to use resistant grafting stock if vinifera are to be grown. Many of the attempts, both old and new, have failed because of neglect to take account of the susceptibility of vinifera to the root form of the phylloxera. This insect being common on all the wild vines of most parts of the East, readily infects new plantations of California grapes, which often die before producing their first crop.

On the whole, then, while there are few if any districts in the United States outside of California where our grapes can be grown on a large scale, there are many where a limited production for local use may be profitable.

A movement is on foot for the formation of a Grape Packers' Union at Lodi to be effective the coming season. The objects sought to be accomplished are to secure a large market in the East, and also to shut out the Japanese labor in the packing houses in that district. Shipments from that district are about finished for this season.

Pacific Rural Press

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FRANK HONEYWELL - - - - - Business Manager
GEORGE RILEY - - - - - - Advertising Manager

California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Nov. 2, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	2.55	5.19	4.17	64	50
Red Bluff	.22	1.25	2.50	76	44
Sacramento	.16	1.45	1.50	76	42
San Francisco	.30	2.03	1.67	74	50
San Jose	.02	1.47	1.19	76	36
Fresno	.16	.70	1.01	82	40
Independence	00	.32	.97	76	30
San Luis Obispo	.02	.54	1.88	82	44
Los Angeles	00	.30	.85	94	46
San Diego	00	.02	.54	86	50

The Week.

Undoubtedly the movement looking to better fruit is one of the most essential and fundamental undertakings in our horticulture. In one sense it is strange that this matter has not attracted wider attention before, but though it has already been recognized and provided for in our co-operative efforts in fruit marketing, its enforcement has not gone far beyond the extension of such efforts. There is still and has always been a large part of the producing interest which has not carried conviction beyond individual consciences and has not felt the force of any regulation. A large amount of fruit, in fact the most of the fruit grown in the State, has always gone upon sale without either grading or even a clear notion of what grades should be. Citrus fruits have, of course, advanced farthest from this uncertainty because citrus fruits are largely handled by one association, which has definite grades and insists upon their observance, or it will not handle the fruit. This is essential to the life of any such organization and to fair treatment of its membership. If other fruit products could be brought under such an organization as the citrus fruits enjoy, the question of grading and the output of uniformly better fruit would settle itself. A very important question is, what can be done to advance the grade of our fruit while the trade is disorganized as it is at present?

This question is being practically pressed for solution at the series of open meetings in the deciduous fruit districts adjacent to the shipping center at Sacramento, which State Horticultural Commissioner Jeffrey is now holding from week to week. In another column are some pointed declarations on the subject adopted at last week's meetings in Placer county. As the reader may see, the plan is now not to urge a general association in selling, but to rally all existing agencies, associated and individual, into joint action to elevate the quality of the goods placed upon the market by throwing out that which is inferior. At first it is not so necessary to advance the good product as it is to cast out the bad. If knowledge of what is bad and why it is bad can be wider spread, and if the direct loss in it and indirect injury to the good through it can be more sharply impressed upon the understanding both of the growers and traders, surely the financial conscience can be awakened, even if the moral conscience should still slumber awhile. If all in the interest can agree upon some fair scheme of grades and rejections, there must be engendered a public opinion in fruit circles which will be powerful for good. For these reasons we are deeply interested in the meetings which are being held, and shall await with interest the report of the competent committee which has been named.

Another interesting subject in this issue is the discussion of education and the live stock industries by Mr. H. A. Jastro, which is given in full upon another page. Personal interest is added to the address by the fact that Mr. Jastro was stricken with serious illness at the time of the meeting and was unable to attend, but fortunately had dictated his address previously. As Mr. Jastro, though seriously ill, is at last accounts recovering rapidly, it may not be amiss to point a good lesson from the way a busy man with such great responsibilities as Mr. Jastro carries, fullfils what he considers a public duty by doing it early, and thus insuring its discharge from accidents. It has long been an observation among men of large affairs that to get a thing done it is important to select a busy man to do it and not a man afflicted with too much leisure. The ability to work seems to be in some way associated with the habit of working; possibly one is a product of the other. In any event, Mr. Jastro's paper gave special point and interest to Farmer's Week, and we trust he may have many years to make his efforts and influence felt in favor of what is really good for the State—for this is the motive which actuates him

Stockton undertook to do something in the way of a Post-Portola celebration, and did it most uniquely through the establishment of a typical mining camp and a few days of restored mining life which had all the wildness and woolliness of Roaring Camp, and was, according to all accounts, grand in its gloomy peculiarity. The impress which the agriculture of the present day has upon California affairs was, however, clearly seen in the fact that the committee did not hesitate to perpetrate the striking anachronism of having farmers in the imitation Roaring Camp without the amazement which their presence would have produced in the original mining community. On the last day of the affair the Stockton streets were filled with a long line of farm wagons loaded with everything produced in that part of the State, which brought forth cheers along its course. The wagons were loaded in the same manner that the owners send them to market every day in the year long before many people are out of bed. The two great features were presented by Manteca and Ripon farmers, who had a most elaborate display of their products, and they surprised even those familiar with the crops of San Joaquin county.

There seems to be a spirit of celebration everywhere, and it must make for the upbuilding of the State. The more widely Californians are known as a wide awake and a delightful people the greater will be the eagerness of the outside world to participate therein. Cloverdale is to build a new reinforced concrete pavilion for holding citrus fairs to replace the wooden shell which was destroyed by fire some months ago, and will be ready for their winter orange show as for many years past, except more abundantly. Directly opposite, south of the bay, Santa Clara county is undertaking permanent organization for promotion purposes, and we shall soon hear something louder than prunes dropping from that region.

We have had frequent accounts of the desirability of raisins for stock feeding—of course, when they cannot be sold to better advantage. One farmer in the Cucamonga section of southern California has been selling his 50-ton raisin crop for horse feed and has realized $1000 from that source. He sells them for $1 a sack of about 100 pounds. The account says: "The raisins are of good quality, excepting that their color was slightly changed by a fog which settled over them while they were on the drying cloths." Which would indicate rather a low grade of raisins, for the best are not made in that way. Many in the Cucamonga region have grubbed out their raisin grapes and replaced them with wine grapes, which are a more certain and profitable crop, since the wineries in that district have developed very satisfactorily.

Speaking of wines reminds us of a little trade conflict between France and the United States over the new tariff. The French have applied their maximum rates to our products, which means that the embargo to their entering France will be increased from 33 to 212 per cent in the aggegate. They place a tariff of 200 per cent on our fresh table fruits and 50 per cent on dried and pressed fruits, which are the things most affecting California. On the other hand, the American increases on French products entering this country are in the main as follows: On brandies, 49 per cent; on still wines and vermouths, 29 per cent; on champagnes and all other sparkling wines, 60 per cent. What these mean can be seen when it is added that we paid France last year $1,977,977 for spirits; $5,201,230 for champagne and other sparkling wines, and $1,151,561 for still wines. There is nearly ten million dollars worth which could as well be made in this State as not.

And we have an issue with Germany of a somewhat different nature, but it hits agriculture just the same. It seems that American fertilizing and packing companies which recently succeeded in opposition to the German potash trust are causing a sweeping reduction in prices. The cable says that a bill will be introduced in the Reichstag providing duties against American products high enough to equalize the difference between the prices demanded by the German potash producers and those which the American purchasers intend to pay. Such a measure seems to have strength, but it of course may be a question whether the German people will agree to pay enough for their foods from America to compensate their neighbors for what they may be losing on potash, and other German exporters are wondering whether the United States will retaliate in such a way that other products than potash shall be affected. So in both their buying and their selling the non-potash elements of Germany may suffer. This tariff business in all its phases is a wonder sometimes.

And in connection with fertilizers comes to mind the old enterprise which some bright ones cherished some years ago of selling the vast accumulations of redwood sawdust on the upper coast for a fertilizer, because it came from trees, and therefore should contain the stuff which other trees need to grow with. Of course the brilliance went out of the proposition when it was shown that redwood sawdust is practically insoluble. A better scheme is now reported, which is to manufacture white paper from redwood wastes. For several years past experiments have been tried at Fort Bragg, and the greatest difficulty came in bleaching the paper after its manufacture. It is now stated that the difficulties have been overcome, and that in the near future a plant is to be erected to utilize the sawdust and other waste products of the various mills in the manufacture of paper. It is said that with this refuse paper can be manufactured at less cost than it is from spruce. There ought to be a by-product to paint all the upper coast towns red.

Queries and Replies

Who Knows About Hold-over Watermelons?

To the Editor: I raise watermelons, cantaloupes, potatoes and tomatoes. I have not had much experience so I need advice. I raise early potatoes, and I will be ready to plant almost any time after the first of next month. What I particularly want to know is, about what would be the size of the smallest potato that I could safely plant to be assured of a fair yield? I find after the first rain that my watermelon vines send out new runners, and commence to blossom again. Do you think that the watermelons would bear a crop again next year from the old roots? Although there was quite heavy frost here last winter, ordinarily it is almost frostless here. Tomato vines live two and three years without being renewed, but whether it is the nature of the watermelon to do so I do not know. I lost a good many vines from some kind of a blight last summer, about the time the melons were ready to pick. The vines would wither away in the night it seemed to me. I examined the roots and found them decayed. I left two and three vines in a hill, sometimes one vine would die, sometimes two, sometimes all three. Can you give me any reason for the decay of the vines. I was told the other day that in the San Fernando valley whole fields would thus die.—Newcomer, Los Angeles county.

Medium sized potatoes should be selected for seed purposes. Where conditions are very favorable good results can be obtained from using very small ones, but the chances are against it. We never heard of watermelons holding over and bearing, although we do not see why they should not do so in a frostless situation. We apprehend, however, that yours will disappear later. Even if these hold-over vines should survive and bear, the fruit would not get heat enough to be sweet and would be much inferior to the melons from new vines. Tomatoes, as you say, are more satisfactory in this respect, and hold-over plants are often profitable because of the high price which the fruit commands very early in the season, although it is inferior usually.

The disease which strikes your melons is probably what is known as melon wilt, caused by bacteria which multiply in the soil. For this reason it is desirable to plant melons from year to year on ground not occupied by them the previous season. There is, as yet, no satisfactory application for this disease, which is naturally hard to reach, as it exists in the soil itself.

Lemons and Alkali Water.

To the Editor: I wish to inquire about a lemon orchard of trees at present in good condition, and with a heavy crop of fruit, including a great deal of summer fruit. The soil is said to be first-class. The orchard is supplied with water from a pumping plant which reaches to a depth of 100 feet. There have been many people here who informed me that this water contains a great deal of alkali and that while the orchard is now in first-class shape, the continued use of this water would in time leave a large enough deposit of alkali through evaporation at the surface, or precipitation on the hard-pan, which is common in this region, to injure the trees. Is it possible that you have data in regard to the wells sunk in this region? As stated above the orchard and soil show no signs of alkali to my knowledge. The trees, however, have, if anything, too much fruit wood; or rather there is little growth that is not bearing and which should give shade to the lemons, and in some instances the lemons are becoming burned and yellow. How would nitrogen applied remedy this? Can you also tell me how a cover crop of peas or vetch would counteract any small amount of alkali that might be in the water, or already in the soil?—Enquirer, San Diego county.

It is true that there is some water used for irrigation in your district which contains too much alkali for the thrift of the trees, but this fact is not so important to you as to know whether the water which you expect to use is alkaline or not. These matters cannot be settled by generalization but by actual examination of the water. If trees do not have a healthy look and they are growing upon land which has no hard-pan, the conclusion is almost inevitable that either they have not had water enough or that they have had water of a bad kind. The abundance of fruit is not an indication of thrift in a tree, for unless abundance of fruit is accompanied by good color or good size of the leaves, the heavy fruiting may be taken as an indication that the tree is in distress, and is not able to make wood growth enough. The application of nitrogen would not help the case unless you have enough good water. In that case it would be desirable. Peas and vetches would have no effect on the amount of alkali in the water. The subject which you propose is one which can only be answered by one who understands all the conditions involved, and, therefore, cannot be treated satisfactorily without actual examination.

The Campbell System.

To the Editor: There seems to be very little real knowledge as to the best way to raise wheat. Those who try to farm scientifically have to take W. H. Campbell's "Soil Culture for 1907" as a guide. They teach his lectures in the State college. But he seems to me to be superficial. I would like to learn what is known of the principles of soil chemistry and physics so that I can make my experiments more rationally.—Reader, Washington.

It is not soil chemistry which you need so much as soil physics, which has to do with the principles of the conservation of moisture, which are involved in the Campbell system. If you wish to look into these principles, the best book will be "Physics of Agriculture," by Professor F. H. King, published by the author at Madison, Wisconsin. So far as we have read accounts of the Campbell method, it is correct in principle, and is, in fact, an application to the interior conditions of principles which have been demonstrated by California practice ever since rainfall farming began in this State. But these principles were not discovered in California, nor did Campbell discover them.

Improving Exposed Subsoil.

To the Editor: In a recent issue you told an enquirer to manure heavily those tracts from which he had removed several feet of earth with the scraper in grading. Now, what fertilizer shall the man buy who has no manure? What is the cause of the barrenness of soil when first exposed to the light, if, as I am told, it becomes productive from a few years of weathering?—Reader, Stanislaus county.

We advised the use of stable manure not alone for the plant food, but for the increase of humus which would be secured, and this would not only enrich the soil but make it more friable and otherwise improve physical conditions. Commercial fertilizers do not serve this double purpose. If you cannot get stable manure, try and grow a crop of vetches or peas, or if you do not care to go to that trouble, grow a crop of barley and weeds and plow it under while green. Get some green stuff under while it is still green and succulent and easy of decay. It is often desirable to use some commercial fertilizer to get this green stuff to grow better and then plow the whole business under. The cause of barrenness is chiefly due to the condition of the soil, which this treatment aims to overcome, and in a less degree probably to the action of the air upon the minerals containing plant food.

Trees for a Short Driveway.

To the Editor: I am making a driveway from the road to my house, a distance of perhaps 200 yards, and would like to use quick growing ornamental trees. My friends suggest soft shelled almonds. I thought pepper trees or some other that you might suggest, and place almonds in between, as I fear they are too slow growing. Again, how old is it advisable nursery stock should be? Will a tree one year old do better than a two year old from a nursery, and make more rapid growth in the end?—Planter, Modesto.

If you wish a good avenue effect do not mix the trees; plant all of the same kind. If you want evergreens, peppers are very handsome. We would prefer deciduous trees. I. X. L. almonds are very upright, strong growing and handsome, and though somewhat shy in bearing, that does not enter into the question of ornamental effect. Our choice of ornamental deciduous trees is the apricot. Take the Moorpark as a shy bearer and not likely to bear enough to break down the branches. We enjoy the apricot foilage exceedingly. You must choose, however, according to your taste. Figs and walnuts are largely used. Ordinary fruit trees should not be more than one year old. Figs, walnuts, and peppers can be older. The growth will depend more upon water and care than upon a slight difference in starting age.

Plums on Peaches.

To the Editor: I am thinking that some other fruit than Hale's Early, St. John's and Salway peaches would be more profitable. I have been advised to graft to late plums (Hungarians, Grand Dukes and Giants), and wish to inquire if it would be advisable to have an analysis of the soil made to determine which would be the better ones to put in? I have about ten acres now in the varieties named.—Grower, Auburn.

Soil analysis does not distinguish closely in the matter of suitability for different fruits. Horticultural conditions recognizable to experienced fruit growers have more to do with determining that, but as you are not to change the root which is the part directly connected with the soil, there is no occasion to invoke either a soil analysis or a horticultural judgment, beyond the fact that the thrifty peach roots do in California grow good plums of most kinds, including those which you mention. Grafting on the old wood of the peach is more difficult than grafting other fruit trees, because of the tendency of the peach bark to dry and shrink. A side or saw graft without splitting the stock is more apt to succeed with the peach than the old fashioned top graft with the split stock. You have also to be more careful about the waxing. If your trees are thrifty and you succeed with the graft, there is no reason why you should not anticipate a good yield of the plums you mention. Concerning the grafting of the peach, you will find that discussed in some detail in our book on "California Fruits."

Where is the Danger?

To the Editor: I have a piece of land which was formerly a pond but is now drained by a ditch five feet deep. Can I put in a grain crop this winter without farther protection?—Farmer, Modesto.

We cannot quite understand quite what you mean, and have to reply at random. Do you mean that you fear that the drainage ditch may overflow and therefore ask whether it will be desirable to put in a levee as a protection against it; or do you mean that the water in the drainage ditch may not overflow but still rise high enough so that the grain will be destroyed by underflow through the soil? The answer to either of these questions would depend upon how much water is likely to flow into the drainage canal and that, of course, can only be determined by one who knows the watershed which supplies it. Under ordinary situations, we should say that a drainage ditch five feet deep with a good grade would make it safe to put grain upon the land near its bank, without apprehension that the water would rise to the injury of the crop.

Horticulture.

A MOVEMENT TO MARKET BETTER FRUIT.

State Horticultural Commissioner J. W. Jeffrey is pushing a campaign for better fruit through meetings held in the different producing districts, as recently noted in the PACIFIC RURAL PRESS. The meeting at Loomis last week was regarded the best of the season so far, with a chance for a still greater one at Newcastle in the near future. Many prominent growers and shippers attended and finally approved the work of the committee on resolutions, who made these declarations: That the fruit interests of California would be subserved by the standardizing, or proper gradation of our fruit. This can only be accomplished by the appointment of a committee of growers and shippers who shall formulate some plan of independent inspection, whose decision shall be final, and, by mutual agreement, uniform and binding. We recommend that a committee of 15 be selected by this convention to be composed of eight growers and seven shippers. The shippers to be appointed from the members of the California Fruit Distributors, California Fruit Exchange and independent shippers, in proportion to the amount of business done by each; this committee to report to a subsequent meeting of this convention for adoption or rejection, and that all growers and shippers be expected to act in conformity with the rules adopted.

Resolved, That we view with alarm the encroachment of the peach worm in California fruit orchards. We would impress upon our State Horticultural Commissioner, and the society which he represents, that they urge more stringent laws be enacted by the State Legislature, if necessary, controlling the strict, intelligent and thorough supervision of the fruit industry in this State, under well qualified County Horticultural Commissioners, and that a more liberal appropriation be made upon this important work. We urge upon the honorable Board of Supervisors of Placer county that they supplement State appropriations and legislation by appropriating county funds and additional authority.

Resolved, That we deprecate any necessity that may seem to exist that the owners of fruit ranches feel compelled to lease their orchards. In case that it may seem necessary to lease any such we can but advise that the lessee be held under strong written agreement that he be required to farm the same under the highest state of care and cultivation, as dictated by the owner from day to day.

The following were appointed members of the committee on grading, etc., after the resolutions were unanimously adopted:

For the Growers—G. Geraldson, L. A. Smith, Newcastle; H. M. Branstetter, J. T. Law, Loomis; J. A. Thomas, Robert Kayo, Penryn; Senator Birdsall, Auburn; J. B. Adams, Newcastle.

For the Shippers—George D. Kellogg, A. Schnabel, George W. Bisbee, J. L. Nagle, Newcastle; Harry Butler, H. E. Gibson, Penryn; E. L. Rippey, Loomis.

LOOK OUT FOR THIS, DR. WILEY!

We find in an Arizona exchange the statement that in the window of a local store keeper there may be seen several sprays of artificially ripened home-grown dates. Our contemporary says this achievement probably marks one of the most important steps in the technique of growing dates commercially in the Southwest. The Agricultural Experiment Station of the University of Arizona has been experimenting for several years on methods of ripening the late maturing varieties. Recently Dr. A. E. Vinson, biochemist of the station, who has had immediate charge of this phase of the work, found that the ripening process may be imitated by treating the unripe fruit with a great variety of chemicals. (Oh, my!) These substances seem to act as stimulants and once started the ripening goes on naturally. The final product is fully equal to that ripened on the tree. By the artificial process the whole bunch may be ripened at once instead of individual points over a period of several weeks, as occurs when left to mature.

Another advantage of the method is that the fruit may be shipped green and ripened at its destination, like bananas are now handled. The ripe fresh date is very soft and sours easily, but the unripe fruit is very hard and will stand the roughest treatment without injury. Furthermore, the delicate flavor of the ripe date deteriorates very rapidly, but by ripening them on the market they will reach the table of the consumer in prime condition. In this way seedlings and varieties which have been considered inferior will find ready use as fresh ripe dates. How horrid!

AN IDAHO WAY WITH BLACKCAPS.

We are glad that we do not grow many blackcap raspberries in California for, if we did, some one might frame a story about our methods as fishy as the one from Idaho, where, according to the Denver Field, M. B. Sherman, of the Payette valley, has a unique system of growing blackcap raspberries under irrigation. His soil is sandy volcanic ash. The rows are placed seven and one-half feet apart with the plants 18 inches apart in the rows. Two plants are placed together and he prefers two-year-old roots. The first year the plants are allowed to grow normally but after that are given special treatment. In the spring the irrigation furrows are made on each side of the row. The plants are then bent over by means of a fork-like implement. The tines of this fork are placed over several canes and then by a twist of the handle are easily bent over and in some cases partially broken. Thus the bearing canes are virtually on the ground. After the old growth is bent over, the new growth is pinched back about a foot from the ground. This causes strong lateral growth. When the fruit is ripe men are sent into the field, who cut the fruiting canes at about the point at which they were bent over. These canes are then stacked in much the same way as corn. After a few days they are loaded into a tight wagon bed and are threshed out with a four-tine fork. After threshing, the berries are run through a machine which has a double set of rollers. These rollers break off what short stems may remain on the berries and they are cleaned ready for market as dried raspberries. Two men can cut and shock two and one-half acres a day. One man can clean the berries from a single acre in a day and two men work about 40 acres.

NATIONAL APPLE DAY.

National Apple Day, the second Tuesday in October, fell this year on the 19th. We have not yet had reports of California observances except that the Julian district had a proper celebration. Mr. James Handly, of Quincy, Ill., founder of National Apple Day, says: "Many and very diversified have been the ways of keeping the National Apple Day in the past, and all produced the best of fruit on widely extending branches. The too frequent failures of the apple crop in many sections of the country have had the most serious effect upon all having the slightest interest in the apple industry. The importance of promoting apple culture cannot be over-estimated, and it is to be hoped that the object of having National Apple Day for educational purposes will never be lost to sight. We heartily approve of the methods of bringing the apple into prominence by placing it in general use and serving it on all family tables in celebrating the day. The sentiment in many of our large cities is expressed by sending supplies of apples for the winter on the anniversary to orphan homes and such institutions as are dependent upon the public for existence."

SULPHURED FRUITS IN GERMANY.

The German limit of permissible sulphurous acid in food products is $^{125}/_{1000}$ of 1%. In two cases German dealers were arrested for selling dried California fruits containing in one case $^{134}/_{1000}$ of 1% and in the other case $^{166}/_{1000}$. In both cases the defendants were discharged without cost by the German courts upon the evidence of German experts of the very highest standing.

Commenting upon these facts the San Francisco Chronicle forcibly says: The evidence in these cases was that, no matter with what care these fruits are cured, if exposed to sulphur fumes at all it would not be possible to assure that as the fruit left the curing-house it did not contain sulphurous acid somewhat in excess of $^{125}/_{1000}$. But the experts also unanimously agreed—and most of them were German officials of high rank in the medical service—that sulphurous acid in the quantities found in these cases was not deleterious to health, that in the process of cooking at least one-half the acid found would disappear, and further, that "neither in the literature nor in medical circles is a single case recorded where the eating of dried fruit containing even more than $^{134}/_{1000}$ of 1% of sulphuhous acid has resulted in discomfort or injury to health."

No one disputes the thoroughness of German investigation, and certainly no one will deny the rigidity and persistence of the German authorities in the enforcement of pure food laws. It has not been supposed that German courts were affected with undue tenderness for products originating in the United States. It would seem, therefore, that these decisions, one of them of one of the higher courts, should set at rest any fear of the use of that very necessary aid to curing fruit. As a matter of fact, sulphur fumes applied in moderation are essential to the preservation of dried fruit in a wholesome condition.

AGAINST THE EASTERN WAY WITH APPLES.

Believing that the La Fean apple package and grading bill, introduced at the special session of the United States Congress, last winter, is designed to favor special interests and that its enactment will prove detrimental to the fruit industry in the Pacific northwest, the executive committee of the Washington State Horticultural Association and the board of trustees of the National Apple Show have called a convention of apple growers, shippers, representatives of refrigerator car concerns and box manufacturers to meet in Spokane November 16th for the purpose of considering the provisions of the measure.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

I met a grower with very advanced ideas this past week. Just the kind I like to talk with. He had very positive ideas and knew how to express them and was not afraid to speak right out in meeting either. He is a man who loves the soil, who is proud of his vocation and perfectly satisfied with the strata in which he has been placed. He is a man well advanced in life, one who made his money in other vocations in the East, as have many of our citrus fruit growers, and who comes to spend his declining years in a softer clime and one that he has learned to love well. He said to me: "You can teach a dog almost any kind of a trick, according to the smartness of the individual dog, and he will do them all more or less well, but he never actually likes them and it has taken lots of time and patience to teach him the simplest of them. We will say that this dog never saw an open field, never had a chance to run, and never saw a rabbit. Suppose we take him into the country and set him down where he can see a rabbit. Do we have to teach him to chase that rabbit? Not at all. He does it instinctively, and enjoys it hugely. It is an instinct that God gave him. Now I have done fairly well in life. I worked very many years in what we now call the East, but what is in reality the great Middle West, but all the time I was working there I was like the dog performing his tricks; now that I am on a California ranch growing oranges, I am like the dog chasing the rabbit. I love it as my life, it is instinctive. In some former reincarnation I must have been a husbandman of the earth, a tiller of the soil, a grower of fruits, for nothing I have ever done on earth satisfies me as my present work does."

This man has positive ideas regarding cover crops, and tells me that cow peas beat anything else ever used. He says that on the 14th of August he planted 20 acres to cow peas and that they have grown one-half inch a day since that time, and that it is now standing three feet high, and that today he thinks he has more humus available than he would ordinarily get in a five months' growth from vetch or peas. He said: "Cow peas are the coming cover crop, I believe. The practice has been to put in the cover crop in the summer time so that it would have time to attain a growth worth while that it might be ready to plow under in January or February. It is a question in my

mind if cultivation and irrigation are not better in the hot summer months than any cover crop, and the cow peas seem to help this theory for the one argument against this practice was that unless planted early, the cover crop would not be ready in time, but I can say that if the cow peas continue to grow as vigorously for the next month as they have for the past two months, that the crop will cut 15 to 18 tons to the acre.

"I want to tell you the experience of two Missourians, friends of mine, and the men who first gave me ideas as to the value of this plant. These men planted cow peas between rows of corn back in Missouri, they permitted it to mature, thrashed it and used it as cow feed. With nothing but the roots to enrich the soil the corn crop was increased 50%. If good for corn why not for citrus trees?"

I asked him how he sowed the seed for cover crop, and he said that to broadcast meant the loss of two-thirds of the seed through subsequent irrigation, and advised that the seed be drilled in by all means, at least three inches deep in porous soil.

I asked the gentleman as to what he thought of plowing deep, as against plowing shallow, and he stated that a great many of the growers were not plowing at all, that plowing was getting unpopular, as the general impression seemed to be that deep plowing cuts off the feeder roots and also effects the setting of the fruit to some extent. Many of the growers are now doing their spring work with disk harrows and claim to be getting better results than ever was attained by plowing. He believes that citrus roots like warmth and like to get as near the top as possible, and he says he likes to encourage them. He states that in most of the citrus growing sections the top soil is very thin, but from four to six inches deep, and that while many theorists advocate deep plowing, it is only beneficial, if at all, in a deep uniform loamy soil.

While this man believes in fertilization he also thinks that the grower who uses nitrogen from the cover crops principally is the best off and states that he thinks that thousands of dollars have been wasted yearly through the use of high priced fertilizers that do not help the fruit. He says that the growers all feel that they have a great deal to learn as regards fertilization, and while fertilization is good and a necessity, it is worse than useless to apply the wrong ingredient. I asked him how he applied his commercial fertilizer and he said that he had dispensed with the drill for that purpose, for the reason that when fertilizing a heavy train of this product coming in direct contact with the roots had a tendency to destroy them because of the acid and foreign matter contained in the fertilizer, though he thought that in amount less than ten pounds to the tree there would be no damage. As a substitute for drilling in the fertilizer the progressive growers furrow out the soil thoroughly both ways, and then broadcast with shovels or otherwise. Follow with harrow or light cultivation and all the good results are attained without the possible bad ones.

In using barn yard manure the same plan should be followed. Close the furrows with a light harrow and every last straw will be underground and ready for the winter rains. Barn yard could be spread just before the time to cease irrigating and if this plan is followed, the user saves at least 90% of his fertilizer. Under the old plan of spreading on the top of the ground, leaving it for the sun to dry and wilt, there was bound to be some loss, and it was certainly not the economical method.

He further said: "The growers all feel that they have a great deal to learn in this matter of fertilization and while the State institutes have always given the benefit of their knowledge and experience, they still miss the mark, for their conclusions have been more from theory than from practice. I find that the growers in general are of the opinion that the State should have a large grove in which it could carry on in practical experiments a thorough investigation into the best methods of irrigating and fertilizing different soils under various conditions so that they could give us practical formulas instead of generalities."—[It is now doing just this at Riverside.—EDITOR].

This man tells me of a friend of his who is going to set out an orchard next spring. His soil is stratified. Every two or three feet there is a different kind of soil and under the top layer of eight to ten inches it seems to be a shale and of rather doubtful value as to fertility. He is going to take a post auger and dig holes from eight to ten feet deep in the center of each tree hole and he will fill these holes with good rich top soil and as the rains settle the soil he will keep re-filling. His theory is that the tap root will naturally follow and feed on this rich soil and that this looser soil will create a reservoir for winter rains for all time and create a reserve to draw from in time of summer drouth.

And now I beg leave to introduce to you, Mr. Kenneth McRae, of Rialto, a leader of thought in his own section, and a man not unknown to the citrus world at large, possibly more on account of his advanced ideas on marketing citrus fruits than on growing them. A delightful gentleman to meet, and a man from the ground up. On him rests the responsibility for the thought given in this article.

The Field.

EXPERIENCE IN HANDLING HEMP.

The Commercial News gives a favorable report of a test of hemp decorticating machinery introduced by Mr. G. William Schlichten, the president of the International Fibre Company, made at the ranch of Thomas & Ettlinger, Ryer island, near Rio Vista, where hemp is being successfully cultivated. This event took place with satisfying results to all concerned.

Edward Everett, manager of the Tubbs Cordage Company, was present at the demonstration. He says: "The hemp grown on Ryer island is of good quality, and so far as I could determine the machine did its work well, fulfilling every claim made for it."

James Rutherford, of the California Cotton Mills, Oakland, was also in attendance, and, we understand, the operation of the machine received his unqualified approval.

The machine strips the fiber from the stalk in the field. Twenty-five of them are now being constructed by the Union Iron Works. At first these will be used in the Imperial valley in connection with the wild hemp which grows abundantly when the Colorado river overflows, there being several hundred thousand acres available. This wild hemp is suitable for binder twine and cordage, and the waste will be utilized as a paper pulp, it being superior to that made from linen rags.

H. Beveridge, now with Parrott & Co., of San Francisco, has been advocating this industry for many years, fully comprehending its importance. He says that cutting of hemp on the Rindge ranch near Stockton will commence immediately, there being 150 to 200 acres in crop. John Heaney on Ryer island has about 100 acres in hemp which will be harvested forthwith.

Right now there is in transit to New York 300 tons of this fiber, grown in this State, which was sold to the largest linen thread mills in the east.

THE BRITISH WEARY OF HOP GROWING.

The London Farm and Home has figures showing how England is going out of hop growing. It says: The preliminary statement compiled from the returns collected on June 4, 1909, afford further evidence of the terrible state of the hop industry, and the figures are made all the more certain that the present disastrous season will be followed up by extensive grubbing of the already greatly diminished area devoted to this labor-providing crop. The area under the crop in 1907 was roughly 43,000 acres; in 1908 it dwindled to about 39,000; this year it is only 32,500—we give round figures. The actual falling off this year is no less than 6382 acres, the exact area under the crop in 1909 being 32,539, which is almost exactly half that recorded so recently as 1887—63,706 acres. It is a moderate calculation that every acre of hops entails an expenditure chiefly in labor, of £35 to £40, and the result of devoting the land to other crops is a serious diminution in the work provided in the hop district. What this means to Kent may be estimated from the fact that the "hop county" supplies no less than 4339 acres of the area grubbed up, but the tendency to decrease is the same all over the hop-growing area, every county showing a falling off.

Forestry.

PLACE OF THE FOREST IN CONSERVATION.

"A very few years ago 'forest conservation' was little more than a phrase; today it is a vital issue in our national development," says Treadwell Cleveland, Jr., in a circular on the status of forestry in this country, which has just been issued by the United States Forest Service. "In connection with the general plant to conserve all natural resources, it is the most important and far-reaching economic policy every adopted and pursued by any nation.

"The forest is one of the chief supports of the whole material fabric of our civilization. The forest means not only a permanent supply of wood and the life of all the industries which depend upon it, but also the control of the waters for human use. There is only barrenness in the future of the nation which has lost the use of wood and the control of water.

"The sort of use that was made of natural resources during the pioneering stage, while right enough at the time, is far too wasteful to be carried on into the new industrial era. In order to know how to use a thing, however, it is necessary first to find out how much of it there is to use, and taking stock of our forest resources has led to startling results.

"It has shown that we are still destroying the forest as we use it; that we are taking from it every year three and a half times as much wood as is added by the new growth. It has shown that less than one-third of the growing trees felled by the lumberman is ever used at all, so that two-thirds of all the timber cut is simply destroyed. It has shown that one-eleventh of all the forests are swept by fires every year, and that on the average since 1870 forest fires have yearly cost $50,000,000 in timber and fifty lives. It has shown that over 99 per cent of the forests in private hands—which comprise three-fourths of all the forest land and four-fifths of all the wood—is thus devastated by destructive use and the scourge of unchecked fires, while less than 1 per cent is properly handled for successive crops or effectively protected from fire. The forest as a resource is rapidly being obliterated.

"But the inventory of the forests has had yet other ugly facts to reveal. With the disappearance and deterioration of the mountain forests the nation is losing control of the streams, which are useful in our civilization in ways and degrees unparalleled by any other resource. Pure water for domestic purposes is, of course, indispensable; usable water at the right seasons is the sole reliance of the great projects by which the arid lands are vivified by irrigation; cheap water transportation is a matter of dollars and cents to every citizen; trustworthy power streams are the key to the age of electricity, at the gates of which modern industry is standing. Yet the guardian of the waters is steadily compelled to retreat before the ax and fire.

"In waste alone we reject more than two-thirds of the lumber that might be taken from the standing trees. At least half of this waste is unnecessary. In the first place, we waste the forest by refusing to take advantage of its full capacity for growth. Protected and properly managed, our forests will produce far more wood than they do at present. But while it is wasteful to cripple the forest by a violent lumbering which destroys young growth—the promise of the future forest—it is doubly wasteful to lock up the forest and let the ripe timber die and decay, for in the former case the forest at least contributes a temporary supply of wood, whereas in the latter case it contributes no wood at all.

"It is not use which destroys the forests, but waste. Not use as such, but destructive use, combined with inexcusable neglect, is causing the forests to dwindle under our progressive demands upon them. The problem, therefore, is not to be solved by disuse, but by wise use and protection. These together will so stimulate forest growth that the needed wood may be harvested without depleting the stock on hand, and will keep intact the protective cover at the stream sources."

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AGRICULTURAL REVIEW.

Horticultural Notes.

A nurseryman at Anaheim last week delivered 200,000 eucalyptus trees to a company who will set out a tract of 200 acres near that town.

Peach growers in the district around Ashland, Oregon, made good profits the past season. One orchardist netted $650 per acre from his crop of Muirs and Late Crawfords.

The Lindsey Citrograph has collected figures on the acreage planted to citrus trees in that vicinity, and states the number to be 9000. This is probably a larger average than Porterville has.

A letter from J. W. Jeffrey, State Commissioner of Horticulture, states that a large fruit growers' meeting will be held at Vacaville, Solano county, next Thursday, November 11. Every fruit man in that valley should attend this meeting.

E. F. Straight, of Ygnacio valley, Contra Costa county, states that he harvested a crop of grapes which averaged eight tons to the acre, and brought as high as $15.50 per ton at the winery. This record is perhaps as good as any that will be made during the season.

The Butte County Citrus Association has commenced picking oranges this week. The fruit this year is reported to be large and of fine quality. The oranges are not coloring as rapidly as had been expected, but the fruit is said to be very sweet and much riper than the color would indicate.

The former complaint in the lemon freight matter to the Interstate Commerce Commission has been completed by the attorneys for the Citrus Protective League, and has been forwarded to Washington for filing by the secretary of the commission. The next step will be the application for an injunction for the federal courts to prevent the railroads from making effective the proposed increase in rates at once.

Secretary H. M. Williamson, of the Oregon State Board of Agriculture, states that so many new orchards are being planted in that State this fall that the nursery stock has been exhausted. Large shipments are being made from the East. Southern Oregon is planting heavily to apple trees. Many companies are being formed to buy up large farms and plant them out in orchards to sell to newcomers.

The meeting of the fruit growers held at Loomis last week called by State Horticultural Commissioner Jeffrey was well attended, and matters of general importance to fruit growers were discussed. As a result of the meeting an effort will be made to have the fruit raised in Placer county packed in such a manner as to regain the markets that have been lost to them through sending out imperfect and poorly packed fruit. Another important meeting of the fruit growers of that county will be held at Newcastle soon.

J. B. Neff, of Anaheim, while a caller at our office last week, gave us a statement on the walnut crop just harvested. Mr. Neff places the crop at 700 cars, practically all of which has been sold at about 11½ cents, the price fixed by the association. It seems that the growers not into the association sold their crop for about a cent more per pound to the brokers, who also purchased the nuts from the association members this year. Mr. Neff has been grafting over a large number of his older walnut trees to blight resistant varieties, and reports the work is being very seccessful. Some of the trees that were treated last year produced fair size crops on the new grafts this season, and he will have still larger production next year. Mr. Neff seems to have solved the blight problem by his grafting experiments.

General Agriculture.

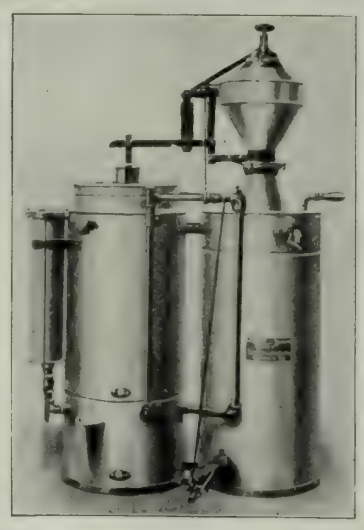
It is stated that fully 300 tons of tomatoes were lost to the growers around Cloverdale this season owing to the cannery not being in operation.

The Semi-Tropic Producer Company has signed up nearly 400 acres for cabbage the coming season in the Imperial valley. Planting has already commenced.

An exceptionally good wheat crop in the Klamath Basin the past season gives that community more grain that it will use this year, for the first time in its history.

All the hay grown around Merrill, in the Klamath Basin, amounting to 15,000 tons, is said to have been sold at from $6 to $7.50 per ton. Most of the hay will be fed to stock in the district.

The horticultural commissioner in Imperial county is using extra precaution to keep out the alfalfa weevil in that



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district. All seed received from Utah is fumigated upon receipt.

An imemnse tonnage of beets are being landed at the Spreckels sugar factory. The campaign will last till about the first of the year, and the season's run will probably be the largest in its history.

Owing to the high price of wheat the past year or two, the grain acreage around Gridley is to be generally increased the coming season. One Gridley man is reported to have planted 3000 acres to grain.

The increase of the price of hops this season will make a difference of nearly $1,000,000 to the growers around Wheatland. The Durst Bros., who had the crop of two years ago stored, will make nearly half that sum.

The meeting of the Farmers' Union to be held at Fresno next week from the 8th to the 11th will be the first convention as a State organization. National officers of the union will be present to help in the organization and to get the business on a good basis.

The Orange County Tribune says that there is a good demand at present throughout the East for California tomatoes and that large shipments are being made daily. Under the demand the price has risen from $20 a ton two weeks ago to $30 a ton, which was paid last week. The latter price allows a good profit to the grower.

Reports of bean sales at Meridian, Sutter county, this week show that growers are receiving from 2½ to 3½ cents for the white beans and 3½ to 4½ for kidney beans. This is considered a top-notch price and the crop is going rapidly at these figures. The heavy rain of a few weeks ago did little damage to the crop and the yield is excellent.

The potato growers in the section around Greeley, Col., have produced about 6000 cars this year, and are not very much encouraged over the market outlook. Up to the present time California has been shipping heavily to Texas, practically monopolizing that market. At the price offered Colorado growers of 60 cents a hundred, very little of the crop is being moved.

The Sutter County Farmer says the Mormon Basin farmers in Colusa county are experiencing some difficulty in harvesting their beans. The common grain thresher has been given a trial and found impracticable. They are now putting the beans on large canvas sheets and rollers are drawn over them, which takes them out of the hulls. On one ranch twelve men roll out 100 sacks a day.

Stock and Dairy Notes.

The Petaluma Driving Club announces that it will hold a horse show there at the same time the poultry show is given in December.

Daniel Halloran, of Birds Landing, recently made a trip near Stanislaus county and purchased 48 head of mules, all of which were shipped to Suisun.

The old Boswell ranch, in the Poplar district, Tulare county, comprising 320 acres and 150 head of young Holstein cows, was sold last week to Ralph J. Levitt. The new owner proposes to make this place the model alfalfa and dairy ranch of that locality.

It is claimed that the section around Irwin City, Merced county, has made remarkable increase in the dairy business during the past 18 months, and that there are at least six new dairies to be started there this month. The majority of the cream is delivered to the Turlock creamery.

Under the direction of the United States Public Health and Marine Hospital Service, a war of extermination against squirrels has been started in Contra Costa county. Agents are at work throughout the entire district, distributing poison to the farmers and land owners whose property is known to be infested with ground squirrels.

Miscellaneous.

The Henry Nelson ranch of 700 acres, near Honcut, in Yuba county, was sold last week. The company will introduce pump irrigation and seed the land to alfalfa.

The co-operative winery at Roseville is reported to be closing up a very successful season. The company have been paying $15 per ton for the best grapes to their members and $7 per ton for grapes grown by parties outside of the company.

The new refrigerator fruit car is being tested on the Santa Fe railroad, says the San Bernardino Sun. The cars have collapsible ice bunkers, which can be folded up when the car is not iced, thus giving room for 48 more boxes than the ordinary refrigerator car.

Owing to the heavy buying of raisins around Fresno by packers during the past week, the price is reported to have advanced from 2 cents to 2⅛ and 2¼ cents per pound. It is announced that the Kearney Estate grapes are held for 3 cents per pound.

Each alternate section of land near Needles, in southern California, amounting to 17,000 acres, has been purchased by a syndicate at a price of $23.50 per acre. They propose to place the land under irrigation and sell it out as small farms.



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See Them at 232 So. Marengo Ave., Alhambra, California **Chas. S. McMillan, Citrus Nurseryman**

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San Francisco Los Angeles Sacramento

RAISING NEW POTATO VARIETIES.

Professor E. P. Bennett, of the Colorado Agriculture College, gives the following statement:

Raising new varieties of potatoes from potato balls, as they are called, is a very simple process. The first essential is to obtain the fruits which are mature. We have had considerable experience with fruits which were still green when frost came, and the results were unsatisfactory; that is, the seed was found to be too immature to germinate.

Collecting the seed is done the same way as tomato seed is gathered. We take the fruits, crush them in a jar with water, and allow them to stand a few days to ferment. This fermentation separates the seed from the pulp, and then, with a little stirring, the seed will settle to the bottom, after which they may be easily washed out and cleaned from all pulp. A couple of quarts of the fruits will produce an ounce or two of seed—probably make from 15,000 to 30,000 potato seeds. These seeds may be sown in the ground in the spring. It is not desirable, however, to follow this course, as the young seedlings are very tender, and if not protected very carefully from insect pests, such as the Colorado potato beetle and the little black flea-beetle, they are very apt to be destroyed before they are large enough to take care of themselves. The better way is to sow the seed in boxes or beds in a cold frame or hothouse. We follow the practice of sowing in beds in the greenhouse. Seeds germinate fairly readily if sown about one-half inch deep, and kept moist. After the seedlings are out of the ground they should be thinned down to two or three inches apart.

One reason for sowing in a cold frame or greenhouse is that it has appeared to us that the seedlings require a rather long season to mature. The plants will attain a height, or rather a length (as they are inclined to be weak at the bottom and fall over like pea vines) of a foot or 18 inches. These vines probably will not blossom, at least they never have with me, but will produce small tubers. The tubers formed on these plants will range from the size of garden peas to that of cherries. I suppose that one should keep the tubers from each of these seedling plants separate, as each plant, in all probability, will produce what is practically a separate variety of potato. Our practice, however, is simply to dig these tubers and the second year to keep the hills separate. The tubers will need to be kept dormant for quite a time after digging before they will sprout.

The second year, or the first year of planting the tubers, more or less trouble will be experienced from insects attacking the plants, as these plants are not as resistant as the varieties grown for market. Probably not more than one out of a hundred of these varieties will be good enough to make it desirable to save after the second year. About three seasons are required to bring the tubers from seed to full size. We have produced in the past two or three years some very fine-looking potatoes in this way, but so far, we have not produced anything which we consider superior, or even equal to Pearl, Rural New-Yorker, or Peachblow. In fact, if we were to get one variety out of a million seedlings that was as good as any of these named varieties we should think that we were getting valuable results.

Considerable has been said recently in regard to hybridized potato seed; that is, hybridized or possibly a better term would be "crossed" potatoes. There is a possibility of the different varieties crossing, particularly in fields like our experimental plots, where from 50 to 100 varieties are grown side by side. So far as we can estimate, however, this does not happen. Many of our best varieties do not blossom at all, and most of the blossoms that do form do not produce good pollen. Another thing, the potato blossoms are not visited much by insects, so that we have many doubts as to the truth of there being much natural crossing in the potatoes. The probabilities are that most of the balls that form in the field are close-fertilized, or fertilized from blossoms in close proximity to the ones which form the fruits.

We have had in mind an attempt to make true hybrids of the potatoes by crossing Solanum tuberosum with Solanum Jamesii. So far, however, we have not been able to bring this about. This kind of work is very simple and interesting to one who has the time to give it the detailed attention which is required with all plant-breeding work.

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TREES TRUE TO NAME. The SILVA-BERGTHOLDT CO. NEWCASTLE, CALIF. PLACER NURSERIES

Select Your Fruit Trees Now

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Below we list in brief some of the Fruit Trees and Vines contained in our this season's stock. This does not show our complete line but represents a collection of the best standard varieties. The descriptions given in this announcement are necessarily in an abbreviated form. Our catalogue gives full details concerning each variety, together with our personal observations and recommendations. The dates given after descriptions are the period of ripening. We are selling out fast in some varieties.

SELECTED STOCK. Our long experience as fruit growers, fruit shippers and nurserymen enable us to determine what varieties of fruit are best to ship, best to grow; best from a seller's standpoint and best from a grower's standpoint, and in propagating we cut our buds and scions only from parent trees that are the best specimens of their kind for productiveness and quality of fruit.

THRIFTY AND EXCEPTIONALLY HARDY. We grow our trees only on virgin soil, never cropping the same land a second time. Our decomposed granite soils produce exceptionally well meshed root systems and bright, highly colored well toughened wood fibre, thus producing a tree more hardy and one that will bear transplanting better than trees grown on river bottom soils such as are commonly used by nurserymen.

TRUE TO NAME. All buds and scions are cut by our nursery foreman from trees that have been under his personal observation and that are marked for this purpose when they are in fruit, and we exercise every care known to avoid the possibility of an error. You can rely that our stock is not only true to name, but is propagated from the best of its kind.

ORDER NOW. Do not wait until you are ready to plant before making your selection. Order now and thus be assured of just the varieties you desire. We are selling out fast in the most desirable varieties, so do not delay. Give the matter careful thought and consider what is best suited for your locality and best for profit. If undecided, consult some successful orchardist or write us and we will gladly give you the benefit of our experience.

THE BEST COMMERCIAL VARIETIES

APPLES.

Yellow Transparent, yellow, flesh white, an excellent early variety, June.
Early Harvest, good for eating or cooking, last of June.
Red June, abundant bearer, June.
Red Astrachan, large, fine eating, excellent for dessert, the main reliance for an early apple, July.
White Astrachan, very large, fine for cooking, July 15th.
Gravenstein, large, skin yellow, fine flavor, the best apple of the summer season, August and September.
Alexander, large, cooking, a profitable variety, August 15 to September 15.
Arkansas Black, November to March.
Baldwin, a fine winter apple, November to January.
Ben Davis, very prolific, November to January.
Grimes Golden Pippin, fine quality, good keeper, December to March.
Jonathan, good for table or market, November to January.
Mammoth Black Twig, good size, November to March.
Missouri Pippin, good market variety, November to March.
Rambo, medium to large, November to December.
Rhode Island Greening, an old standard, October to January.
Spitzenburg, the best and most profitable winter varety, November to April.
Winesap, one of the best standard varieties, November to February.
Yellow Newton Pippin, wonderful keeper, fine quality, very profitable, October to May.
Crab Apples. Red Siberian and **Yellow Transcendent.**

PEARS.

Bartlett, the king of pears, a great money maker; we recommend for extensive planting; July 1st to September 15th.
Beurre Clairgeau, prolific, good quality, August 1st to September 15th.
Doyenne de Comice, a fine fall pear and very profitable for some localities, October 15 to November 15.
Winter Nelis, profitable variety, September to October.
P. Barry, valuable winter Pear, October to January.
Glout Moreau, good variety, fine flavor, large, October to January.
Easter Beurre, good keeper, very large, splendid for dessert, October to March.

PEACHES.

FREESTONE VARIETIES.

Alexander, profitable on account of early bearing, June 8 to 20.
Triumph, the first yellow peach, the best of the early peaches, and planted extensively by ourselves, June 12 to 30.
St. John, profitable early yellow freestone, June 28 to July 15.
Early Crawford, standard profitable variety, July 10 to 27.
Foster, good for canning, drying or shipping, July 15 to 31.
Elberta, a fine peach, good for canning or drying, excellent shipper, the standard mid-summer variety, planted extensively by ourselves, July 21 to August 6.
Fay Elberta, an improved Elberta. Its firm, fine grained texture makes it superior to Muir or Lovell for canning and also an improvement over Elberta for its shipping quality, being as productive and regular in bearing as the Elberta and better than any peach. Now the most desirable mid-summer peach for all purposes. We plant them extensively ourselves and we heartily recommend this variety. Canned, it does not rag out. July 31 to August 20.
Late Crawford, an old standard, July 24 to August 13.
Susquehanna, old standard, July 22 to Aug. 15.
Muir, a splendid drying and canning freestone, July 27 to August 15.
Lovell, prolific, good for shipping, drying or canning, Aug. 5 to 20.
Picquett's Late, regular bearer, good all-round Peach, Aug. 15 to 25.
Salway, the best late peach, August 25 to September 15.

CLINGSTONE VARIETIES.

Tuscan Cling, early, prized by canners, July 13 to 27.
Runyon's Orange Cling, splendid for canning, August 5 to 20.
Phillips Cling, the best for canning, August 26 to September 15.
Levi, good bearer, good for Eastern shipment, desirable for canning, Sept. 2 to 25.

PLUMS.

Clyman, earliest Plum for distant shipping, June 3 to 17.
Tragedy, good money maker for some sections, a fine Plum, June 10 to 17.
Climax, Burbank's King of early Plums; planted extensively by us and recommended as best early Plum for profit; June 15 to July 3.
Santa Rosa, best of Burbank's recent creations, June 25 to July 15.
Burbank, good, profitable and prolific, June 28 to July 15.
Wickson, a good variety, July 10 to 25.
Green Gage, fine flavor, good canner, July 10 to 20.
Kelsey, a profitable shipper, July 20 to August 10.
Sugar Prune, good for shipping or drying, July 20 to Aug. 5.
Bradshaw, old standard, profitable, July 10 to 25.
Imperial Prune, strong and productive, valuable drying variety, July 25 to Aug. 5.
Diamond, vigorous grower, very productive; planted extensively by ourselves; very profitable and one of the best mid-summer Plums for Eastern shipment; July 15 to August 5.
Jefferson, good for canning, August 1 to 15.
Fallenburg, a fine late variety, August 1 to 15.
German, a standard, late shipper, August 15 to September 1.
Yellow Egg, good for canning, drying and Eastern shipment, August 1 to 10.
Giant, a splendid Eastern shipper, August 1 to 15.
Grand Duke, a fine, large Plum, and profitable, planted extensively by ourselves, August 10 to 20.
French Prune, the standard for drying, August 25 to September 15.

CHERRIES.

Early Purple Guigne, earliest marketable Cherry, April 20 to May 1.
Knight's Early Black, earliest good cherry, April 25 to May 10.
Early Chapman, large black, good shipper, early, May 1 to 10.
Black Tartarian, standard black cherry, profitable shipper, May 7 to 25.
Bing, fine, large black cherry, May 18 to June 5.
Royal Ann, the standard canning cherry and an excellent shipper, May 18 to June 10.
Black Oregon, favorite for distant shipping and good money maker, May 26 to June 15.
Lambert, large black Cherry, excellent shipper, June 5 to 20.

APRICOTS.

Royal, splendid for drying and shipping, June 1 to 20.
Blenheim, prolific bearer, highly prized by canners, fine quality, good dryer and good shipper, June 15 to 30.
Routier's Peach Apricot, June 20 to 30.
Tilton, a late bloomer, fine quality, good bearer, June 15 to 30.
Hemiskirk, very hardy, regular bearer, June 20 to 30.
Moorpark, a fine large 'cot, June 25 to July 10.

QUINCES.

Orange, standard variety, vigorous and productive, Sept. 5 to Oct. 15.
Rea's Mammoth, a fine large quince, September 15 to November.
Champion, excellent quality, good size, October 1 to November.
Pineapple, bears young and regularly, productive September 1 to October 1.

PERSIMMONS.

Hachiya, large and handsome fruit, prolific, October and November.
Tsurunoko, rapid grower, good bearer, one of the best, October and November.
Hyakume, early, large, prolific, October and November.
Dai Dai Maru, one of the best for eating, prolific, October and November.
Tane Nashi, very fine fruit, productive, standard variety, October and November.
Goshio, very productive, one of the best for quality and market, October and November.
Mammoth Goshio, new production, extra large fruit, October and November.

GRAPES.

Fontainbleau, valuable as earliest shipping grape, July 1 to Aug. 15.
Thompson Seedless, good shipper and drier, Aug. 5 to 20.
Black Prince, best early black grape, Aug. 12 to Sept. 5.
Rose Peru, good bearer and profitable black grape, Aug. 12 to Sept. 5.
Blue Malvoise, an excellent grape for certain localities, Aug. 18 to Sept. 1.
Malaga, the best white grape for Eastern shipment.
Purple Damascus, attractive grape and good shipper, Aug. 25 to Sept. 10.
Tokay, table grape of profitable standard, Aug. 18 to Nov. 1.
Black Morocco, fine, large black grape, good bearer, Sept. 3 to Oct. 15.
Cornichon, large oval fruit, good shipping quality, Sept. 6 to Nov. 1.
Black Ferrera, delicious table grape of valuable market variety, Sept. 5 to Oct. 15.
Emperor, desirable market variety, Oct. 15 to Nov. 15.

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Washington Navels, the most popular grown orange, very hardy and prolific bearer.
Thompson Improved Navel, a good keeper, valuable as a good shipper.
Valencia Late, a fine orange, late keeper, being in prime condition when other varieties are out of market.

LEMONS.

Eureka, a good keeper and very popular.
Villa Franc, considered to be best of all lemons, will stand a lower temperature than any other variety.

POMELO.

Marsh's Seedless, rich meat, good keeper, popular variety.

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ALMONDS.

Drake's Seedling, medium hard shell, abundant and regular.
IXL, soft shells, perfect; highly recommended.
Ne Plus Ultra, soft shells, heavy, regular bearer.
Nonpareil, paper shell, one of the best.
Peerless, fine, popular variety, large nut.
Texas Prolific, wonderfully productive.

WALNUTS.

Ford's Improved Soft Shell, thin shell, sweet kernel.
Franquette, a late bloomer, nuts command the highest market value.
Mayette, fine dessert nut and a sure bearer.
Santa Barbara Soft Shell, a favorite variety in Southern California.

PECANS.

Paper Shell, nuts of superior quality.
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FIGS.

White Adriatic, the standard white fig.
Calimyrna, the best of Smyrna varieties.
Capri, to fertilize the Smyrna varieties.
Mission, the best black fig.
San Pedro, fine, large black fig, good flavor.

OLIVES.

Manzanillo, very large, fine for pickles and oil.
Mission, a fine, large olive, most largely grown in California.

BERRIES.

RASPBERRIES.

Hansel, early, a good shipper, May 22 to June 15.
King, good size, an excellent shipper, June 2 to 28.
Cuthbert, large, a good shipper, June 10 to July 1.

STRAWBERRIES.

Dollar, the best market berry; first crop, April 28 to June 5; second crop, June 11 to Oct. 1.

BLACKBERRIES.

Lucretia Dewberry, earliest and best Blackberry, fine flavor, very prolific, June 1 to July 5.
Lawton Blackberry, large, black, excellent quality, best late Blackberry, June 25 to Aug. 15.

LOGANBERRIES AND PHENOMENAL BERRIES.

Both fine, large berries, combining the flavor of both raspberry and blackberry, splendid for dessert, jelly or jam.

GOOSEBERRIES.

Oregon Champion, very large fruit, brownish, profitable for canning.

CURRANTS.

Cherry, large, deep red, fine for preserving, valuable market variety.
Fay's Prolific, very large, prolific and profitable.
White Grape, large, yellowish white.

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Live Stock and Dairy.

EDUCATION AND THE LIVE STOCK INDUSTRY.

By Hon. H. A. JASTRO, of Bakersfield, President National Live Stock Association and California Agricultural Socieyt, at Farmers' Week, University Farm, Davis, California.

As for one who for many years has been an earnest and enthusiastic advocate of the policy of including in our scheme of public education those practical features that will afford the artisan and the farmer opportunities equal to those provided for the lawyer and the physician, I have looked forward to attending this gathering at the University Farm with more than usual interest, and I have been an attentive and appreciative reader of the practical and instructive addresses that have been delivered here. Long before there was an institution of this kind supported by the State, as a supervisor in my own county, and thereby closely connected with the management of the county high school, I have advocated and supported a policy looking to the practical and useful, and have favored a curriculum that would not only prepare students for admission to the State University, but which would provide the right of eduction for boys who cannot or will not go on with a university education, but who of necessity must either till the soil, fill useful positions in the trades, or pursue some of the ordinary lines of business. As a result of that policy in Kern county our high school today is not only up to the standard of proficiency in its academic work, but it has equipped and maintains a manual training department where students are given daily instruction at the hands of skilled teachers. It has provided for a thorough business education for those who elect to pursue that course, and its graduates are the equal of those that are sent forth from the best special schools along that line. It has an agricultural department, with practical instructors in charge, and other departments in what I call "bread and butter education" are in contemplation.

So, in line with the elementary work we are doing in Kern county in a lesser way, of equipping young men for making a success as farmers and artisans, this great University Farm appeals to me strongly. It is a manifestation that the State has come to realize that the greatest of all industries, that of tilling the soil, from which primarily all wealth must come, should be recognized in our educational system, and provision made for the intelligent training of those who are to follow the honorable vocation of agriculture.

In my judgment there is no institution connected with the great seat of learning at Berkley that has greater value to the State of California than has this within whose portals we now stand, and whose broad acres are the basis of instruction that will lead to more intelligent husbandry in the future. We have, through generations, made provision, and wisely, for the education of our lawyers and our physicians. Whatever was known to science was laid before them, so they might go forth thoroughly equipped to follow their chosen work. So along other lines, the engineers who are to open up the hidden wealth of our mountains, who are to build the railways of the future, construct the bridges that span the streams, and have charge of the great engineering problems that belong to an age of tremendous development, have been provided with the best instruction prosurable and supplied with the most scientific equipments.

But in none of the callings which men elect to pursue is there greater need for instruction than that which has to do with the tilling of the soil. With the increase of the population of the State there is a growing necessity for more intelligent and economic farming. Times and conditions are changing rapidly, and to none is this more apparent than to the man who has made his home in California, from the pioneer days down to the present time; and the changed conditions are demanding changes in method, of which this State and all of her educational institutions must take cognizance. Those of us who have lived through that period see and recognize that these changed conditions are here. In the earlier history of the State, vast territories were given up to the grazing industry, and thousands and tens of thousands of acres of the richest lands were utilized by that interest. Broad valleys were occupied only by flocks and herds, with the occasional stockman residing at some point of vantage. Then, as the years came and went, we saw a gradual change. The great stock ranges were converted into great ranches, a single farm containing a princeply domain. The cereals largely occupied the attention of the rancher, and improved machinery made profitable the business of grain farming upon an extensive scale. But again has come the transition.

The continued accession of population, as well as the impoverishing of the soil through continuous repetition of the same cropping, has brought about an increased demand for farms of moderate size—the farm that is demanded by the home-seeker and the home-builder. The day of the single crop is past; the day of diversified farming is here. The great tract of land under one ownership is now too valuable to be farmed in the old way. It is being divided and sold to the thousands who are seeking permanent homes in this land, which in point of soil and climate is unsurpassed in any country.

But the small farm of the future must be made to maintain the family, as did the great stock range, or great wheat farm of the past. And that the limited acreage of the later day farm may be utilized to the largest advantage, may be made to yield the greaterst returns, there are problems that must be solved; and in their solution this and kindred institutions will play an important part. I again emphasize my declaration, therefore, that I am in the heartiest sympathy with all that tends to make for betterment in this department of the State's system of education, and I may add that in so declaring, I am voicing the sentiment of my confreres in the State Agricultural Society. That organization is earnestly desirous of giving to the interests which it represents every assistance and encouragement, and, in furtherance of such sentiment, it is advocating a policy which I trust will find favor with the State—that of making the State fair, or fairs, rather, of, practical educational value, that will bring directly to the benefits that come of observation, comparison and contact with those engaged like himself in a great calling.

MORE FAIRS NEEDED.—Lately I had the pleasure of attending an auxiliary State Fair held in Oakland, to whose success the entire country tributary thereto contributed, and which in turn contributed, much of value to the farming and other interests in that section of the State. I am strongly in favor, as I stated in an address delivered then, of the State aiding in support of, say, four of these annual expositions, in addition to the central fair held at Sacramento; one of these in the great valley of the Sacramento; one at some point about the bay; one in the San Joaquin valley, and the fourth in the country south of Tehachapi. In this way the farmers, the fruit growers, the dairymen, every interest dependent upon and connected with the tilling of the soil, can have the advantage of an exposition at their doors, with all the benefits that unquestionably attach to such institutions.

The State Agricultural Society unquestionably held a most successful meeting at Sacramento in September last, and the benefits to those who attended were manifest; but California's area is too great, and her interests too diversified, for a central fair to longer meet the requirements of her producers, and I bespeak for

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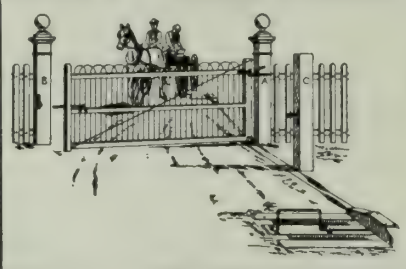
If you do not agree with us possibly you have not been quoted on

Cocoa Cake or Meal
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You know they are the best feeds on the market.

Do you know how cheap they are this year?

PACIFIC OIL & LEAD WORKS, Manufacturers,
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20th CENTURY AUTOMATIC GATE

It adds to the beauty, value, convenience and safety of any home

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USED UNIVERSALLY BY STOCKMEN For Successfully Treating the Afflictions of the HORSE and other Domestic Animals.

FOR FAMILY USES IT HAS NO EQUAL.

Sore Throat, Rheumatism, Sprains, Neuralgia, Cuts, Sores, Swellings, Lameness, Stiff Joints, Poisonous Bites, Cramps, Diarrhoea, etc.

KEEP A BOTTLE ON HAND FOR EMERGENCIES.
50c and $1.00 Sizes. Sold Everywhere.

H. H. MOORE & SONS, Stockton, Cal.
Manufacturers and Proprietors.

Pure Bred Holsteins FOR SALE

Our entire herd of 75 head, in one lot or carload lots. Reasonable terms if the whole number is sold in one lot. All of this stock have large **Advanced Registry Records** in their pedigrees and are from the famous **Riverside Premier Herd** of the Pierce Land and Stock Co., now owned by the

OAKWOOD STOCK FARM,
LODI, CAL.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg

THE CUTTER LABORATORY

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MINNEWAWA HERD
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Herd tuberculin tested last May. Nothing Condemned.

MRS. MINNA E. SHERMAN.



Can a horse pull more and pull it easier with a perfect fitting collar?

Can a man walk faster with perfect-fitting shoes than with shoes that hurt his feet?

Same answer applies to both questions.

If you can't buy our goods from your dealer, write and we'll see why.

P. SHARKEY & SON,
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DR. DANIELS' MEDICINES FOR Horses, Cattle, Hogs, Sheep, etc.



27 Horses die from Colic where one dies from Fire.

Why not insure against Colic?

Daniels' colic cure is SURE, SAFE and QUICK!

$1.00 per Package—20 cents cures a horse. At Dealers, etc.

Agents wanted in each town west of the Rocky Mountains.

A. T. ROCHE & CO.
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TULARE LAKE STOCK FARM.
REGISTERED
Jacks and Jennets For Sale.

We breed the Best. Don't write—come and See. We can show you.

JAS. W. McCORD,
Hanford, Cal.

the plan of additional fairs, to be held under State supervision, your active support and co-operation.

LIVE STOCK INDUSTRY.—I am unmindful that, according to the official program, I am supposed to address you on the subject of the national live stock interests, from the standpoint of the National Live Stock Association, of which I have the honor to be president. But I have chosen rather to devote a large part of the time allotted to me to a discussion of the importance of practical education as exemplified here, and which is of such vital importance to all of us; and, obviously, it would be impossible for me to present intelligently the subject assigned to me, or any phase of it in the limited time at my disposal. The National Live Stock Association, one of the most powerful organizations in the land, representing many millions in money and land, has undertaken a vast deal of important work, connected directly and indirectly with the live stock industry. The great question of the conservation of our natural resources which is now occupying such attention, has received extensive consideration at the hands of the Association, and that body is working in harmony with the national administration to carry out the policy that has been outlined. The association has accomplished much in the way of legislation beneficial to the live stock interests, and it now has pending in Congress several measures of vital importance to the industry. For many years we contended for a tariff commission similar to that which has given Germany its practical tariff laws, and such commission is now in existence. In time it may make such recommendations to Congress as will cure the defects in the present tariff law which seem harmful to the industry.

The association has carried on a long contest to secure better shipping facilities, better service from the common carriers, and we have won some notable victories, both in favorable legislation and through decisions by the courts. Everything pertaining to the work of this association is of direct interest to California, for while this is not one of the great live stock States of the Union, the industry here is a very considerable one.

CALIFORNIA LIVE STOCK.—It may be interesting for you to know that out of the 72,000,000 head of cattle in the United States, California possesses about a million and a half; of the 53,000,000 sheep in this country, California has about 2,500,000; and of the 54,000,000 hogs, California has about 500,000; from which you will observe that this State has relatively fewer hogs than any other class of live stock. In fact, our packers are compelled to ship hogs in here from Kansas and Nebraska to supply the demand for fresh pork, and a large part of the cured pork products consumed in California are shipped in here from the East. With proper attention to that branch of live stock production, the California farmer ought to be able to supply all the hogs needed for consumption in this State, and it is a matter worthy of the earnest consideration of all interested. Undoubtedly, on some of our high-priced fruit lands, the production of live stock would not pay, but there are large tracts throughout the State where mixed farming, in connection with stock raising, would be exceedingly profitable. Those States which follow a diversified agriculture, and feed on the farm a good share of their grains and grasses, are noted for the fertility of their soil. Continual cropping of the land impoverishes the soil, but the feeding of live stock on farms enriches, and, in some cases, increases its fertility.

Here is a subject that is well worthy of consideration. It needs scientific study, to the end that the most practical methods of farming may obtain. And here again is emphasized the value of this and like institutions.

Should any of you be interested in securing exact data as to the work of the National Live Stock Association, or details of the industry, I shall be pleased to have our secretary add your name to his mailing list. The industry is, as suggested, one closely allied with diversified farming in California, and the intelligent farmer will be advantaged by all the information he can procure on any line connected with his business.

LIVE STOCK NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. PAUL PARKER.

Henry Pastori has purchased a cheese factory at Amsterdam, Merced county, and intends to stock it with pure blooded dairy cows.

G. H. Smith has recently installed in his dairy at Corcoran, Kings county, a Remington refrigerator and a Peerless pasteurizer.

The Cayucos creamery, at Cayucos, San Luis Obispo county, will commence operations shortly. The machinery cost some $5000, one of the features of the plant being a Jensen ripener. The men interested in the creamery are: G. Biaggini, president; J. P. Gnesa, vice-president; Florine Dallidio, director; M. D. Tognazini, secretary, and M. F. Salmina, manager.

The National Ice Cream Company, of San Francisco, have installed a Remington pasteurizing plant in their dairy at Newman.

The Rancho San Miguel of Walnut creek is opening up a creamery and refrigerating plant in Oakland.

The Howard Cattle Company has been buying Shropshire bucks and Short-Horn cattle in Missouri and Iowa, the most notable of their purchases being the Junior Champion, College Count and a prize bull, Golden King. They also bought a carload of range bulls.

Charles G. Lathrop has added another valuable sow to his Guernsey herd at Palo Alto. The animal is a two-year-old from the herd of A. G. Lewis of Geneva and cost $310.

The David Jacks corporation of Monterey bought several Herefords at the combination sale of the American Hereford Cattle Breeder's Association held in Kansas City on October 13.

The Delano Creamery Company of Kern county will commence making butter about the first of next year. Their cooling house is constructed of brick and is installed with a De Laval refrigerator.

The Imperial Valley Milk Company at Brawley is building one of the finest dairies on the coast. They expect to milk from 1500 to 2000 cows.

The Dixon Alfalfa Company was recently incorporated at Fairfield. The directors of the new company are H. L. Bissell, R. E. Stephens, J. D. Grady, M. J. Weyland and Charles Cunningham.

HORSES AND CATTLE.

JOHN LYNCH, breeder of Registered Shorthorns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

BULLS AND COWS FOR SALE—Shorthorned Durhams. Address E. S. Driver, Antelope, Cal.

N. H. LOCKE CO., Lockeford, Cal. Jerseys, Service Bulls and young stock for sale.

SWINE

C. A. STOWE, Stockton. Berkshire and Poland-China Hogs, Shropshire Sheep.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

GEO. C. ROEDING, Fresno, California. Breeder of Thoroughbred Berkshire Boars and Sows.

P. H. MURPHY, Perkins, Sac. Co., Cal. Breeder of Shorthorn Cattle and Poland-China Hogs.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

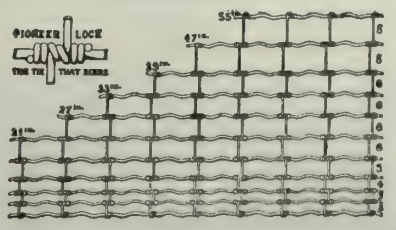
SHEEP.

R. H. CRANE, Santa Rosa, Cal. Breeder and Importer of South Down Sheep.

USE HERCULES HARNESS SADDLES HORSE COLLARS

Made in California, guaranteed oak tanned, and cost no more than the nonguaranteed makes. If your dealer cannot supply you, write us direct for a price list. Manufactured solely by W. DAVIS & SONS, Wholesale Saddlery, 2040 to 2052 Howard st., San Francisco, Cal.

KOKOMO HOG FIELD POULTRY FENCE



The Standard of all makes. Square and Diamond Mesh Fences for all purposes. Made of heavy, non-rust, self-regulating steel wires. Absolutely hog tight and stock proof. Write us for catalog and prices.

CALIFORNIA ANCHOR FENCE CO.
822 Main St., Stockton, Cal.

NATIONAL DAIRY SHOW
DE LAVAL
BUTTER AWARD TRIUMPH AS USUAL

The great NATIONAL DAIRY SHOW was held at Milwaukee, Wis., October 15-24, and in keeping with the invariable result since "ALPHA-DISC" DE LAVAL CREAM SEPARATORS went into use all the HIGHEST BUTTER and CREAM awards went to DE LAVAL users, in this latest representative contest, which included the exhibits of nearly one thousand of the best butter and cream producers throughout the country.

The three highest awards in the CREAMERY BUTTER class—all to De LAVAL users—were as follows:

A. J. ANDERSON, Otisco, Minn., - - Score 97
THOR. MOE, Winthrop, Minn., - - - Score 96½
A. L. OESTRICH, Watertown, Wisc., - Score 96

The highest award on DAIRY BUTTER was to P. Daingaard, Camp Point, Ill.—Score 94½—a DE LAVAL user.

The highest award in the CERTIFIED CREAM contest was to G. Van B. Roberts, Highland, N. Y.—Score 99—a DE LAVAL user.

The highest award in the CREAMERY PATRONS contest for hand separator cream was to G. B. Fisher, Viroqua, Wis.—Score 93½—a DE LAVAL user.

Full details of all the entries and scores have not yet been made public, but there is no doubt that the vast majority of all exhibits scoring 90 and above will prove to have been DE LAVAL made, as heretofore.

Incomplete reports have been received of highest butter awards at the various STATE FAIRS this year, but practically all of them have been to DE LAVAL users, including particularly New York, Indiana, Michigan, Missouri, North Dakota and South Dakota.

As has been said before, the separator does not of itself insure the making of the best butter, but the superior mechanical and sanitary bowl construction and low speed of the DE LAVAL separator indisputably enable the production of better cream and better butter under the same conditions than can possibly be made in any other way.

This is something that even the most enterprising and resourceful of those who seek profit through the manufacture and sale of would-be competing separators never attempt to explain or deny,—that practically all the best butter, as evidenced by the highest awards in all representative butter contests, is and has for more than twenty years been made by users of DE LAVAL cream separators.

Hence the great advantage to every DE LAVAL user in having the separator that not only makes the MOST but the BEST cream and butter, is the simplest and easiest machine to use and lasts an average of twenty years against from two to five years in the case of all others.

A DE LAVAL catalogue helps to make plain the reasons for DE LAVAL superiority in good buttermaking and other respects, and is to be had for the asking.

DE LAVAL DAIRY SUPPLY CO.

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LOS ANGELES
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CHICAGO
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General Offices:
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SAN FRANCISCO.

107 First Street
PORTLAND, ORE.
1016 Western Ave.
SEATTLE
Box 1052
VANCOUVER, B. C.

The Poultry Yard.

CHILDREN AND PET STOCK.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

"I make it a point that my children shall keep pets, and also that they shall be profitable pets, that they may learn the value of money as well as love and kindness to animals."

Thus remarks a wise mother, and she goes on to explain that by the value of money she does not mean so much what money will buy, but rather the effort required to earn money honestly, and that this knowledge would make children less exacting in their demands upon their parents.

The proper care and management in a business way of money-making pets teaches to youth the most valuable lesson in life, bar none—the habit of systematic work and of application and responsibility which makes for success in life. But to teach children this care of pets and keep them to it requires an effort on the part of the teachers, and here the parents as well as the children are pretty apt to fall down.

Children will be full of enthusiasm and almost too officious in the care of their pretty pets, at first, but the new soon wears off, more important things from the youthful viewpoint intervene, and neglect follows. To keep the child owners up to the mark and at the same time keep up their interest in the pets—here is where the efforts and tact of parents are called upon. Usually the matter ends with the mother, on whose long-suffering shoulders the responsibility for the care of the pets has fallen, quietly disposing of them or turning them in with the general stock. Yet parents are not backward in denying themselves and in working overtime to give their children an education which, without practical training, often unfits them for making a livlihood in the humble walks of life. So we repeat, that to teach children to rightly value money and to earn it along useful and necessary lines is the most valuable lesson that can be given them.

Now as to the way to go about this teaching. In the first place begin early; then the child is constantly under the eye of the mother and she can easily enforce obedience as well as encourage effort. After a boy or girl gets past ten years of age without any previous training in the responsible care of things, the mother can do little in awakening enthusiasm or securing effort in a matter that runs counter to the youthful inclination. The mother before mentioned began when her son was five and her daughter was three years old. She gave the boy a pair of hares and the girl a pair of guinea pigs; then she taught them just how to care for them and explained the sin of neglect and cruelty towards them. The boy was the first to neglect his pets, but the mother compelled him to attend them faithfully and when the baby hares put in an appearance his interest revived and was stimulated to enthusiasm when the sale of the young stock made him flush with spending money. He soon scattered this with youthful prodigality and was interviewing his father for the usual nickel to buy some desired object. Here the watchful mother applied the checkrein, and the boy learned that he must depend upon himself for spending money. This was supplemented by lessons in business usages and honesty. He was taught not to borrow from girls, as he was inclined to do from his little sister, who had been less prodigal of her earnings, and to give his note in due form for every nickel loaned him by his father, and it was especially impressed upon his conscience that the same must be paid with the first of his earnings. These teachings have produced good fruit. The boy's self-interest has overcome childish carelessness and he has acquired the habit of faithfulness in the care of his pets and become ambitious to increase his stock and to bring them up to a point of excellence, while he is becoming chary of spending his earnings for things of little worth, and in the place of borrowing he now keeps a nice bank account.

Perhaps the most important point in holding a child's interest in the matter is the assurance that all such pets are the child's very own, and that every cent of profit belongs exclusively to the child. Too often parents have little respect for the child's property rights. These should be held as sacred as those of a grown-up. Also a child's taste and fancy should be considered, and though parents should judiciously guide a child's choice they should not run counter to it.

For very young children the Belgian hare is the easiest handled pet and at the same time the one most likely to please and prove profitable. Get them a pair from the very best stock and prepare the hutches in a sanitary and attractive manner; then insist upon the little ones feeding their pets regularly and keeping their quarters scrupulously clean. Encourage them to read and learn about them and to keep them in the pink of condition. When they are well up in their business arrange for them to enter the finest of their pets at the poultry and pet stock shows. It will arouse a healthy spirit of emulation and endeavor.

The same with other pets. The ornamental breeds of poultry, such as the Polish and Bantams, make beautiful pets and if properly bred and cared for would prove very profitable. Pure-bred fowls of the utility breeds make handsome pets and are always money-makers under favorable conditions. Also pigeons, white guineas, and on the farm some of the larger animals, such as lambs, calves or colts, might appeal to them. Give the children profitable pets and also give them help and instruction in their proper care and in the marketing of their products. If you, yourselves, don't quite understand the proper handling of the kinds of stock that appeal to the children, the editor of the poultry and pet stock department of your agricultural papers will always be more than glad to educate the young people along these lines. We are hopeful that before many seasons there will be a thriving Young Folks' Poultry Club in California. Oregon already has her Junior Poultry Association, an extension course of the Agricultural College, and this coming year, beginning November 1st, there will be a poultry contest with three prizes of $100, $50, and $5, respectively, for the best work done with poultry by the members. Any boy or girl, however, between the ages of 12 and 18, in that State may compete.

Questions and Answers.

A CASE OF POISONING.—A subscriber at Anderson, Cal., writes: "We have for sometime been troubled with skunks and squirrels about the chicken houses, so put strychnine in apples and placed in their holes. Since then we have found some of the hens as though paralyzed. When dead the combs at once turn black and on opening find the inside filled with a thin watery substance and undigested food. Is this likely to come from their getting at the poisoned apples, or the dead animals? Years ago I saw some hens unearth and eat some poisoned squirrels, and it did not affect them. All our hens and pullets have suddenly left off laying. We feed a well-known maker's mash in the morning and wheat at night."

Your fowls showed unmistakable symptoms of poisoning. To allow poisoned food and animals or even unpoisoned dead animals to lie around where chickens can get at them is a degree of carelessness almost criminal. Even if the fowl does not get enough of the poison to kill it, as in the case of the hens that scratched out the poisoned squirrels, it is a short call from the food to the eggs and poultry meat with the consequent danger to human health and life. And such carrion lying about does not need to be poisoned to be deadly. Putrefying animal matter engenders a deadly ptomaine which may be the cause of limber neck, cholera, acute diarrhea, and all kinds of worms in fowl. Never allow even a chick, mouse or stale egg to lie unburied, and make it a hard and fast rule to have all poultry food clean and wholesome enough for human food, for that is what it ultimately becomes. Do not feed flesh raw even when in good condition. It will be more wholesome and nutritious when well cooked and salted. The only poisoning that may be safely done about the poultry quarters is the poisoning of the gopher that considerately buries itself and leaves no bad effects. Some years ago we moved on a ranch where the former occupant had put out poisoned wheat for the squirrels. Quite a few of our chickens were effected as though with paralysis. We gave them warm lard with good results in most cases.

The conditions you speak of in your yards probably have to do with the sudden drop in the egg yield. Clean up the quarters and make them comfortable and sanitary. Feed an abundance of fresh greens with a light feed of sound grains in the morning, and all the grain the fowls will eat at night. At noon give a good mash composed of fresh meat and vegetables boiled tender with one-third cracked corn to two-thirds rolled barley, chop all fine, salt and mix dry with shorts or bran.

To rid the poultry quarters of skunks, weasels, squirrels, and the like and also to protect the fowls from hawks, there is nothing so efficient and satisfactory as a well-trained dog, preferably one with considerable collie blood. One of this breed when raised with the fowls naturally takes upon himself their protection. He will not allow even a strange fowl to remain in the yards. Have him a comfortable kennel connected with the poultry quarters and teach him while a puppy to go among the fowls and to be gentle with them. The writer has such a dog. He never dashes through a bunch of fowls scattering them hither and yon as is the way of dogs, but walks around them with the utmost caution. When the fowls give their warning ker-er-er he is up in an instant looking for hawk or varmint.

FEED
EGG-MORE
For More Eggs

Hens must be kept in good condition and fed feather-producing and egg-making food. You can make your own "Egg Food," as good as anybody can make, by mixing Egg-More with shorts or other good grain products, according to directions. Egg-More is not a strong tonic, but a highly concentrated Poultry Food. Your hens will certainly lay more eggs if you feed it, just a little each day. 25-lb. sack, $1.90; 50 lbs., $3.60; 100 lbs., $7.00. If not kept by your dealer we will prepay freight within 300 miles, if you mention this paper. Send for Biddy Booklet.

Scalefoe

Greatest Known Spray or Wash for Scale: San Jose, Black, Red, Purple and Brown. Also a sure thing for Mildew, Gum Disease, Red Spider, Canker Worm, Moss, Caterpillars, Lice, Coddling Moth, and all Insects and Bugs that infest plant life; without injury to the plants, and with positive benefit to the soil. Scalefoe has long been the leading Spray or Wash in many sections of the country, wherever introduced. Also kills Lice and Mites on Poultry.

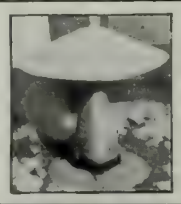
Gallon can, 85 cents; 5 gallon can, $3.75. If not sold by your dealer will send gallon can for $1 or 5 gallon can for $4, freight prepaid by us within 300 miles. Write for price in barrels. Mix 20 parts water to 1 part Scalefoe, before using; makes it the cheapest as well as the best. Guaranteed as represented or money back. Circular with many testimonials.

West Coast Mill Co.,
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LOS ANGELES.

Chicken, Fruit And Berry Farms
For Sale.

From one acre up. Improved or un-improved, $100 acre up. One-fifth or less down, balance long time. On the electric line. Rural mail, School, near town. See my ad in Sunday's Examiner. Send stamp for list. Write to Sebastopol. Office: Hessel Station, Between Petaluma and Sebastopol.
CHARLES GLOECKNER

Do you want a Chicken Ranch where Chicken Ranches Pay?
IF SO, WRITE
C. R. WINFIELD,
32 Washington St., Argus Block, Petaluma, Cal.



The ARENBERG BROODER HEATER and STOVE

Perfectly simple, safe and cheap. Burns distillate, furnishes steady, free flame, and easy to manage as brooder heater or stove. Write for details.
H. F. ARENBERG, Petaluma, Cal.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.



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High Sierra
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By Daylight.

Chicago in Three Days

Electric lighted—fast flying cross-country train. Luxuriously equipped. Pullman drawing room stateroom vestibuled sleeping cars.

Careful and attentive dining service. Parlor observation car with library and cafe, ladies' reading room, gentlemen's smoking room.

Daily news bulletins, latest papers and magazines.

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Rupture Cured
Without the Knife or Loss of Time:

No pay until cured.
Call or write for testimonials.

FIDELITY RUPTURE CURE
1122 Market St., Opp. 7th, San Francisco.
Rooms 7 and 8. Hours 10 to 5.

POULTRY.

ORPINGTONS—Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. W. SULLIVAN, Agnew, Cal.

COTTONWOOD FARM, Pleasant Grove, Cal. Bees, Chickens, Geese, Hares, Pigeons, Turkeys.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley's "Little Red Book No. 51." Free. Send postal
GEORGE H. CROLEY, 637 Brannan St., San Francisco. POULTRY SUPPLIES.

The Home Circle.

Twitter and Twee.

Twitter and Twee were neighbors, you see;
Twitter was a bird and so was Twee,
And each had a home in the old pear tree.
'Twas pleasant to hear them all the day long
Whistling and chirping their beautiful song;
Teaching their nestlings the same glad note
That came as a joy from each tiny brown throat.
Not selfish nor cross was either wee bird;
But if one found a crumb, the other one heard
A merry "Chee, chee," which meant "Come and see
The feast that is spread for you and for me."

'Tis better by far, I am sure you will say,
To be pleasant and merry, cheerful and gay;
Teaching wee brother a sweet baby song,
Making him happy all the day long;
Finding sweet crumbs of joy here and there,
Calling our playmates to come for a share;
Doing some good for some one in some way,
By singing at work and laughing in play,
Than to be selfish and cross, without even a word
Half so kind as the call of the tiny brown bird.

The Glove and the Lady.

"Bobby, can't you give our committee the benefit of a little of your advertising knowledge? We want to make this coming rummage sale the most successful financially that we have ever held," Gertrude pleaded, gazing wistfully into her companion's face.

The advertising specialist's gaze lingered lovingly upon her.

"We're on the street, Bobby," she murmured the reproach, turning away from him.

Howardson brought himself to with a jerk.

"I could try, Gertrude, if—if the remuneration was—er—sufficient to induce me," he replied, laughing, yet noting the quick touch of pain his remark occasioned.

"I don't think we could pay you much. Our organization has little in its treasury. The proceeds of our sales, you know, go into the maintenance fund. But we might give you five dollars or so for your help."

"Why, you dear girl, I get fifty dollars for just an opinion and my fees for catalogue work run 'way up in the hundreds. No, five dollars is not enough."

"I thought perhaps you might be inclined to render a little service in charity's name," she retorted coolly.

"Don't be angry," he coaxed, quickly sober. "You know what I want. Oh, girl, girl, when can I convince you that I love you with every breath I take?"

A pretty blush suffused her cheeks.

"We're on the street, Bobby," she softly enjoined him.

"I don't care, dearie. My love isn't a bit less on the street than off. Tell me that you will consider seriously my proposal and if I make this rummage sale all you wish it to be. I can't stand this suspense any longer. I want an answer either way, but above all I want the answer I so much desire. Promise me, Gertrude, and I'll give this sale of yours my immediate attention."

For a few moments she considered his request in silence, her face pale and anxious.

"I promise, Bobby," she murmured at last.

"Thank you, dear. Try to make it 'yes' if you can. I know I'm not worthy of you, but I do want you so much."

He sat up far into the night upon the details of several schemes, all of which had finally to be discarded because of their inappropriateness to an affair of a charitable organization. Wearied, he crawled into bed, and there in the dark quiet of the room the inspiration came.

He called upon Gertrude the following afternoon and gave to her in her capacity as chairman of the press committee the details of his scheme. That she was enthusiastic in her reception of it was easily seen.

"You can go right ahead with it, Bobby. I'll fix the committee. You know, we have only two weeks to the opening date of the sale and we can't waste any of it in discussion. I'm sure it will prove a winner."

Howardson's face paled.

"I am risking all I hold dear upon its success," he muttered huskily. "I want it to win."

"Oh, Bob," she cried, a catch in her voice. "I, too, want it to win."

That afternoon Howardson had an interview with a charitably inclined friend, a gentleman of exceedingly ample proportion exceeded only by his continual good humor. In features he was far from handsome, but withal genial.

He received Howardson's suggestion with more than his usual good humor, every muscle in his body quiveringly attesting to the enjoyment he was deriving.

Howardson then visited an illustrator of his acquaintance and had him do in charcoal the picture of a dainty glove, in the execution of which the artist wove a spell of suggestive beauty. It was only a picture of a lady's glove, to be sure, but it forced the imagination to conceive of a beautiful girl as its possessor.

Howardson had three engravings of the illustration made, and while they were in process of construction he wrote the copy to accompany it.

It was a simple composition, worded, in part, as follows, and its appeal was solely to gentlemen:

"With every purchase of fifty cents at the Home of the Friendless Rummage sale, to be held in the afternoon and evening of October 19, 20 and 21, at the Armory, every gentleman interested will be given a ticket which entitles him to a kiss from the lips of the owner of the above pictured dainty creation. No gentleman holding a ticket will be refused a kiss, and holders of more than one ticket will be given full value."

"If a kiss is not desired, upon mature thought (probably on the part of certain ladies of the gentleman's 'acquaintance') the holder of the ticket still has the biggest fifty cents worth of value in his purchase to compensate him for his disinclination.

"Kisses will be bestowed at 9 o'clock in the evening of October 21, and the doors will be kept open until all obligations have been fulfilled.

"In sweet charity's name, gentlemen!"

Thousands of circulars were printed and distributed, and the "copy" was also printed in the city's two leading newspapers, a morning and evening sheet.

When the doors of the Armory were thrown open on the afternoon of October 19, dozens of young gentlemen and a few of the elderly were awaiting admittance. Sales began briskly and the ladies in charge of the booths were kept busy all the afternoon. But it was in the evening that the sales became furious. Gentlemen in every walk of life purchased as much as their means permitted, securing with each fifty cent purchase a ticket entitling the holder to one kiss.

Near the door, in a glass case, was a dainty kid glove with one of the circulars pinned to the cushion on which it lay.

At 8 o'clock of the second evening of the "rummage sale" the ladies learned to their consternation that the stock was almost depleted. By 9 o'clock nothing saleable remained and the doors had to be closed.

All of the next morning the committee scoured the city in search of goods for the afternoon and evening sales. The merchants responded nobly and gave a liberal discount. Many free articles were received and many a good housewife stood red of face over hot stoves and watched candies in the making.

When the Armory doors were thrown open at 2 in the afternoon a goodly stock was arranged temptingly in the booths. But at 8:30 in the evening the last of the stock was snapped up and laughing and flushed gentlemen searched unavailingly for more goods to secure kiss tickets with.

Howardson stood near the center of the room watching the progress of the sales, and when it was announced at 8:30 that all stock had been disposed of, he gritted his teeth to keep down the shout of joy which threatened to break through the barrier of his reserve. His heart beat painfully and his hands trembled when he drew out a handkerchief and wiped a hot brow.

A soft hand rested on his shoulder and he turned.

Gertrude stood beside him, flushed of face and traces of tears in her eyes.

"It is 'yes,' darling," she whispered so low that only love could hear.

Then, before he could reply, she had disappeared in the crowd.

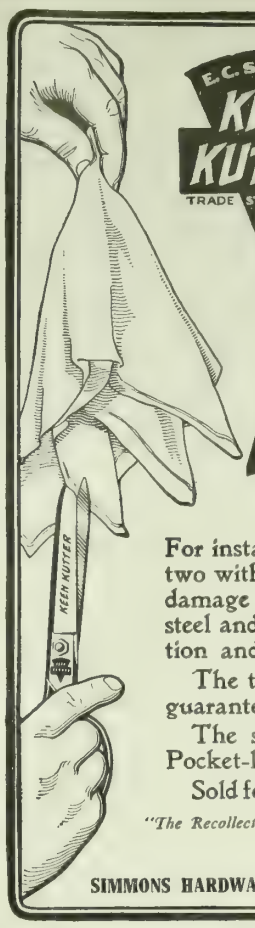
At a quarter to nine the glove was removed from the case and a restless, murmuring, laughing, shouting crowd of men awaited developments. The floor was crowded almost with men alone, the ladies having gone to the galleries.

At 9 o'clock Howardson's fleshy friend, Hodgson by name, mounted the small platform erected in front. An expectant hush fell upon the crowd, eager to catch his announcement.

"Gentlemen," he began, "I need hardly to say how much I thank you for your generous response to my invitation. It is a compliment the appreciation of which I can not adequately express. The sales have been unprecedented, the amount to add to the Home for the Friendless fund will be enormous, by far larger than any contributed by six other of our annual rummage sales combined.

"I, gentlemen, am the owner of this glove," holding it up that all could see; "and when I offered to the committee a kiss to every gentleman purchasing fifty cents worth of goods, I had no idea you would so generously respond. It will require some time, gentlemen, but I will fill all obligations. Come on, gentlemen—but one at a time, please, and don't shove."

A painful hush, then a loud peal of laughter from the galleries brought the stupefied men to their senses and their loud laughter drowned out the merriment of the ladies.—George Frederick Wilson.



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THE MARKETS.

San Francisco, November 3, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The tendency of the local market is still slightly upward, with some advance in nearly all grades, and a steady inquiry from local milling interests. White Australian is especially firm, with offerings closely held. Stocks in warehouses are considerably larger than a month ago. Renewed buying by Eastern interests is reported in the north. Local dealers quote as follows:

California Club	$1.80 @ 1.85
Sonora	1.85 @ 2.00
White Australian	1.90 @ 2.00
Northern Club	1.70 @ 1.73½
Northern Bluestem	1.82½ @ 1.87½
Russian Red	1.67½ @ 1.71¼

BARLEY.

An eastward movement is now taking place in the northern market. Arrivals here have been moderate, and supplies in the interior are decreasing. The export market continues active, with slight advances in brewing and shipping grades. Choice feed is not quotably higher, but is firmly held, with little offered at the lower quotation.

Brewing	$1.47½ @ 1.48¾
Shipping	1.47½ @ 1.48¾
Good to Choice Feed, per ctl.	1.42½ @ 1.45
Common Feed	1.40 @ 1.42½

OATS.

There is little activity in any line at present. Considerable pressure to sell has developed among northern holders, who have shipped large quantities to this market. There is consequently an easier feeling, though blacks are the only variety to show any quotable decline.

Red, choice	$1.65 @ 1.75
Common	1.55 @ 1.65
Red, seed	1.90 @ 2.10
Black	2.40 @ 2.65
Gray	Nominal
White	1.57½ @ 1.62½

CORN.

The movement is very slow, with small arrivals for the last month and little increase in the supply. No further changes appear in quotations, but Western shippers offer plenty of stock at the appearing prices.

California Small Yellow	$1.70 @ 1.75
California Large Yellow	1.75
Western State Yellow, bulk	1.57
Mixed, in bulk	1.55
White, in bulk	1.61
Egyptian	1.67½

RYE.

The rye offered at former quotations is of inferior quality, and is not moving. Choice grain is held at the quotations or higher, and some sales are reported at the figures given.

Rye, per ctl	$2.00 @ 2.05

BEANS.

Local dealers describe the market as feverish, with another general advance on most varieties. The arrivals at this market last month amounted to 201,000 sacks, while the shipments were rather light as compared with the same period in other years, leaving heavy stocks on hand. Bayos show a particularly sharp advance, standing about as high as ever before, and small whites have also taken quite a jump. The prices in general are higher than ever before at the harvest season. Pink beans are very high, and all other descriptions are very firm. A large proportion of arrivals from the river district shows damage from the rains. Limas are closely held and in rather more demand for shipment. In view of the exceptionally high prices, many buyers are disposed to hold off.

Bayos, per ctl	$4.75 @ 5.00
Blackeyes	4.10 @ 4.25
Cranberry Beans	4.00 @ 4.25
Garvanos	2.75 @ 3.00
Horse Beans	1.50 @ 2.25
Small Whites	4.60 @ 4.75
Large Whites	3.40 @ 3.60
Limas	4.15 @ 4.25
Pea	Nominal
Pink	3.40 @ 3.50
Red	Nominal
Red Kidneys	Nominal

SEEDS.

Quite an active movement is taking place on most descriptions, with liberal inquiries from all over the country. Prices on alfalfa and other leading varieties are unchanged. Canary, however, is higher, with nothing obtainable at the former inside figure. The supply is light, and additional stock hard to get. Dealers quote the following prices:

Alfalfa, per lb	17½ @ 18 c
Broomcorn Seed, per ton	$20.00 @ 25.00
Brown Mustard, per lb	4 c
Canary	4½c
Flaxseed	4 c
Hemp	3¾ @ 4¼c
Millet	3 c
Timothy	6 c
Yellow Mustard	Nominal

FLOUR.

The market continues active, with prospects of higher prices in the near future. Quotations have not changed since last report, but are firmly held. There is little movement aside from the regular local trade.

Cal. Family Extras	$5.80 @ 6.30
Bakers' Extras	5.40 @ 5.80
Superfine	4.80 @ 5.10
Oregon and Washington	5.30 @ 5.50

HAY.

Arrivals this week have been extremely light, considerably less than last week, owing to a shortage of cars. Stock in the fields is practically all cleaned up, but there is a general movement of the better grades from storage, as the strong demand and high prices are proving attractive to outside holders. Choice wheat is selling at higher prices. The small arrivals cause no inconvenience, as most local handlers have taken on large stocks during the past month. A further advance in prices is looked for, however, at any time. Estimates are now being made of the supply of hay available, which is expected to be larger than at the close of last year.

Choice Wheat, per ton	$19.50 @ 21.00
Other Grade Wheat	13.00 @ 18.50
Wheat and Oats	14.00 @ 16.50
Tame Oat	14.00 @ 17.00
Barley	10.00 @ 13.50
Wild Oat	10.00 @ 13.00
Alfalfa	9.00 @ 12.00
Stock Hay	7.00 @ 9.00
Straw, per bale	50 @ 70c

MILLSTUFFS.

Stocks of bran are much larger than a month ago, with large arrivals from the north. There is quite a liberal demand, however, and prices are firmly maintained. Rolled barley is again higher, and mixed feeds are firm for the better descriptions. Corn feeds are lower following the decline on the raw grain.

Alfalfa Meal, or mealfalfa, per ton	$22.00 @ 24.00
Bran, ton—	
White	29.00 @ 30.00
Red	28.50 @ 29.00
Broom Corn Feed, per ctl	Nominal
Cocoanut Cake or Meal at Mills	25.00 @ 26.00
Corn Meal	37.00 @ 38.00
Cracked Corn	38.00 @ 39.00
Middlings	36.50 @ 37.50
Mixed Feeds	28.00 @ 33.00
Oil Cake, per ton	39.50 @ 41.00
Rolled Barley	30.50 @ 31.50
Shorts	31.50 @ 33.00

VEGETABLES.

The demand is very moderate this week, and most descriptions are quiet, but with diminishing receipts prices are well maintained. Onions are lower and still easy, with little movement. Green peas and string beans are scarce and firm. Tomatoes are still arriving quite freely, and while the better offerings meet with a ready sale at higher prices, ordinary stock has to be disposed of to canners at the inside quotation. Cucumbers, egg plant and okra are a little stronger, but little is offered and only the best lots are saleable.

Onions—New Yellow, per ctl	70 @ 75c
Garlic, per lb	4 @ 5½c
Green Peas, per lb	4 @ 6c
String Beans, per lb	4 @ 6c
Lima Beans, per lb	6 @ 7c
Turnips, per sack	75c
Summer Squash, large box	50 @ 65c
Tomatoes, per box	25 @ 65c
Cucumbers, large box	60 @ 85c
Egg Plant, per box	50 @ 65c
Okra, per box7	65 @ 75c

POULTRY.

Chickens show little change since last week, small broilers being a little stronger, while hens are weak. Eastern stock is still arriving freely though local receipts are lighter. Large hens are in fair demand, and squabs sell readily at stiff prices. Dressed turkeys are higher, with a strong inquiry for large birds, though live stock is neglected.

Broilers	$ 4.00 @ 4.50
Small Broilers	3.50 @ 4.00
Fryers	5.00 @ 5.50
Hens, extra	7.00 @ 9.00
Hens, per doz	6.00 @ 7.00
Small Hens	5.00 @ 5.50
Old Roosters	4.00 @ 5.00
Young Roosters	6.50 @ 7.50
Young Roosters, full grown	7.50 @ 8.50
Pigeons	1.25
Squabs	2.50 @ 4.00
Ducks	4.00 @ 9.00
Geese, per pair	2.00 @ 2.50
Spring Turkeys, per lb	22@ 23c
Gobblers, live	20@ 21c
Dressed Turkeys, lb	25@ 27c

BUTTER.

Extras show a fractional advance, but the market on all fresh stock is weak, and some decline is expected. There has been a fair demand, with some shipping orders, but arrivals have been quite heavy, and most dealers are carrying a surplus. Storage stock is firm and moving freely. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb	31½c
Firsts	30½c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

Extras show continued fluctuation, going up to 56½ cents a few days ago, and later dropping back to the price of last week. Supplies are a little larger, and with light trading the market is barely steady. Low grade stock is unchanged, but is not in much demand, as there are large offerings of Eastern and storage stock.

California (extras), per doz	55 c
Firsts	50 c
Seconds	30 c
Thirds	28 c
California Storage (extras)	31 c

CHEESE.

Cheese is quiet this week, with little change from former quotations. Fancy flats are a little higher, and a cent advance is quoted in storage Y. A.'s.

Fancy California Flats, per lb.	16½c
Firsts	15½c
New Young Americas, fancy	17½c
Oregon Flats	16 c
Oregon Young Americas	17½c
N. Y., fancy	18½c
Storage, Fancy Flats	15½c
Young Americas	17½c

POTATOES.

River stock continues quiet, but offerings are not so heavy as last week, and good stock brings better prices. Salinas and Oregon stock is firm, with a better demand. Most of the cheap sweet potatoes are cleaned up.

Potatoes—River Whites	60@ 80c
Salinas Burbanks	$ 1.25@ 1.40
Oregon Burbanks	90c@ 1.00
Sweet Potatoes, ctl	1.50@ 1.60

FRESH FRUITS.

Summer fruits are about out of the market, though there are still a few plums and figs offering. The local demand is not active, but a fair shipping business is taking care of the surplus, and most lines are in fair condition. Raspberries and strawberries are less plentiful and higher, while cranberries are also bringing better prices. Apples are unchanged, with a steady movement of the better offerings. Pears are also held at steady prices. Pomegranates are higher, but quinces and persimmons are very quiet. Table grapes have been in strong demand, several descriptions in lug boxes moving freely at higher prices, though crated lots are unchanged. Melons are entirely out of the market.

Raspberries, per chest	$ 7.00 @ 8.00
Cranberries, per bbl	10.00 @ 11.00
Strawberries	4.00 @ 8.00
Huckleberries, per lb	7@ 9c
Grapes, per crate	40@ 75c
Lug boxes	75c@ 1.50
Apples—	
Fancy, per box	1.00 @ 1.50
Choice	75@ 90c
Common	40@ 65c
Pears—	
Winter Nelis	1.25@ 1.50
Other varieties	50c@ 1.00
Quinces, per box	50@ 75c
Pomegranates, small box	50@ 75c
Persimmons	1.00@ 1.25

CITRUS FRUITS.

A few new navels are offered, but arrivals so far are of poor quality and find little sale locally. Some tangerines are also offered, being held at the prices quoted. Valencias are still in some demand at the former quotations. Lemons and limes are lower.

Valencias	$ 2.25@ 3.00
Tangerines, crate	1.75
Navels	2.50
Choice Lemons	$ 2.50@ 3.00
Fancy Lemons	4.00@ 4.50
Standard	1.50@ 2.00
Limes	5.50@ 6.00
Grape Fruit	2.50@ 3.50

DRIED FRUITS.

Foreign shipments continue on quite a large scale, and while Eastern reports are not highly encouraging, all descriptions appear to be moving rapidly into consumption all over the country. Local packers are taking on about all the desirable offerings they can get in the country at appearing quotations, which show little change from those previously given. It is reported that some interests have sold short on prunes, and are buying heavily to cover requirements, finding difficulty in obtaining desirable sizes, while peaches are in good demand at firm prices. Apricots are also in demand, but their scarcity prevents much activity. Apples are quoted lower, but are strongly held. Raisins are in a slightly better condition, with considerable inquiry for immediate requirements and fair movement at 2 cents. The old crop has been entirely cleaned up, and the outlook is decidedly more encouraging, though no immediate advance is anticipated.

Evaporated Apples, per lb	7½ @ 8 c
Figs, black, new crop	2 c
Figs, black, new crop	3 c
Apricots, new crop	9½ @ 10 c
Peaches, new crop	5 @ 5½c
Prunes, 4-size basis	2½ @ 2¾c
Pears	6 @ 8 c
Raisins (New crop)—	
Loose Muscatels, in sweatbox	2 c
Thompson Seedless	2 c
Seedless Sultanas	1¼c
London Layers, 3 crown	85@ 95c

NUTS.

Prices are unchanged. Most of the walnuts have been bought by packers and dealers, and the new stock is now being distributed, though supplies are still very scarce in the local market. Considerable stock has been sent to Oregon and the East. The new almonds are already cleaning up, the market being reported bare of some descriptions, and little stock is now to be had from the growers.

Almonds (new crop)—	
Nonpareils	14 c
IXL	13 c
Ne Plus Ultra	12½c
Drakes	10 c
Languedoc	9 c
Softshell, No. 1	11½c
Softshell, No. 2	7½c

WALNUTS.

HONEY.

Occasional carloads are moving East, but there is still a large supply in the southern warehouses. Arrivals here are light, but supplies are sufficient for all immediate demands. The lower grades are not wanted, and fancy stock, for which there is a fair inquiry, is not moving very freely at present prices. Local dealers ask the following figures.

Comb	10 @ 15 c
Extracted, Water White	7 @ 7½c
Extracted, Amber	6 c
Old Extracted	3½ @ 4 c

HOPS.

The market is still slow, with the new crop mostly taken out of the hands of growers. Holders are asking the same high prices as before, with occasional sales at quotations.

Hops, Old, per lb	14 @ 18 c
New crop	24 @ 27 c

WOOL.

This season's wool has not moved off very well, as the quantity of free wool offered has been small, and buyers have taken little interest in defective lots. Most of the better offerings have been secured, however, and little more activity is to be looked for this season. Prices remain as before.

Fall clip, Northern Free	12 @ 15 c
Fall Lambs—Northern, per lb.	12 @ 15 c
Southern	8 @ 10 c
Fall Clip, Southern (defective)	7½ @ 8½c

MEAT.

Large shipments of cattle and sheep are now arriving from Nevada. The market is in good condition, however, with a little more firmness in live stock. Dressed mutton is also higher, and hogs continue firm and active, with liberal arrivals.

Beef: Steers, per lb	6½ @ 7½c
Cows	5½ @ 6½c
Heifers	5½ @ 6½c
Veal	7½ @ 10½c
Mutton: Wethers	9 @ 10 c
Ewes	8 @ 9 c
Lambs	10 @ 11 c
Hogs, dressed	9 @ 11½c

LIVESTOCK.

Steers: No. 1	4 @ 4½c
No. 2	3¾ @ 4 c
Cows and Heifers: No. 1	3⅜ @ 3½c
No. 2	3 c
Bulls and Stags	1¾ @ 2 c
Calves: Light	5½c
Medium	5 c
Heavy	4 @ 4½c
Sheep: Wethers	4½ @ 4¾c
Ewes	3¾ @ 4 c
Lambs	5½ @ 5¾c
Hogs: Grain fed, 100 to 150 lbs.	6¾c
150 to 250 lbs	7¼ @ 7½c
250 to 325 lbs	7 c
Common Hogs, lb	4½ @ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Porterville, Cal., Nov. 2.—The new navel season is on and a few carloads are now going out daily from Tulare county. It will be a week or two, however, before the shipping will be in full swing, as the southern valencias are not all gone yet, and buyers are apparently not eager for immature navels when they can get good valencias. The lack of orders causes the shippers to hesitate, and the main office of the Exchange has advised the Tulare county growers to hold back for awhile. The growers are hard to hold, and in some cases insist on picking, so that every one of the houses in the county will be packing more or less fruit next week at this time. When orders do come in the fruit can be sent out with a rush, as there are about 25 packing houses scattered from Porterville to Exeter, Lindsay alone having 11 houses to handle its thousand odd cars. So far the Exchange has shipped but four cars. One car will be shipped from Porterville tomorrow, but was packed at the house of the Tule River Association. The Randolph Fruit Company has shipped 12 cars from Exeter and Lindsay and got out the first car of the season on October 21 from the Globe district. The Citrus Union is packing at Lindsay and Exeter and will start this week at Porterville. R. H. Shoemaker, Jr., commenced picking today and will pack in his new house at Lindsay. The Pinkham & McKivett house will start up this week, they being located at Lindsay.

Your correspondent is out of touch with southern conditions at this time; they

Triplex, Rotary and Centrifugal Pumps

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ALFALFA FARMS COMPANY

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were changing for the better very rapidly at the close of last week. Valencias were being quoted at $3 and the shippers were having plenty of inquiry.

A car of lemons was shipped today from Porterville that sold for $5.25 at this end, and no doubt the November market will be the highest for the year on account of the shortage.

The official shipping year is over, but the figures are not available at this writing, something like 32,000 cars of oranges and 6100 cars of lemons having gone out, tne banner year for quantity, though not for quality or price received. The coming year promises less fruit but of a better quality, and though the start is not very auspicious the demand will no doubt pick up with the going of the valencias.

FERTILIZING ASPARAGUS.

At a recent meeting of asparagus growers in Massachusetts, Prof. W. P. Brooks, of the Massachusetts Experiment Station, gave an account of his experiments with fertilizers on asparagus which may be suggestive to California growers. Prof. Brooks said in part, as reported for the Rural New Yorker: "I am at present a student of this very important question, with no final results to give or show you, but with strong hopes that we shall work out something of great benefit to asparagus growers. In looking over the fertilizer test plonts at this station I am not able to discover any great difference, as yet, between them. On inquiry among the farmers of Concord, as to the amount of fertilizer applied to asparagus, I was surprised at the large quantities of plant food used; there was more applied than came away in the crop. I kept a careful record of a small garden bed and found that I cut at the rate of 15,000 pounds of green asparagus to the acre, while 6000 pounds is a common average. In order to find the amount of plant food contained in the 15,000 pounds per acre I had it analyzed and found that in the green shoots there were 50 pounds of nitrogen, 16 pounds phosphoric acid, 50 pounds of potash; while the tops after the shoots had been allowed to grow, contained 50 pounds of nitrogen, 50 pounds of phosphoric acid, 150 of potash; making a total of 100 pounds of nitrogen, 30 pounds of phosphoric acid, 200 pounds of potash. This proved to me that there was little danger in applying too much fertilizer or plant food to asparagus. In arranging the plots at this station for a fertilizer experiment, it has been our plan to apply the different forms of plant food in varying amounts, so that we can determine how much of the various elements to use. In the nitrate experiment three plots are fertilized in amounts as follows: 300 pounds nitrate of soda, 450 pounds and 600 pounds, and this year there was no difference in the yield of the plot where 600 pounds of nitrate of soda had been used, and that where only one-half the amount had been put on. In the potash test potash in the form of muriate was applied in amounts as follows: 170 pounds per acre, 250 pounds per acre, and 340 pounds per acre. The first preparation of the soil, which was very complete and thorough, may account for the lack of variation in the crop, for all the plants had an equal opportunity at the start. The plots where nothing but manure has been used show practically the same result as where the combination of manure and fertilizers were applied, but the latter method is a more desirable way of enriching the soil. At least 10 tons of manure should be applied to the acre. One of the points upon which we have satisfied ourselves, in our investigations, is the season for applying nitrate of soda. From the experiments conducted here and in other places, it is evident that the crop of asparagus receives no great benefit from the nitrate applied in the spring before the cutting season. The plants depend for the crop. upon what they have stored up the previous season, so all application of nitrate of soda should be after the cutting season. Manure can be applied with success during the late fall and winter; as for the other chemicals, there is not so much danger of their leaching out so they can be put on in the early spring and the crop for the current year will receive a direct benefit."

From Prof. Brooks' remarks the conclusions were reached that an excess of plant food in the soil was of no value to asparagus, provided the first preparation of the bed was thorough; that a combination of manure and other fertilizers was the best to use; that potash in the form of muriate was preferable; that the application of nitrate of soda should be after the cutting season, so that the experiments at this station, so far, have not shown enough difference to prove the excessive value of any one of the combinations of commercial fertilizers. Prof. Brooks also recommended freshly burned lime.

PUBLISHER'S DEPARTMENT.

Mr. Joseph Whipple, an expert landscape artist and nurseryman of Santa Barbara, Cal., has opened a new office on Main street, in that city, and has organized his business under the title of the Southern California Nursery and Flower Co. Mr. Whipple is an old and esteemed citizen of Santa Barbara and stands well with the people down there.

The Alfalfa Farms Co., of San Francisco, has moved its offices from 403 to 430 Monadnock building and is better prepared than ever to handle the extensive real estate interests in hand. A specialty is made of alfalfa bearing lands in the San Joaquin valley of California.

The full page advertisement of the Silva-Bergtholdt Co. of Newcastle, which appears on another page in our paper this week, is in a way different from other advertising along these lines, and whether our readers wish to purchase or not at this time, the information contained in the advertisement will prove of value, and we would urge those intending planters to send for their catalogue. This firm, which succeeded C. M. Silva & Son in 1899, is one of the oldest and best in the West. The firm is reliable and we cheerfully recommend them, and growers will have no hesitation in ordering from them. The company are not only growers of good nursery stock, but are also shippers and growers of fruit at Newcastle, which gives them experience from every angle, and their recommendations on different varieties of plants will be of value to orchardists. This year the Silva-Bergtholdt Co. are introducing an improved mid-summer freestone peach, combining the desirable features of the Elberta and Muir, which owing to its fine grain and firm texture, and in addition its desirable shipping and canning quality, will make it a valuable commercial variety. The new peach, named the Fay Elberta, promises to become one of the best freestone peaches for the summer season for all purposes, shipping, canning or drying.

THIRTY-ONE MILES OF PIONEER ROOFING.

The Pioneer Roll Paper Company, manufacturers of Ready Roofing, Roof Paint and Insulating Papers, whose factories are located in Los Angeles, recently received an order from the Associated Supply Company of San Francisco for 400,000 square feet (31 miles) of 32-inch roofing, to be used in covering their large oil reservoirs in Kern county. The size of this order and the source from which it came, is certainly a strong endorsement of the quality of Pioneer Roofing.

We are advised that the Pioneer Roll Paper Company will be glad to send their 32-page illustrated booklet on Roofs and Roofings to anyone who will write for it, mentioning this publication.

It was announced at Fresno last week that the L. T. Griffen Co. had bought 10,000 tons of raisins at 2 cents and were in the market for more. This move an the part of the Griffens is thought to mean that the balance of the crop that can be had on the 2-cent basis will soon be purchased by other packers.

A band of 13 horses affected with glanders were condemned last week at Hanford by Inspector Frank Griffith.

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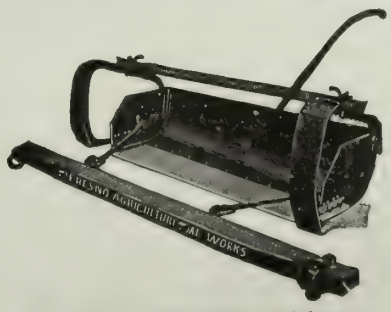


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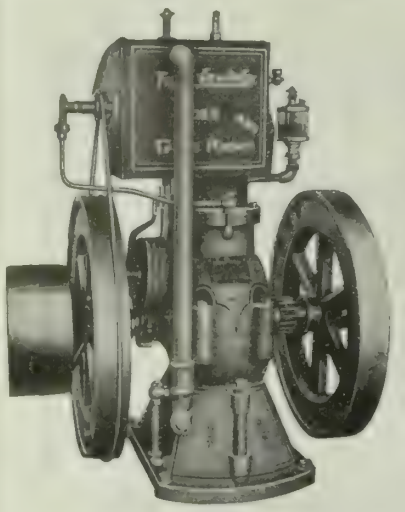
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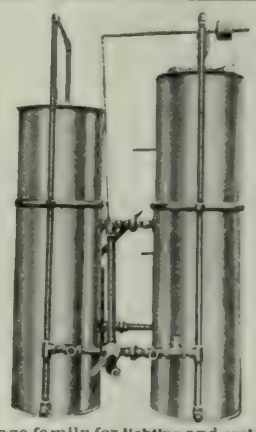
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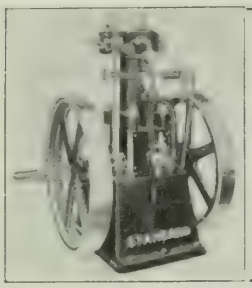
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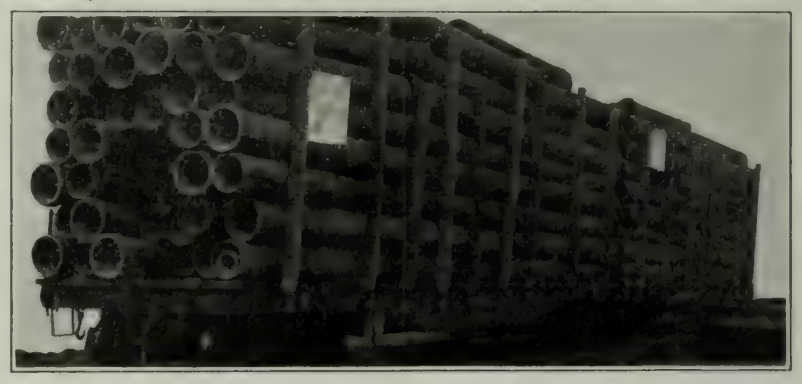
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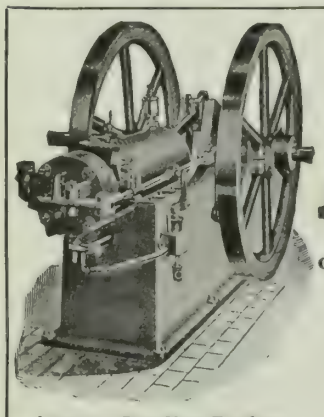
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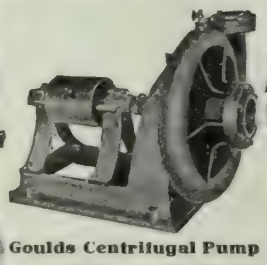
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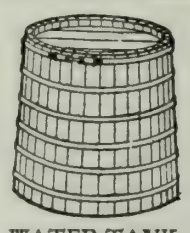
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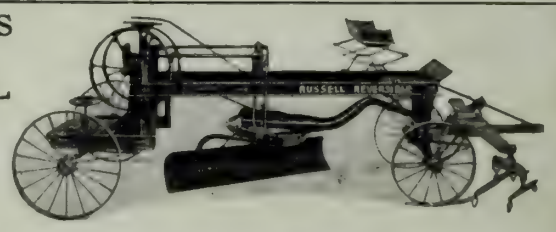
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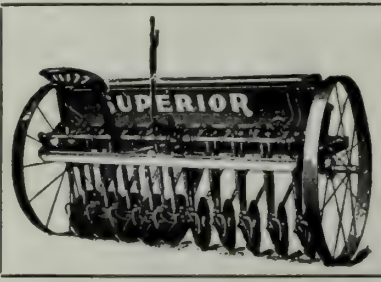
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 20. SAN FRANCISCO, SATURDAY, NOVEMBER 13, 1909. Thirty-ninth Year.

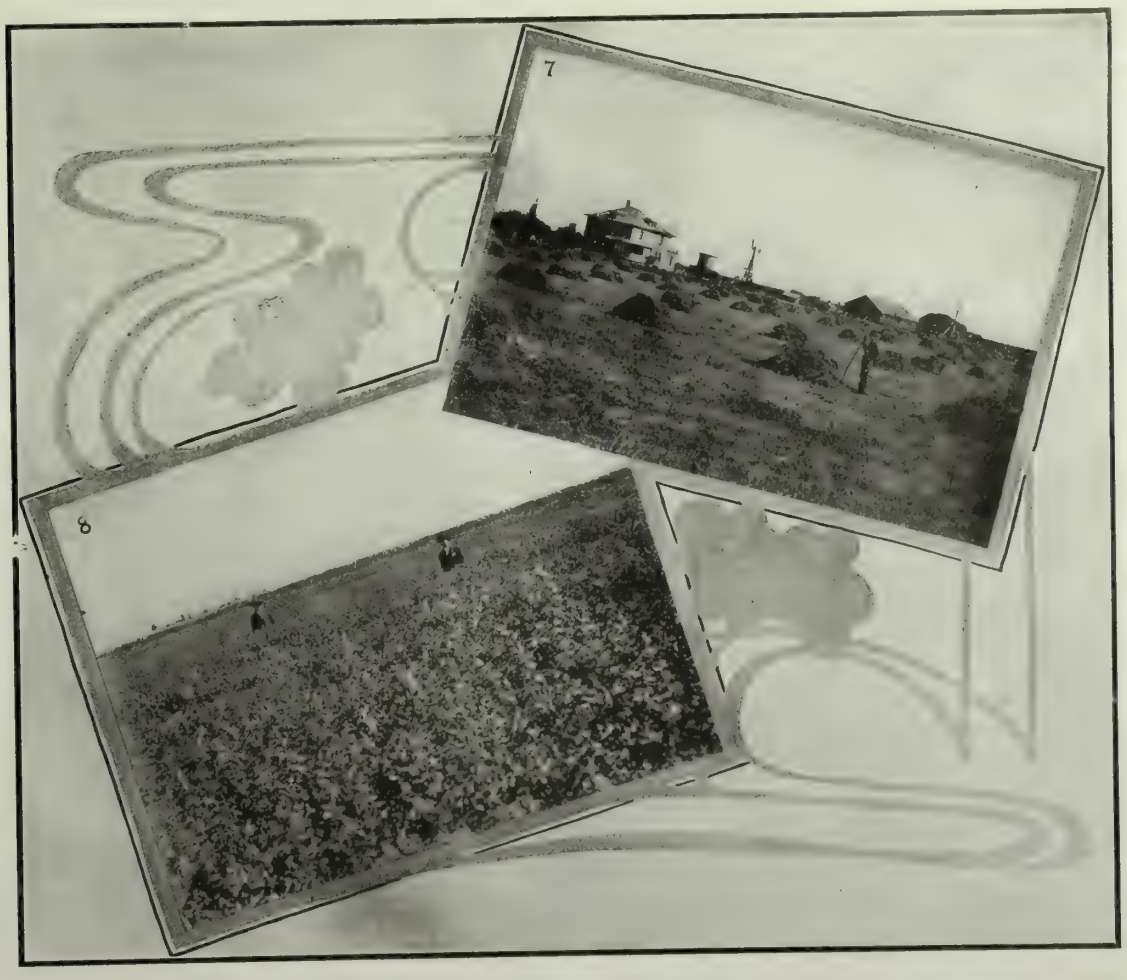
Brain Work for Dairymen.

November will be a busy month in higher dairy work. And by that we mean that as this is the time of the year for empty udders in California, the dairyman has more leisure to polish his brain cap; as he has less pulling to do on the teat, he can pull more on his top-knot. It is a singular fact that though he can milk his cows better in solitude, he can milk his brain better in a crowd. Therefore it is that this is the month for dairymen to get next to each other and to the progress of their business.

In our Live Stock and Dairy Department this week there is a full outline of the coming convention of the Creamery Operators' Association. It is the best planned and most attractive program ever offered to the dairy public of this State. Following this convention a dairy and creamery meeting will be held at the University Farm, Davis, Cal., on November 23, in connection with the closing of the Short Course in Creamery Butter-making and the final scoring for the current year in the educational butter scoring contest. The sixth entry for the current year is due at Davis on November 20 and will be scored in time to announce the results of the first year's competition at the meeting of the 23d. Some twenty California butter-makers have been competing during the past year for two prize cups to be awarded to those sending butter to the six contests, who obtained the highest and second highest average scores. Certificates of merit will be awarded to those obtaining an average score of 92 or above. These valuable cups (shown in adjacent engraving) and the certificates are now ready, awaiting the outcome of the next scoring to determine the winners. The competition for the cups is close and the outcome is awaited with interest. Several butter-makers are in line for certificates. The cups and certificates are provided for by a fund secured largely from the butter-makers themselves and the supply houses.



Prize Cups to be Given Winners in the Butter Scoring Contest.



Alfalfa in California—The Basis of Our Recent Dairy Progress.

It is urged that as many butter-makers as possible accompany their entries to Davis. They will thus have an opportunity to observe the workings of the Dairy School and meet the students there at work. An opportunity will be given for them to note the quality of the other butter entries and compare them with their own. The judges will discuss the entries at the meeting. In no way can a butter-maker do himself more immediate good, other than by taking a course, than by availing himself of this chance. Prominent California creamerymen and dairymen will be present and the important dairy questions will be discussed. Dairymen as well as creamerymen will find it to their interest to be present. The terms of the contest as framed by Professor H. A. Hopper of the University Farm were given in full in our issue of January 30 last. Briefly, it may be said that the contest was designed for the busy butter-maker who cannot leave the churn long enough to take a short course of instruction in an institution, but who desires to improve his product. He can, by this plan, ship an entry at specified times, have it scored and criticized, and will profit greatly by so doing.

The following plan has been followed:

Each contestant submits an entry at six specified periods during the year, bi-monthly.

Each contestant is limited to one 20-pound cubical package at each scoring. The butter submitted to represent the regular run. The score card recommended by the U. S. Dairy Division has been used.

The contestant pays all transportation charges and donates one entry for the premium fund. The receipts for the remaining butter have been remitted to contestants. Only one class has been made, namely, creamery butter. In accordance with this arrangement, as stated above, about twenty California creameries have taken part in this contest, widely separated in their locations, and a scoring has been had each other month as has been described in detail on each occasion in our columns by Professor Hopper. The final scoring and the figuring of the five contests preceding will be used in the award of the beautiful trophies shown upon this page. Surely November 23 will be an interesting day in the creamery on the University Farm. Professor Hopper is entitled to much credit for the careful attention he has given to this matter and the enterprise of bringing it into being.

Swift & Co. of Chicago are erecting plants and slaughter houses in Argentine that can handle 400 cattle and 4000 sheep per day. They were forced to go down to South America after live stock because the demand for meat is so great in the United States that there is none left for exporting purposes.

The city trustees of San Mateo have passed a milk inspection law, which forces all dairies furnishing milk to the town to have their milk tested.

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Nov. 9, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	2.60	7.79	5.06	62	40
Red Bluff	1.08	2.33	3.11	76	42
Sacramento	.80	2.25	1.80	76	44
San Francisco	1.01	3.04	2.00	74	48
San Jose	.68	2.15	1.54	76	38
Fresno	1.02	1.72	1.12	66	46
Independence	T	.32	1.07	70	32
San Luis Obispo	1.46	2.00	2.09	90	38
Los Angeles	.28	.58	1.03	92	50
San Diego	.54	.56	.72	80	46

The Week.

During the last week we have made a diagonal section of the geography of California from San Luis Obispo to the upper part of the Sacramento valley, and have been much delighted with our observations. It is our wont to travel with our eyes bulging out of the car window like saddlebags on a burro—except that they are both on the same side of the motor. Car window studies are apt to be rather superficial, it is true, but they give general impressions which are apt to be truer than views of generalization which are drawn from less seeing. You cannot count the blackbirds in a flock which the train puts on the wing, it is true, but you get a better idea of the number of blackbirds in the country from counting the flocks from the car window than you can by counting birds from a gatepost. And so, whenever we can do a thousand miles of California landscape, it adds much to our car-window conclusions about California progress, and is especially helpful in comprehending the extent and relation of things.

Our observations began early in the morning as a southbound train pulled through the tunnels east of San Luis Obispo and started down the long grade from the mountains into the beautiful valley in which that growing town is picturesquely located amid its pyramidal foothill watch towers. The environment of San Luis Obispo is notably unique even in this State of manifest uniqueness. Within an hour one can go from the midst of the city to the unrivaled ocean beaches at Pismo, where for miles the almost unbroken stretches of brilliant sand glide from the bluffs beneath the blue waters of the Pacific; or, in the opposite direction, can mount to the summits of the Coast Range, which the early rains are now investing with robes of golden poppies and cerulean lupins. To the northwest the highways lead from the city's little valley over low hills to fifty miles of coast slopes, populous with dairy cattle, while to the southeast the passing of low hill barriers brings one on his way to the winding course of the famous Arroyo Grande valley, the unrivaled fountain of prize pumpkins, emblems of peerless salubrity and fertility, and beyond is the Santa Maria valley—flowing with oil and beet-sugar syrup. San Luis Obispo is therefore environed not only with picturesque beauty but with varied industry, and is advancing with the development of the latter in a very gratifying way.

We dropped into San Luis Obispo the other day to note the progress of the California Polytechnic School, a high school of industry cornered upon the agricultural and mechanical arts. Its progress is satisfactory in every way. The last legislature was liberal with the school, and a group of new buildings is now approaching completion—creamery, power plant, culinary and dining outfit, dormitory, drainage and water supply—all these things are good of their several kinds, and with them comes to the school many additions of tools and machines of significance in industrial teaching. Nearly 150 pupils are in attendance this year and they are gathered from all parts of the State. The upbuilding of this special school of industries, receiving pupils from the grammar schools and its younger brother, the School of Agriculture on the University Farm, are well equipped institutions of a class to which educators of the United States are now giving close attention. There is a pedagogical question, which has strong advocates of at least two sides of it, now pending in this country, viz.: shall the keen current demand for instruction in the industries, for pupils below college age, be met by special schools or by additions of industrial training to the existing high schools? Some advocate special schools, others claiming that the older literary high schools will be supplanted by special schools, the support of the former become reduced and their quality impaired, and therefore it is better to vivify and modernize the old style high school by adding well equipped industrial departments. In the older and more populous States, where high schools are already amply provided, it would impose heavy taxation to provide separate special schools, and while funds were running in this way the support of the existing schools might become inadequate and these schools, judged by their own standards, would decline. For this reason there is a strong sentiment for extending and diversifying instruction in the existing high schools. In California this particular question is of less moment, because we shall need more high schools for a generation or more to come, and they may be new style high schools or old style, as their constituencies may desire and are willing to provide for. Even while this fact exists and broader high schools are actually appearing in different parts of the State, it is apparent that California has embarked upon the settlement of the main question for itself, because we are providing special high schools at different points in the State, with a much greater expenditure than such schools are commonly supposed to cost, and are securing therefore a much better instructional outfit. Both the schools at San Luis Obispo and Davis illustrate this fact, and all our readers who can should visit and examine them from this point of view. At the same time several of our regular high schools are spending money freely upon industrial departments. Thus California is seizing fast hold upon both horns of this supposed educational dilemma and may prove that there is no dilemma after all.

With our mind running strongly along such educational lines, we were hurriedly summoned to resume our car-window studies in another part of the State, to-wit, in the Sacramento valley, as a part of the escort which the Sacramento Development Association desired to attend the Irrigation Committee of the United States Senate in its examination of reclamation projects and irrigation development in that region of the State. This gave much opportunity for sight seeing and for explanation of the California landscape to interested visitors, and, as enterprising citizens of sections now securing notable development furnished automobiles freely, car-window views were supplemented by scores of miles of close studies of significant things, which was, of course, a great added advantage. We have no space for details, which will appear in our future writing as association calls them out, but choose a point or two of broader suggestiveness. Of course United States Senators are suave; their wide acquaintance with men and affairs endows them with this quality, but their interest in the advancement of the country is not assumed; it is smooth but not the less real. When they spoke to the people of the Sacramento valley at the welcome meetings which were planned for them, they used words which it is good for California to have the world hear. For example, Senator Warren of Wyoming meant more than platitudes when he said in one place:

"The first impression of California was received on Christmas night in 1849, when my father came into the room where I was sleeping in a trundle-bed and said that in the morning the family would start for California. On the following day, however, my father, like many another of those days, was compelled to retract and acknowledge that he had not enough money to make the California trip.

"By grubbing along a little later in life, I was able to buy books about California. By working on the farm days and studying at nights I supplied myself with that which I felt to be essential, and I started for California. But before I got here I became impounded and conserved, so to speak, by the mountains, and was honored by my fellow citizens with place and position until I was chosen a United States Senator from Wyoming, so that now I can't make my home in California, much as I might like to.

"So you see that from the first day the word California always meant largeness and generosity, and speaking to you as business men I can truthfully say that never at any point we have visited has the State shown anything but the largeness, the greatness and the progressiveness that its name to me had implied from the start."

It is, of course, good for California to be known in this way, and it is an interesting fact that Senator Warren has shaped his attitude toward California in his work in the Senate in harmony with this conception which he acknowledges California has impressed upon his mind. In the matter of deciding upon the course which he would follow when the question of using public money under the National Irrigation Act to bring water, not upon a desert, but upon land which had made good by rainfall crops, in order to demonstrate how much greater capacity for production and home making irrigation would secure, it is manifest that he desired to help California attain what he conceived to be her destiny in population and development. It was this which actuated him and his associates to favor the assumption of the Orland project as the first unit or subdivision of the great Sacramento valley scheme, and it must have been a great satisfaction to him, and to his visiting associates, Senators Carter of Montana and Jones of Washington, to see the Orland enterprise so near to its realization.

At the meeting held at Orland, Senator Carter of Montana, chairman of the Senate Committee on Irrigation, presided and clearly demonstrated his genuine interest in national work for irrigation as a basis for actual settlement and home making and not to develop the productiveness for speculative purposes. The discussion was on the actual settlement and life upon the land as compared with absentee ownership, and though some local speakers showed clearly how a man might earn

money elsewhere and hire his farm work done—at least until the land came to a fullness of crops, the visiting Senators agreed that such was not the spirit or intent of the law, and Senator Carter showed, by skillful questioning of speakers who were inclined to favor certain latitude in taking up actual residence, that such land with plenty of alfalfa and water would make returns so soon and so satisfactory that probably even a year's privilege of absence and of hired work might be a dream rather than an actual advantage. At all events the sentiment of the Senators clearly was that the Government was spending the money for the benefit of actual settlers and home makers and not to promote dealings in land improvement for which private enterprises afford ample opportunity. The Government cares more for comfortable homes and well trained and nurtured offspring than it does for bank accounts of nonresident land owners. Probably the declaration of this basic principle at the Orland meeting may exert a wide influence in the future development of the reclamation projects.

Another attitude of the Senatorial committee was defined when local speakers suggested that the payments to the Government might be deferred. The expectation is that at the close of the first year after receiving the water on his land the water user shall pay one-tenth of the acre cost of the works, and each year thereafter one-tenth until paid up—all without interest. It was held that the settler might not be able to begin these payments so soon. The reply of the Senators was that, judging by the speed with which alfalfa land begins to produce, the amount cut and the prices now prevailing there ought to be no occasion for deferment of the one-tenth payment; that the farming should be planned for it and for family support, and only part of the land put into long-distant harvests which would need so much outlay in carrying to maturity. On land like that at Orland, with a demonstrated productiveness to be increased by water, the situation is not like reclaiming desert situations, where the ability of the land, the adaptability of the crop and the attitude of the market all have to be determined. The conclusion is then, if payments must be deferred, it is not a place like Orland which should ask for it. If the advance in the price of land which has already been realized because of the anticipation of water is at all justified, there should be no question of the profitability of higher farming and larger production, and this should settle the question of re-payment to the Government, which would hardly be more than the interest or share which a private leasor of land would require. The Senators were sharp enough to apply to the speakers their own logic of the desirability of California lands; they evidently were amused to see a speaker blow prosperity on one side of his mouth and suck poverty on the other side. We wonder if we are getting in the habit of doing that anyway? If so it is time to stop. It is inconsistent, and therefore not a jewel of speech.

Queries and Replies

Currant Growing.

To the Editor: Would you kindly advise us through the columns of your valued paper the proper time to plant currants, and give us the names of the most desirable varieties. We are of the opinion that our section will produce currants, and we would appreciate any information given. —Reader, Tehama county.

We suppose you mean garden currants and not English or Zante, which are dried grapes. Garden currants are seldom satisfactory in the interior valleys. You can only tell for your place by trying them. Quite a full account of currant growing in the bay district, where most of the crop is made, was given in the Pacific Rural Press of May 29, 1909. The cherry currant is the widest grown variety. You will find that our advertising nurserymen offer also other varieties. In making a small trial plantation we would put in several varieties from what they offer.

Cow Peas.

To the Editor: Will you kindly let me know through your paper when cow peas, to be grown for fodder and cut for hay, should be sown, and how many pounds of peas to the acre, and at what depth to be drilled in, or can they be sown broadcast? Also, when cut for fodder do they enrich the soil, and at what stage of ripening should they be cut? Is it the best kind of pea to grow?—A Subscriber, Dinuba.

Do not forget that the cow peas are beans and very different in requirements from the peas and vetches which are more closely related and similar in behavior. The cow pea can only be grown in the summer except in places where the frosts are absent or very light. Besides, even if the heat is right, cow peas do not like hot dry air nor hot dry soil, and are not usually satisfactory on the plains nor on the drier lands of the Coast region. On the bottom lands where the air is moister and the soil favorable a great growth can be had. They may be either drilled or broadcasted and should not be too deeply covered as they have the bean's trouble in getting above ground. The depth may, of course, be greater in a light soil than in a heavy and in a dry surface than in a moist surface. For hay they should be cut as the pods are forming and not too late. The Whippoorwill is one of the best varieties. The roots left in the soil after cutting are of advantage to the soil.

Vetches for Bean Land.

To the Editor: What is the proper time to sow vetches as a fertilizer for sandy sediment soil of this locality, and is such a plant considered beneficial to soil which has been planted to beans for a number of years? I would also like to know the number of pounds of seed per acre and where the seed may be obtained.—Farmer, Lompoc.

Vetch seed can be sown as soon as you can get the land in condition to receive it. It is expected to make a winter growth during the rainy season, and about sixty pounds can be sown to the acre. You can get the seed from seedsmen advertising in the Pacific Rural Press. Whether your bean land would be benefited or not can only be told by experiment. Theoretically there would be less to expect from land that has already been growing a nitrogen-gathering plant like the bean than land that has been cropped for grain, beets or other crops which are not of a leguminous character.

Pruning Fig Trees.

To the Editor: I would very much like to find out if fig trees can be trimmed up without injury to the fruit. If so, which time of the year is the best to do it?—Suburban, Los Angeles.

Fig trees can be pruned successfully, but it is not usually advisable to shorten-in the growth. You can remove branches below which are not desirable or you can remove part of the branches or smaller limbs if the top is not a good shape. Be careful to cover the wounds with good oil or lead paint or grafting wax so as to protect the soft wood until the bark begins to grow over it from the sides of the cuts. Amputations should be done toward the end of the dormant season or just a little while before the new growth starts, because the wounds will heal more rapidly at that time. Dieback is likely to result from cutting the branches too early in the dormant season.

The Apple Leaf Aphis.

To the Editor: During the past summer my apple crop was about ruined by the winged aphis, I believe, which affected the leaves and apples, covering them with a sticky substance, and stunting the growth of the apples so that they never grew to a marketable size. After having ruined the crop, they seemed to hatch out and fly away or die. Now, is there anything one could do to prevent their appearance next year? Is there any winter or early spring spray that would have any effect in driving them away? If not, what is the best spray to use after they do appear? What do you think of the oil emulsion spray as compared with the lime and sulphur for the scale, etc.?—Reader, Sonoma county.

The aphis laid its eggs and died. These eggs which are small, shiny black bodies, easily found with a magnifier, will stay on the bark through the winter. These eggs are exceedingly hard to kill, harder than a scale insect, as winter sprays for scales do not kill them. They must be attacked after the leaves appear and they begin hatching out. The lime and sulphur wash is better than an oil emulsion for scales, because it is more aggressively corrosive. An oil emulsion is better for aphis than the lime and sulphur because it can be used after the aphis hatches without injury to the leaves. Perhaps a weaker lime and sulphur would do because the aphis when active is very easy to kill. You can kill it with almost any insecticide if you hit it; it does not need an axe. But a man has to have a good outfit and handle it well to hit the aphis and he has to begin before the leaves get to curling also.

Horse Beans as a Cover Crop.

To the Editor: I would like to have what information you can give me about the horse bean as a leguminous crop in a citrus orchard, and whether you consider it suitable and profitable. Can you tell me where I can obtain seed in quantity sufficient to plant 20 acres. The trees are large and the ground shaded most of the time, preventing the growth of peas and vetches to any extent, and I am in search of something that will take their place, and prefer a deep rooting plant. —P. R. B., Tulare county.

Horse beans are quite largely grown for the coffee trade and have shown themselves to be very frost resistant. They are rapid growers and some approve them for a green manure crop, where their tall growth does not interfere with their plowing under, as might be the case in an orange orchard if the branches run low. Under good conditions, the horse bean makes a plant two or three feet high with a very stalwart stem, and in many cases might become so entangled with the branches of the trees that it would be hard to handle them. We are not assured that horse beans would grow better in the shade of larger trees than other legumes, although that may be the case and if so we would like to know it. You can only tell by experiment whether they will do better with you than peas and vetches. You can get seed in any quantity from our advertising seedsmen.

Alfalfa in Tile Drains.

To the Editor: Please let me know if alfalfa can be planted, as I have been informed, on tile drained land without the tiles being clogged by the alfalfa roots. If alfalfa cannot be planted directly above the tiles, how wide a strip should be left unplanted on each side?—Reader, San Francisco.

Alfalfa is not as bad about entering tiles as are some of the more fibrous rooted plants and yet if the tiles carry moisture in the dry season there is apt to be some interference. If the tiles are laid on an even grade and no water pockets or dips they will remain practically free. We do not know how far the plant will sidestep for a drink and would rather not guess at it. The main thing is to have the tiles properly laid on a continuous grade so that they will dry quickly.

Horticulture.

ASPHALTUM AS PROTECTIVE TREE DRESSING.

To the Editor: Your kind invitation to me to "write whenever you wish" has encouraged me to ask you a few more questions.

Our county entomologist in looking for a remedy for the peach borer which brings great loss and expense to the growers of this valley, has been experimenting with asphaltum, and thinks this is going to prove a remedial measure if not successful in entirely eradicating the pest. He is not ready to be quoted, however, being, as I believe, over-cautious in most of his announcements. He uses grade "D" and says it has not injured any trees to which he has applied it. However, before trying it extensively I wish to ask your opinion of it. It is extremely cheap selling at 2 cents a pound retail, and if it is not injurious to the tree would be just the thing, besides the use mentioned, for painting over the wounds where large limbs are removed, filling the catch-basin in the crotches of trees, and possibly with the addition of mutton tallow or some other fat, make a cheap and efficient grafting wax. It is about the consistency of grafting wax and is put on warm.

This is not for publication, though if its use is safe and its value what I think it is, I shall be pleased to let you know for the benefit of the PACIFIC RURAL PRESS readers.

San Jose. GROWER.

[We are exceedingly glad to have the information given in your letter, and regret that we connot give you definite decision as to the innocence of a bark application of asphaltum. A few years ago one would have been warranted by popular judgment to warn enquirers against the use of any such material, but more recently the use of coal tar, tree tanglefoot, and other substances of that nature, have been so often made without injury, that the old style of precaution seems to be altogether unwarranted. It has been clearly demonstrated that such materials can evidently be used safely. We prefer, however, not to give assurance in the matter of asphaltum, because we do not know, and arguments by analogy are sometimes misleading. We should, however, apprehend that using such a black substance in any place liable to be reached by hot sun would invite sunburn and injure trees seriously in that way, even if the application were in itself innocent. We shall be glad to hear your later conclusions on the matter, and hope that neither you or Mr. Morris will seriously object to our printing your statements, although not intended for publication. We like the practice of the referendum which brings such interesting matter before the whole circle of our readers for consideration. The subject is now open for discussion.—EDITOR].

DRIED GRAPES FOR STOCK.

Mr. N. O. Hultberg writes about his experience with dried grapes for stock in the Modesto Herald: He says that in 1908 failing to get $6 per ton for his grapes, he dried them and fed them to hogs. Having more than the hogs required, grapes were fed to the horses. According to Mr. Hultberg: "The horses soon got a taste for them and seemed to thrive well on the new diet and in a short time became fat and sleek, while they were being worked as hard as ever, and we continued to feed them dried grapes and have kept it up for a whole year. The result is that I haven't had to buy a pound of grain for a year. The effect seems to have made the old horses five years younger, both in looks and in ability to work. The hogs fattened up so quick that we thought the pork would be soft and sloppy, but to our surprise, we never had better bacon and ham than was produced from these grape-fed porkers. It was not only solid, but sweet and tender."

He adds: "There is no doubt that the dried grapes would be an excellent feed for milk cows also. If it adds to the flow of milk and makes an additional amount of cream, it will pay the dairymen to buy dried grapes and feed in addition to his alfalfa hay, and save his alfalfa field from being pastured so hard during the winter months. It would give him more hay in the summer; and, if it gives him more milk and cream in the winter, when cream is very high, it certainly would pay him to buy dried grapes and feed to his cows."

He estimates that one ton of dried grapes is equal to one ton and a quarter of barley, and at the price of barley during 1908 in his judgment his grapes brought him in $14 a ton. He believes that the solution of the grape price question lies with the grower, who if he objects to the amount offered by the wine maker can dry the fruit and feed it to stock and by this means get a fair value for the product of his vineyard.

APPLES EAST AND WEST.

Mr. H. Russell, of Rochester, which is centrally situated in the apple region of western New York, after visiting the new apple districts of the State of Washington, reads his neighbors this lesson: "As to the methods that have made the Washington apple too popular to please the Eastern grower, it seems to be summed up in the dozen words, that the rule is there what the exception is here. Here we can find an occasional farmer properly caring for his orchard, but he is the exception, while there it is made by the State law so unpleasant a matter for the orchardist who fails properly to guard his orchard from insects and disease that neglected orchards are unheard of. The orchardist is forced to spray for insects and fungus, and when it comes to marketing the crop, the apples are all packed under a reliable standardization that guarantees the size and quality. The work is all done subject to State inspection, and it seems to me that this Western idea has a practical application right here in New York State."

THE BENNETT APPLE.

The 1908 year book, United States Department of Agriculture, describes the Bennett apple, which is shown by a colored plate. It is of the Winesap group of apples, originated as a seedling in an old fence row on the premises of Mr. S. L. Bennett, Medford, Oregon, about 1883. Ten years later he produced bearing trees by top grafting of this variety. A gold medal was awarded the fruit at the Charleston Exposition in 1902, and a silver medal given at the St. Louis fair in 1904. It was first commercially propagated by J. S. Barnett, Central Point, Oregon, about 1903, and has been planted considerably at Rogue River, Oregon, the past five years. The fruit is large, rich sub-acid flavor, juicy; color striped crimson, washed with red on a deep yellow, classed as a red apple and reported to be an early and heavy bearer.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

This past week I paid my second annual visit to the orange growing section of Tulare county, and while there has been much progress made in the past year, that which will be made in the next three years will far overshadow any gains of the past 12 months.

The great increase in acreage commenced four years ago and the orchards planted at that time are just coming into bearing this year, but it will not be until these trees are five and six years old that any great big increase in the output in cars will be noticed.

When I was in Tulare county last year I met a very intelligent grower, who was one of the directors of the exchange at Porterville, and who predicted that in four years from that time the output from Tulare county would be close to 10,000 cars of oranges. I afterwards heard this prediction substantiated by others who were in a position to know what they were talking about. Since that time the planting of new groves has only been limited by the amount of nursery stock obtainable and in the future it looks as though it would only be limited by the water supply, as the land suitable for orange culture is practically unlimited, and I should judge that there was at least 100 miles of foothill country that would grow oranges, and I also note that the lower lands are being planted. If this land should prove suitable for oranges and not liable to be cut down every year by frosts, southern California may have to take second place as regards total cars shipped.

The growers in this country tell me that so far there has never been a failure in boring for water within a certain distance from the foothills, though some wells are 2000 feet deep. That is a good long ways down to be sure, and it reminds me of a little incident I witnessed at Porterville while waiting for the train that was to take me homeward. A talkative foreigner, a Swiss for a guess, was airing his socialistic views, condemning the methods of taxing, ridiculing the protective tariff and the government in general. He was a grain farmer somewhere near Porterville, and when he got all run down condemning the government he began to talk about his farm and mentioned that he had a well close to 2000 feet deep on his place, and this reminded him of a farmer back in Kansas who was hauling water three miles during the dry season, and when asked why he did not dig a well, replied that it was just as far one way as another. I had heard the story before, but perhaps it will be new to some.

The mountains back of the orange belt are immence storage reservoirs for water, they are covered with snow during the winter and more rain falls than in the south. Great quantities of this water percolates through the soil to form the underground reservoirs that are tapped by pumping wells. If the time should ever come when this underground supply should give out it will then be up to the people interested to spend money for storage dams in the mountains, and there is no doubt but that enough water could be conserved in this immense watershed to supply all the water this country could ever need.

I drove over several miles of orange country, was right in the groves, and had a fine opportunity to see what the growers here were doing. Up to this time they have not been up against the hard propositions that have confronted the southern grower. They have been right in clover, and their lot has been easy. With young trees they have not had to fertilize so heavily, or rather they have not up to now seen the need of more than a yearly spread of manure. They do not use the cover crop as extensively as the growers in the south, they do not cultivate as thoroughly as a whole, and they have never had the pests to fight, no spraying, and no fumigation expense to meet. It has all been mighty easy so far. A newcomer from somewhere east buys a grove. He does not know anything about orange growing, but, of course, he is willing to learn from the man he bought of, and from his neighbor, and he learns when to put in the annual dosage of sheep manure, how often to cultivate, is told when he can get irrigation water if he is under a ditch, and if he has his own water, how often it is usual to irrigate, and in what season of the year. His fruit grows somehow, and it is true that the trees look mighty fine, he consigns his fruit blindly to someone he never saw or heard of before, and low, he is an orange grower.

These conditions cannot always last. As the trees get older they will need more care and more fertilizer if they are to keep up the bearing of the past. I know of a reader of this paper who bought a large orange grove in Tulare county, and who, while not an experienced orange grower, had operated as an orange buyer among the southern growers long enough to imbibe a few cultural ideas, and who used the southern methods from the day he took hold. This ranch had never had a pound of commercial fertilizer on it, but this man gave it a good dose and the first year he nearly doubled the production, the next year he increased over the prior year by 50%, and this year he has a still larger increase. The investment looked a scary one to some people when he took hold of it, but it will make him a rich man in a short time.

That so little commercial fertilizer has been used in Tulare county is due in the first place to the seeming lack of necessity, and again, because up to now all kinds of manure has been available at a small price. Tulare county is a horse, cattle and sheep country, and manure was very cheap. It is now getting high priced on account of the huge demand for it and scarce as the ratio of demand increases. They will have to come to the

commercial article in the course of a short time, and for the most part will be utterly ignorant of the proper ingredients to buy to correct certain conditions. They ought to be able in some way to profit by the experience of their brothers in the south.

The little town of Lindsay has as many packing houses as either Riverside proper, or Redlands proper, and while their machinery is not up to date nor their capacity quite so large as the southern houses, they can still handle quite a lot of fruit. Last year Lindsay shipped close to 1000 cars of oranges, while Redlands shipped over 4500 and Riverside over 6000 cars. The reason for so many houses is that the fruit must be handled very quickly after it does start to go out, because it is figured that every car that goes out before the main southern crop comes in is a gain, and there is also more or less danger of the fruit being nipped by the frost if left on after December 1st. For Thanksgiving and Christmas trade the northern orange is far better than that from the south; is of better color, sweeter, and altogether better eating. There are southern shippers who will dispute this, but the facts are against them. I tasted oranges on my trip this week that were near sweet and of a good color inside, though I confess I saw others that looked the color of a lemon inside and tasted like one, though in the outside appearance the oranges were identical, both green as grass.

At Porterville I met an old friend in C. A. Boston, and he very kindly drove me to points of interest in and around the city and out into the orange country, and to his own ranch of 30 acres. Mr. Boston was just beginning to pick, two men being then at work and a gang expected on the morrow. The two men were picking for color, but so far as I could see, there was very little choice and it would take the feminine eye of an experienced ribbon buyer to pick the right shade and to know just where to begin and where to leave off. The fruit was quite green, but no more so than any other that was being packed in any part of the county. That it will quickly color after being picked is true. I took a perfectly green orange from a tree in Mr. Boston's orchard on Wednesday and today (Saturday), one-half of it is a pale yellow and the other a pale green.

We were driving through the orchard and I noticed quite a few "splits" on a tree, and as this is somewhat uncommon this year, I asked Mr. Boston about it. He became interested at once and wanted me to tell him what kind of a tree it was that we were looking at. It was certainly a navel, and such I pronounced it, but Mr. Boston claims that it is neither a Washington nor an Australian navel, and as I never heard of any other kind, all I could do was to promise to bring one south and try and find out what it was. The fruit was extremely large, rather flat in shape and near the stem end were a symetrical series of corrugations all the way around. This was on every orange without an exception, and it certainly looked as though there was something in his claim. I have not had time, as yet, to take it to any authority, but I did show it to a grower who said that it was a Washington navel all right, but that it had been crossed with a squash.

Agricultural Science.

PROFITS FROM FERTILIZERS.

To the Editor: A question that annually presents itself to farmers, and especially to those engaged in fruit culture is: Will it pay to fertilize? A summary answer may be made to it by saying that it will depend entirely upon whether or not a little more than the cost of fertilizer and labor can be realized by the increase in crop. It is not enough to know that the crop will be increased, but the farmer must know how much the total increase in crop from the use of fertilizer will bring on the market. Yet it should be said that the effect of the fertilizer may last for several years, and this total increase should be counted against the cost of the fertilizer, just the same as the increase from the application the first year, except in the case of nitrate of soda, which experience has shown to become exhausted the first season. Science has conclusively shown that in the majority of cases the yield will be increased by the use of fertilizers, but it remains always for each man to solve under his own conditions whether the total yield will more than repay the increased cost. This can only be done by experiment.

In measuring the effects of fertilizers, however, the farmer must realize that the best of physical conditions must be maintained in his soil. No kind of plant food can correct physical defects in the soil, nor make up for deficiencies of cultivation. The soil must be well drained and pulverized. The natural agencies for rendering plant food available must be assisted. The condition of the soil must be such as to procure proper solution, distribution, and retention of the plant food used, otherwise neither an answer to the question nor an increase of crop can be secured. Improved physical condition of the soil is primary, and the use of proper fertilizer secondary, in the matter of profitable fertilization.

Take, for instance, strawberries: First, the ground must be thoroughly prepared; then the proper material must be selected to suit the stages of growth. This demands the use of different kinds of materials. At the outset there is needed a fertilizer that will not only build an all-around plant, but also will be so compounded and proportioned as to ingredients as to develop particularly the production of the plant itself; in other words, force a strong growth of foliage. The material for the later application must be so proportioned as to especially favor the production of berries. In the former case the fertilizer should not only be a complete one, i. e., containing all three essential elements, nitrogen, phosphoric acid and potash, but it should be relatively strong in nitrogen, since this is the element which makes the leafy growth, but the other elements should not be omitted, because it is only when they are present in satisfactory amounts that the nitrogen can accomplish its work. The later application, however, should carry not more than half as much nitrogen, and should have its potash supply increased, the phosphoric acid remaining about the same. The potash is especially concerned in fruit production, increasing the size and improving the flavor. The potash used in the first application is not lost through drainage, but if there is a residual amount, it is stored in thesoil for future use of the plant, which is also true of the phosphoric acid; but the nitrogen must be counted upon for its effect only for a single season.

There is no difficulty about farmers mixing their own fertilizer material. This has been quite conclusively shown by a number of experiment stations. It is not difficult for them to make mechanical mixtures that compare favorably in mechanical conditions with the best manufactured brands of complete fertilizers, and the cost of mixing by the manufacturers can thus be saved without increasing the cost of farm labor. Consequently, if the farmer cannot find what he wants in the market, he can easily secure his raw materials and make his own mixture after his own formula. In making such mixtures there are two points that must be taken into consideration. First, that the value of a complete fertilizer depends upon the kind and quality of the essential ingredients, nitrogen, phosphoric acid and potash, contained in it; and, second, that the higher the grade of materials used in making the mixture, the less will be the expense of freight and handling per pound of essential ingredients. Consequently, the purchaser should not look at the price alone, but must take this in connection with the percentage of valuable ingredients which it contains. As a general rule, the more concentrated the form of fertilizer materials purchased, the greater will be the saving in actual cost. For instance: There is offered in the market potash in the form of kainit, and in the form of high-grade sulphate. The former carries about 12½% of actual potash, the latter about 50%, so that as measured by the potash content alone, the latter would be worth about four times as much as the former. But in reality it is worth even more than that to the farmer, because to secure the same effect, he has to do less work, handle less material and pay less freight on it. This is also true of certain nitrogen-bearing materials offered on the market, and incidentally it may be said of many ready-mixed fertilizers, so that when the farmer looks only at the price and not at the amount of plant food he is getting for the dollar, he is often misled. We have but to calculate the commercial values of these materials to ascertain their true relation to the prices asked by the manufacturers.

To answer the question whether or not it will pay the farmer to fertilize, we must consider, first, how thoroughly we put our land in the proper physical condition; secondly, how thoroughly we fertilize, and thirdly, how wisely we purchase the plant food.

GEORGE WRIGHT.

Forestry.

THE ACORN CROP OF 1908 AND THE PINE SEED CROP OF 1909.

Written for the PACIFIC RURAL PRESS by Prof. WILLIS LINN JEPSON of the University of California.

The autumn of 1908 witnessed the production of a remarkable acorn crop in all parts of California. From both sides of the San Joaquin valley, as well as from other quarters of the State, came reports of most remarkable crops. One cattleman told of the great yield of the scrub oaks of the chaparral on the west side of the San Joaquin in the foothills of the San Carlos range. The scrub oak was more heavily loaded than ever before seen in that region. The acorns stood so thickly on the branches that they imparted a distince color to the scrub oaks—a color distinct from that of the foliage and which could be seen 200 to 400 yards distant.

Blue oak (Quercus douglasii) trees were also heavily loaded; so heavily loaded that branches broke under weight of the acorns. Doubtless the limbs were weakened by dry rot, to which blue oak is particularly susceptible. The falling of blue oak limbs by reason of a heavy crop had been reported to me previous to 1908, but I am free to say that the story was always received with some skepticism. It is now once more repeated from so reliable an observer that I must accept it on the assumption that the limbs in question were diseased limbs and that their fall was hastened.

All the oak species bore heavily, especially those which required only one season to mature their fruits. This phenomenon of the annual fruiting oaks was readily correlated with seasonal conditions. There was practically no rain after the end of February in 1908, and no rain at all during the pollination period. This was certainly the most important factor in the setting of a crop.

The dry season which followed had some features of interest in relation to the development of the acorns. It was an unusually long season, as the rains did not break early. In spite of this the acorn crop, owing to favorable pollination conditions, as said, was heavy, and the individual acorns, moreover, were frequently very large. Remarkably large valley oak acorns were sent me from St. Helena, from the Kaweah region, and from other points. On the other hand, individual trees standing in unfavorable or arid situations produced small or singularly shaped acorns. In this latter case, then, the long dry season caused the deficiencies of particular trees to react strongly upon their fruits, and in consequence I have never known the acorns to be so variable.

Our oaks are, to be sure, very variable. Such species as the blue oak, the live oaks, the maul oaks and others are in nature made up of a large number of more or less marked races or strains. The distinctions are ordinarily not easy to make out clearly. In 1908, however, the conditions were such as to emphasize slight or obscure differences in the greatest possible degree.

The season of 1909 was as regards the matters above referred to essentially like that of 1908. As a result there was this fall a remarkably heavy pine seed crop. When coming down Rancheria mountain above Hetch-Hetchy valley in July, I noticed that the white fir trees were heavily loaded in their tops with cones. From various parts of the Pacific Coast I have similar reports regarding the conifers. The first require but one season to mature, but the true pines require two, so that we have a favorable conjunction bringing a heavy seed crop of all conifers in this autumn of 1909. This is, therefore, a favorable time for collecting seed from conifers, of which advantage is already being taken by a number of my correspondents.

Berkeley, November, 1909.

AGRICULTURAL REVIEW.

Horticultural Notes.

A. Bonslett, of Gridley, has blackberries just ripening, which are said to be as large, plump and juicy as in the usual berry season.

The prune growers around Healdsburg have succeeded in selling practically all of the crop for this year. Heavy shipments have been made to Chicago, New York and Germany.

Reports from Florida indicate a crop of oranges about 20% larger than last year. Buyers are offering 75 to 90 cents per box on the trees, but growers are holding for $1 or better.

A car load of oranges will be shipped from the E. W. Shirk grove in the Coachella valley this season. It is stated that a large increase will be made in the acreage set out to oranges in that valley the coming season.

The Sonoma county Horticultural Commissioners have decided to hold regular monthly meetings at Santa Rosa on the first Tuesday of each month at which horticultural subjects will be discussed, and all fruit growers are invited to attend.

Harvesting the olive crop has commenced around Oroville and will soon be in full swing. The crop is pronounced to be very good, being about double that of last year, and as the market is bare of the fruit, prices will be good for both pickle and oil varieties.

The Farmers' Union gave out a statement at Fresno this week stating that it had contracts controlling 6500 acres of bearing vineyard and 3648 acres of bearing orchards. As the vineyards are supposed to produce a ton of raisins per acre the Union has about 6500 tons of raisins under their control.

November 1st was the first day of the new citrus shipping year, which promises to be a fair one for prices and a little less than an average in size of crop. The season just closed proved to be the biggest ever. During that time 40,500 cars of oranges and lemons were shipped, as against 29,500 cars for 1908.

At the mass meeting of orange growers held at Porterville last Saturday, a protective league was organized for the purpose of defending the district against the importation of trees or fruit that would introduce the black or other kinds of scale, of which the district is now free. About 50 growers attended the meeting.

Preparations for the Citrus Fair to be held at Dinuba for the week beginning November 29th, are progressing very nicely. The big pavilion having a floor space of 100x180 feet is nearly completed. Most of the exhibit space has already been taken, and fine exhibits are being planned to be sent from Porterville, Lindsay and Lemon Cove.

Figures given out by the Riverside Press show that over 6000 cars of oranges were shipped from that district during the season just closed. The total output of oranges was 2,500,000 boxes, and the returns to growers will not fall much below $1.00 per box. The lemon output was larger than ever before, exceeding 600 cars.

At a meeting of the Brawley Cantaloupe Growers' Association held last week the results of the year's business was given to the stockholders. Melons from 887 acres were shipped through the association bringing a net return to the growers, after paying freight, packing and commission charges of $117,197.94. Total number of crates shipped was 112,227, the average net returns per acre being $132.13. This report was somewhat of a surprise to melon growers as the season proved more profitable than had been anticipated.

General Agriculture.

The Nuevo Land company is seeding 4000 acres of land to wheat this fall, in the Allesandro valley, near San Jacinto.

California celery is now going East from the southern part of the State in large quantities. Good prices are being received.

The sugar beet acreage in Yolo county will be largely increased the coming season, not only will the land held under lease this year be continued, but a large new acreage is being secured by the Hamilton sugar factory.

The first carload of cotton was shipped from the Imperial valley to Oakland this week. The price paid to growers was 12 and 13 cents. As a result of the success made in growing cotton this year, the farmers of that valley are contemplating planting out a much heavier acreage next season.

If the alfalfa growers around Gridley will sign the agreements guaranteeing 10,000 tons of hay per year, at $6 per ton, for ten years, an alfalfa meal mill will be constructed at that place at once.

While the bean growers of the San Joaquin valley have a smaller crop than usual this year, the quality is said to be first-class and prices are good, ranging from $3 to $3.15, which is a dollar higher than received last year.

The farmers' demonstration, under the direction of the University of California, and furnished by the Southern Pacific, will tour the Sacramento valley the latter part of this month. The train will consist of five cars instead of two as it was run last winter.

A larger tonnage of beans has been moved from the southern counties so far this season than any previous year for the same length of time. It is claimed that 350,000 bags of beans have been sold by growers from Orange, Los Angeles, and Ventura counties. This large selling leaves the growers, who are still holding beans, in good shape and as the market is now practically in the hands of the association, and as prices have an upward tendency, the chances for a successful season are very good. A meeting of the association is called to be held at Oxnard, Saturday, November 13th.

Stock and Dairy Notes.

The officers of the Alameda County Combined Poultry and Pigeon Show, to be held at Oakland from November 23d to 28th, are making preparation to care for 2000 birds. Thirty cups, besides ribbons and cash prizes, will be given to the winners at the exhibition.

H. C. Reynolds, who has a flock of 550 turkeys near Gridley is now fattening them for Thanksgiving trade. The only feed given them now is soaked seed of broom corn, which puts them in fine condition. The price of turkeys will probably be a little higher than last year.

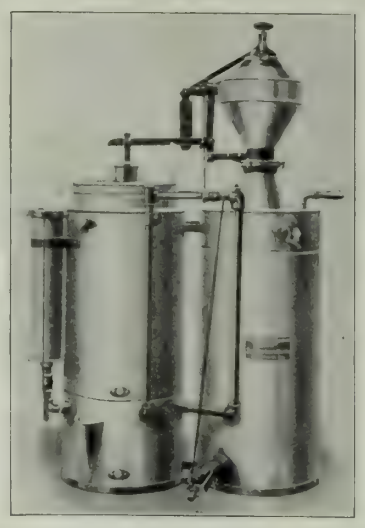
Miscellaneous.

The Lac Jac Winery near Reedley was partly destroyed by fire last week entailing a loss of 250,000 gallons of wine, valued at $60,000, partly covered by insurance. The origin of the fire is not known.

The big pre-cooling plant of the Santa Fe railroad at San Bernardino is nearing completion and is to be finished by January 1st. The plant is an immense one, being over a half mile around. Plans are being made for a big celebration upon its completion.

The alfalfa association has a dredger at work reclaiming 3000 acres of tule land two miles west of Corcoran. Three miles of levee out of seven has been completed, and the whole will be finished by January 1st. The land inside the levee is being cleared, plowed and seeded to alfalfa.

Owing to competition among the large packers at Fresno during the past week, the price of raisins has been forced up from 2 cents to 2½ cents and is firm at this price. While a large tonnage was



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1,000	Resinifera (Red Mahogany)
700	Robusta (Swamp Mahogany)
32,000	Rostrata (Red Gum)
13,100	Rudis
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A few 1000 assorted fruit trees at low prices; send for price list.

T. J. TRUE, Modesto, R. F. D., 1.

bought at 2 cents a couple of weeks ago, very few raisins are now being sold at 2½ cents. The growers believe that the price will go to 3 cents before long. The market is in very much better shape than for a long time.

The Hubbard & Wright ranch of 1100 acres in the San Fernando valley was sold last week for $150,000. The big ranch has been farmed to grain for years, but the new owners propose to cut it into small tracts for home seekers.

An irrigation well recently bored in the southern edge of Tulare county near Delano, from which 80 inches of water are being pumped, may change the entire aspect of that section within the next few years. With plenty of water provided it is claimed that the section will be planted to oranges.

The Central California Raisin Co., with headquarters at Fresno, the new million dollar corporation formed recently for the purpose of controlling the market for the next five years, is meeting with considerable success in their campaign for signatures for the five year contract. At a meeting of the committee of this company, held last Saturday, it was decided to abandon any effort to help move this year's crop, as the upward trend of the market and the heavy buying during the last two weeks has effectually disposed of the question of carry-over.

PUBLISHER'S DEPARTMENT.

Eucalyptus planters should read the nursery advertisements in this issue.

The Trumbull Seed Co., of San Francisco, has a very attractive advertisement in this issue. This well known and substantial house is forging ahead, as usual, and handling an extensive business.

Every sufferer from hernia should read the advertisement of the Fidelity Rupture Cure Co. on another page. By prompt attention a cutting operation is usually avoided and the cost is very much less.

Messrs. Hickey & Vonsen, the enterprising Petaluma, Cal., merchants, are out after a mail order business. You will notice their advertisement in the PACIFIC RURAL PRESS. This wide-awake firm is pretty much in evidence everywhere north of San Francisco.

The California Seed Co., is a new business house, located at 221-223 Market street, San Francisco. This company is managed by Al. J. Nevranmont, who was for a number of years with the Trumbull Seed Co., and latterly with the May Seed Co. He proposes to carry an extensive stock of seeds, and will soon have his stock in shape for business.

The Ames Supply Co., of San Francisco, is carrying an advertisement in the PACIFIC RURAL PRESS. B. H. Ames, the manager, is a reliable and industrious young man, who was for several years connected with the Byron Jackson Pump Co. His place of business is at 110 First street, this city, and his leading specialty just now is lubricating oils. You will remember Mr. Ames in sending in your orders for oil.

A representative of the PACIFIC RURAL PRESS recently called at the Bean Spray Pump Company's new factory in San Jose, and was surprised to find how rapidly it had grown during the past few years. The factory now covers a floor space of 27,000 square feet; it has an up-to-date brass foundry, a large machine shop with the very latest of machine tools and splendid warehouse and shipping facilities. They have an extensive trade in New Zealand, Tasmania, Australia, South Africa, British Columbia, and all parts of the United States. This business has grown from a very small beginning, because they have always refused to turn out any poor, cheap pumps; whatever was purchased of them growers have found they can depend upon as being the very best for the purpose. We like to see the machinery for handling our fruit business built here at home. The Bean people also sell all kinds of spraying materials, in fact, as they say, "Everything for spraying."

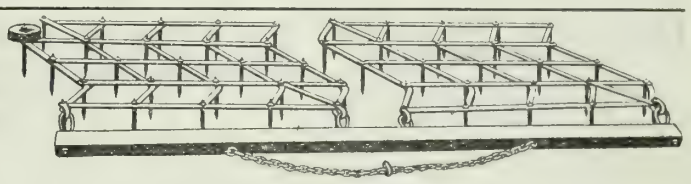


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You cannot extract sunbeams from cucumbers nor blood from stones, nor good crops of fine oranges and lemons from inferior trees. A poor tree is an expensive experiment entailing only vexation of spirit and a dwindling pocket book. Then why experiment with stock of doubtful quality? Why not get the best and be sure of the future? For 20 years we have been supplying the people who grow good citrus fruits with their trees in every citrus growing section of the world, and stand ready to serve you equally well. Why not write us and let us become better acquainted?
The economics of successful orange and lemon growing is tersely explained in our book, entitled "The Citrus Fruits: Historically, Horticulturally and Commercially," a copy of which is yours for the sum of 25 cents.
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200 Selected Pecans, 2 to 4 ft .....@ .15
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700 Gros Colman, 1 year rooted vine..@ .05
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Several thousand Almeria and Gros Colman cuttings. Price on application.

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PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J St., Sacramento, Cal. Send for catalogue.

FARMERS' INSTITUTE FOR WOMEN.

Extension of the Farmers' Institute idea to include the farmers' wives is the latest to be pursued by the Department of Agriculture. The betterment of the home surroundings of the farmer with particular regard for the advantages of good housekeeping, wholesome cooking, the observance of the laws of sanitation, the beautifying of the home, inside and out, the economical administration of the woman's side of the business of farming, pure water, ventilation and an endless variety of minor items which will tend to make the life of the farmer's wife and daughters more attractive are the purpose of this new division of the department.

Prof. John Hamilton, formerly State Secretary of Agriculture of Pennsylvania, is at the head of the division of Farmers' Institutes. In an interview for the World, Prof. Hamilton said:

"This extension of the Farmers' Institutes to include in its beneficiaries the women folk of the farm is comparatively new. We have been having Farmers' Institutes throughout the United States for more than twenty years. It is only within the last three or four that the women have begun to see the chances for developing real advantage for their own sex through these gatherings of the farmers.

"The work of the woman's institutes is perhaps broader in its scope than that for the men.

"They are shown the most profitable methods of preparing the products of the kitchen garden and the poultry yard for the city market; how to make the exterior of the home attractive to the eye by beautifying the dooryard and the flower garden; the preservation of the water supply from contamination; the internal economy of the home; the care and feeding of infants, and the development of the public school system in the rural communities.

AN AUTOMOBILE COTTON PICKER.

The Southern planter has often longed for something to take the place of the colored brother in the cotton field. To harvest the fleecy staple something like 5,000,000 of the black folk are needed. Along has come a man who has been thinking of picking cotton by machinery, and at last an automobile for the cotton fields has come into use.

Growers and inventors have often thought that the contents of the cotton boll could be pulled out by mechanical fingers instead of human fingers, but have not succeed hitherto. It is claimed that the new device can do it. Instead of two arms, however, it has no less than eight, and a 10-year-old darky can be trained in an hour to guide two of these arms at such a rate that a machine which traveled over a cotton field in Alabama picked and bagged six bales of the staple, weighing 500 pounds each, in a day of ten hours. This beats the liveliest work which has ever been accomplished by human labor. With an active cotton picker it costs very nearly $5 a bale, because the amount of cotton to a pound is so enormous.

STATE FAIR FINANCES.

A final report by Fred W. Kiesel of the board of directors of the State Agricultural Society shows that the recent State Fair at Sacramento was a financial success, the first in many years. The total receipts amounted to $49,353.65, which includes $20,000 appropriated by the legislature to be used exclusively for prizes for stock and industrial exhibits. The total expenses were $43,790.61, leaving a net gain of $5563.04. In the items of expense, however, is included a list of old bills incurred during the years 1907 and 1908, amounting to $6469.11, which the surplus from this year's fair wipes out.

The total paid admissions were, in round numbers, 35,000. The total gate receipts were $11,715.15; grand stand receipts, $1044.50; concessions, $1365; exhibition entries, $1544.50.

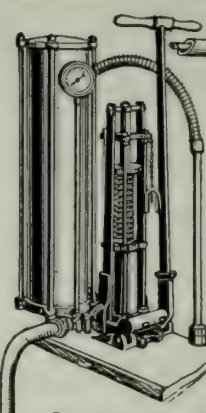
HOW IS THIS FOR A PUMPKIN CROP.

To the Editor: Are we some pumpkins, or not? My partner, Mr. T. C. Rocliffe, at Orosi, Tulare county, has raised pumpkins as follows: Ten pumpkins, total weight, 1056 pounds; 40 pumpkins, total weight, 3656 pounds; total yield on 1½ acres, 40 tons. All these are actual weights on scales.

GEORGE BABCOCK.

Fresno.

[Who can weigh up against this?—EDITOR.]



See That Patent spring?

It means much to the fruit grower who realizes the need for effective spraying, but deplores the ordinary pump with its exhausting labor, its unsatisfactory spray and its continual clogging and bother. This spring is found only in

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It should be used just before the bloom, and again when grapes are about the size of a No. 6 shot. Do not use it when the north wind blows, or when it is extremely hot, because the scalding of the liquid upon the leaves will cause some damage to the tender ends of the plant. Use it about 1 part of Rex to 50 parts of water. For full particulars address:

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A CALIFORNIA VIEW OF THE DISTANCE BEES FLY.

In the PACIFIC RURAL PRESS of July 10 we gave an interesting account from Gleanings of the reason why Mr. G. M. Doolittle thinks that bees will fly several miles, even as high as four or more, to get supplies.

Mr. W. A. H. Gilstrap of Ceres has quite a contrary view. He also writes to Gleanings that they do not fly one mile for nectar when they can get plenty nearer, and says: "As I am now in my twentieth consecutive year of keeping from 50 to 350 colonies, I can not rank as an old or extensive bee-keeper; but a varied experience has taught me some things, and this is one of them.

"In 1895, on my Chamberlain range, 16 miles south of Fresno, there were about 125 colonies. My main flora was alfalfa and alkali weeds. In the best of the honey flow at different times it was nearly out of the question to find bees on flowers three-quarters of a mile from the apiary, while anywhere within half a mile of the yard bees were abundant.

"On the Esq. Ayer location in this (Stanislaus) county I had about 75 colonies in 1899. There were some honey-producing flowers and plenty of water near the bees in a westerly direction; but decidedly the main source was alkali weeds, which grew rank for about a mile in an easterly direction. Near the apiary the weeds were higher than my head and very dense. Under these circumstances bees might be expected to go up to the Westport country and visit scattering weeds from choice; but really few bees went over a quarter of a mile from the apiary during the best of the season. The record was 140 pounds extracted, spring count, many colonies being weak in early spring.

"While alkali is an extremely free and reliable bloomer at any season favorable to its reaching warm weather, it is not as copious a producer of nectar as basswood, the sages, and some other plants.

The same year I helped move about 80 colonies to a weed patch, and it was worth something to see the bees rush for the wilderness of bloom from early morning till well toward noon, when we left. When perhaps a quarter of a mile from the apiary (distance was only a guess in this case), we stopped and looked in vain for bees.

"Now let us look at the other side of the question. A year or two after the experience noted at the Ayer yard we had a rather dry winter and an early spring, with few weeds the following summer. The honey flow was weak till well along in summer, when honey dew was stored at a fair rate. A fairly good search was made for the new El Dorado within the regulation 1½ miles without finding more than a trace of honey dew. Near the close of the season two of my neighbors took a trip about 3½ miles from the apiary to a place where honey dew was so thick that it mussed their clothes, horses and saddles in a very provoking manner, and the bees would have probably made a record except for the long haul.

"Few men understand bees as well as Mr. Doolittle, but he is evidently mistaken—clear at sea—on this quistion, or else I have not stated facts. That the Alexander bees gathered honey so far from home only proves that at that time the range was overstocked near home.

"The foregoing applies to valley range, but I have kept bees in the hills enough to suggest that while sometimes they have a slight advantage there they are apt to be hindered by the hills. An ideal range would probably be in the form of a hopper several miles wide with an apiary near the bottom, which would give the bees a 'down-hill pull' to the hives."

INCREASING YIELDS OF CEREALS.

Those who have been figuring during the last decade or two that the world would be soon out of bread-making cereals have evidently not allowed for the increasing yield per acre by better farming. Bradstreet's gives some interesting figures in this connection: Germany has within a ten-year period increased its yield of wheat per acre 25%, while its growth of oats has been advanced 28% per acre. France has also done quite well, its yield of wheat per acre rising 18% in the decade under review, though there has been a loss of 3.7% on oats. In the period 1898 to 1907 Austria obtained 2.7 bushels more wheat per acre than it did in the preceding ten years, the rise being 17%, and at the same time its crop of oats advanced 4.7 bushels, or nearly 20%. In Hungary yields of wheat per acre seem to have remained stationary at 17.9 bushels, but the oats yield shows a smart gain, 5.6 bushels per acre, which is equivalent to 22%. Even the United Kingdom is able to report progress, the yield of wheat per acre having advanced 2.5 bushels, or 8.3%, in ten years. Russia displays a gain on wheat of not quite one bushel, though its outturn of oats per acre increased 2.6 bushels, or something over 15%. Coming to the United States, we find that our yield of wheat per acre in 1888-1897 was 12.8 bushels, whereas in the most recent decade it was 13.9 bushels, the gain being only 1.1 bushels, about 8.6%. Oats yielded 4.1 more bushels to the acre in the period 1898-1907 than they did in the preceding decade, the ratio of gain being over 15%.

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Live Stock and Dairy.

Prepared for PACIFIC RURAL PRESS
By PAUL P. PARKER.

CHEESE MAKING ON THE PACIFIC COAST.

With cheese selling at 16 to 17 cents a pound many dairymen on the Pacific coast arehaving their butter making machines changed so that they can manufacture cheese instead. The dairymen claim that there is more money in making cheese than in butter, especially when there is a long, rough haul to the market. A prominent dairy supply salesman said that this change was especially marked in the territory between Los Angeles and San Francisco. The plants being put in are not makeshifts, but only the most modern and up-to-date machinery is being installed.

As the ad for a prominent breakfast food says, "There's a reason." So it is with this increase of cheese factories over the coast, the reason in this case being the adaptability of the climate for cheese making. The green feed and the supply of fresh, pure water also enters into the question, but after these factors comes the equable climate. The humidity and temperature along the Pacific ocean is especially adapted to give that mild flavor and texture to the cheese without the aid of artificial cooling apparatus in the curing room. A cheese is only half made when placed in a curing room. The milk and curd may have been the finest, but if the temperature is not right the cheese will lack the great essential—flavor. Too high a temperature—that is, over 70° F.—will cause unnecessary shrinkage and will make the texture of the cheese "mealy." On the other hand, too low a temperature will not permit flavors of any kind to form, either good or bad. The best results in curing have been obtained at a temperature of 60° F. This is just warm enough to drive off the gases in the cheese without hurting the texture or driving off the fat. There are some people who like a very mild cheese, and this is obtained at a temperature of about 45° F.

The moderately cool atmosphere along the coast aids greatly in the curing and flavoring of cheese, but care should always be taken not to have the cheese in too damp a curing room, as it causes a mold to form over the cheese, which not only gives it a very bad appearance, but it enters into the cracks of the cheese itself.

The California cheese makers are just commencing to realize that it pays them to cure the cheese from four to eight weeks instead of rushing it on the market two or three weeks old as they did formerly. The practice among cheese makers also has been to rush the curing of the cheese by increasing the temperature, but this subterfuge is easily detected, and a cheese cured in this way does not bring the price of one cured continually and gradually at a mean temperature.

Dr. Charles Thorn of the U. S. Department of Agriculture, who has been investigating the making of different varieties of foreign cheese in America, says in a late bulletin of that department that the climate on the Pacific coast is the most favorable for the manufacture of Camembert cheese of any place in the United States. He has compared the meteorological records of northern France, where the Camembert cheese is made, with those of the other dairy regions of the United States, and the Pacific coast alone has climatic conditions which are similar. The Camembert cheese is the best known and most esteemed in America of the European cheeses. Cheese makers over the United States have tried to make this cheese, as there is a good demand for it, and it brings a high price, but so far all efforts have failed because the temperature was too high or too low, which interfered with the proper curing of the cheese. Many of the manufacturers imported experienced Camembert makers from France, and even built their factories after French models, but to no avail. The climatic conditions were not favorable. The losses resulting from the weather getting intensely cold one day and hot the next caused so many cheeses to spoil that most of the factories have been abandoned.

It is to be hoped that some progressive cheese makers on the Pacific coast will take up the manufacture of Camembert cheese, because they bring 10 to 15 cents more per pound than the cheese made in California at present, and they do not cost any more to make. The climatic conditions are such that opening and closing of the doors of the curing room will give the proper temperature, so that there is no expense of artificial heating or cooling.

A request to the Bureau of Animal Industry, Washington, D. C., will give any one all the desired information about the making, curing and handling of this cheese.

CALIFORNIA CREAMERY OPERATORS' ASSOCIATION.

The tenth annual convention of the California Creamery Operators' Association will be held at Porterville on November 18, 19 and 20.

The Porterville Chamber of Commerce and the local dairymen have taken the matter in hand and will entertain all those who attend, not only with an excellent program, but with outside diversions as well.

The most prominent creamery men, butter makers and dealers from every section of the State will talk on some phase of the dairy business. Also the dairy department of the University of California will discuss the scientific side of dairy and creamery work.

A butter contest will be held in connection with the convention. Not only will a gold and silver medal be given for first and second place, respectively, but a cash prize will be given all those who score over 90 points.

All entries in this contest should be at Porterville by November 17. Prof. H. A. Hooper and Mr. C. L. Mitchell are to judge the contest, which will be announced November 18. The program is as follows:

Thursday, November 18—Address of welcome, by J. F. Boller, Porterville. Responses for the association by Prof. Majors. President's address, by W. H. Roussel of San Francisco. On Thursday afternoon the talk will be on plans and suggestions for securing an improvement in milk and cream. The men who will speak on the various phases of this topic are C. H. Werder, Corcoran; F. W. Johnson, Marysville; Prof. C. W. Rubel, San Luis Obispo; F. H. Faulkner, Oakland, and J. P. Murphy, Fresno. On Thursday night Hon. B. H. Rasol, chief of the U. S. Dairy Division, will deliver an address; A. Jensen of Eureka will tell of his observations at the National Dairy Show at Milwaukee, and J. N. Gilman of San Francisco will speak on "Some New Ideas in Creamery Machinery."

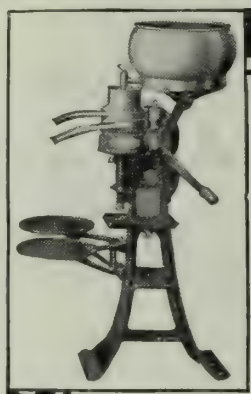
Friday, November 19—The past, present and future of dairying in California will be handled by R. A. Simpson, Ferndale; M. G. Salmina, Cayucos; E. W. Major, Davis; J. L. Starr, Los Angeles; E. B. Stowe, Stockton; J. R. Murphy, Fresno; A. L. Lundy, San Francisco. Address by J. H. Dawson of Hanford on "The Business End of a Creamery." In the afternoon an address by Prof. Anderson of the University of California; "National Legislation of Vital Interest to the Butter Industry," by William H. Saylor of San Francisco and an illustrated lecture by Prof. Hopper of Davis. On Friday evening a banquet will be tendered the association by the local creamerymen and chamber of commerce.

Saturday, November 20—An auto ride will be given over the country, and in the afternoon C. L. Mitchell, U. S. Dairy Inspector for California, will give "Some Observations Relating to Dairy and Creamery Methods in California," and George A. Smith of Corcoran will give the final address on "Opportunity for Dairying in California."

BEET TOPS FOR CATTLE.

This is the season of the year when cattle are being fattened on sugar beet tops. Cattle respond very quickly to the fattening influence of beet tops and gain weight rapidly. Cattlemen experienced in this branch of feeding never like to give the green tops to the stock, as it has a tendency to scour them. They usually wait a week or so until the leaves have wilted and dried out a little. When stock is feeding in a large field where there are both green and dry tops it is a bad policy to let them touch the green tops, as they will not eat the dry after once feasting on the succulent green tops.

A herder should be kept in the field to keep the stock on the dry tops and also watch the cattle choking on beets, as it is a very common occurrence. The herder should be equipped with an inch steam



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There is likewise the all important difference that while the substitute for silver may answer the purpose almost as well as genuine STERLING in the case of cream separators the imitation and substitute WASTE in quantity and quality of product every time they are used, and enough in one way or another to pay for the DE LAVAL yearly, while the DE LAVAL lasts for years after the imitation or substitute separator will have been worn out and cast aside.

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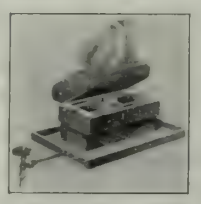
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hose about two feet in length to force the beets out of the throats of the choking cattle. A common garden hose is not strong enough, as it will bend when shoved against a beet lodged in the throat.

When stock get choked up in this way they go down on their knees or make for the brush, so that unless a close watch is kept on them they will choke to death before they are discovered. This is especially true where the ground is uneven and the herder gets careless. Cattle have been known to choke to death within 100 yards of the herder, who let the suffering animal get down in a hog-wallow unobserved.

To prevent the cattle from choking at night it is best to put them in a corral or herd them over a portion of the field that has been picked clean.

DAIRY NOTES.

Cows vary in their cost of keep and also in their ability to use economically the food consumed. Cows of a decided dairy type should be fed to their full capacity.

Feeding whole grain to cows and heifers is a very wasteful practice as very little is masticated by them. Ground grains are easily digested and very little passes through an animal.

The amount of milk and butterfat produced depends first upon the dairy capacity of the cow. The quality and quantity of the feed controls the output of milk but does not govern it.

Heifers with their first calf do not usually give as high a percentage of butterfat as they do when more mature, so do not be discouraged if a high-priced heifer does not come up to expectations after the first calf.

There are many dairymen over the State who should cut out the following and paste it in their hats:

"It is impossible to get clean milk from a dirty cow.

"It is impossible to take clean milk out of a dirty stable.

"It is impossible to keep a clean stable in a dirty yard.

"Good milk is clean milk. Dirty milk is poison."

LIVE STOCK NOTES.

Harvey Abbott and Thomas Harris of Salinas are buying cattle in Arizona and New Mexico.

Schmidt Bros. of Tracy shipped 90 of the best hogs ever sent out of that district to San Jose last week.

Edward Breen has stocked his Topo ranch near Kings City with several hundred head of Nevada range cattle.

G. A. Smith of Corcoran recently shipped five of his Jersey cows and one bull to the Crocker estate at San Mateo.

Sacramento county is going to have an exhibit at the Internatnoal Live Stock Show to be held in Chicago the latter part of November.

Many horses and mules around San Bernardino are dying from an acute colic. It is attributed to a large shipment of moldy hay from Arizona.

The David Jacks corporation has put 1500 Angora goats on its ranch near Monterey. The goats were put on the land to clear up the brush and small trees.

Stockmen in Butte county are rejoicing over the prospects of a good feed outlook. The early rains and warm weather have caused the grass to start in fine shape.

The following amount of live stock, etc., was received in San Francisco for the week ending November 5: 958 head of live stock, 6700 pounds of tallow, 275 sacks of wool, 4320 pelts and 14,065 hides.

Some recent buyers of registered Holsteins in California are T. A. Elliott, Visalia; W. E. Gray, Los Angeles; P. W. Shell, Delano; James Hansen, Newman; W. H. Putnam, Visalia; William E. Kendall, Modesto.

The Mendenhall Cattle Company of Valley Center, Cal., bought 12 Aberdeen-Angus bulls from E. M. Gates, La Plata, Mo., last week. The prices ranged from $125 down to $65, the average price being about $90.

The executive board of the National Mohair Growers' Association held a meeting at San Antonio, Texas, on November 8. Two members of this board are from California—W. W. Wright of Los Banos and W. C. Bailey of San Jose.

Many thousand cattle are being shipped from Nevada and northern California to points between San Francisco and San Luis Obispo county for fattening purposes. One train with a thousand head of cattle and sheep passed through Sacramento November 3.

R. M. Cochran, the State Live Stock Inspector, and Dr. C. O. Durfee, the U. S. Dairy Inspector, have been inspecting the cattle along the coast of San Luis Obispo county. In one instance a cattleman refused to comply with the law and dip his cattle infested with ticks, so the inspector did the work for him and charged the costs up to him.

Veterinary Inspector Otis A. Longley has returned from a tour of inspection of the western part of Fresno county. He found many cattle infested with the common wood tick, but no fever ticks were discovered. Dr. Longley thought it would be at least a year before that county would be released from quarantine, because the spring floods this year gave the work a setback. In order to save the cattle from drowning at this time it was found necessary to move tick-infested cattle on clean land and clean cattle on tick-infested land, thus undoing much of the previous work.

KEEPING COYOTES AWAY FROM SHEEP.

Coyotes inflict a great amount of damage to sheepmen all over the Pacific coast. When they do not kill the sheep they maim and cripple them so that they are of no value. Will Jacks of Monterey county, who has had a great deal of experience with the coyote, uses two methods in protecting his flocks. At night when the sheep are banded together he hangs lighted lanterns around the edge of the flocks. As a light is about the only thing a coyote is afraid of, it is very effective and inexpensive.

The other method is poisoning. Mr. Jacks makes it a practice never to poison a carcass, as a bone that has been out in the sun and rain for a year is known to have still retained enough poison to kill valuable shepherd dogs. He takes a tripe and drags it over the hills, always coming back to a certain spot where he has placed poisoned liver. The coyotes get the scent of the tripe on the ground and come down to the liver. To protect his dogs the shepherds are sent out early in the morning to pick up all pieces of liver untouched. In this way he poisons many coyotes and yet never loses any dogs.

LOCO WEED IN GLENN COUNTY.

F. Millsaps and J. O. Cooper of the hill section of Glenn county reported to the County Live Stock Inspector, Dr. Jensen, that many of their horses had died of a peculiar disease. On investigating, Dr. Jensen found that they had died from an over-indulgence of loco weed. Animals get the loco weed habit so that they prefer it to good wholesome food. When it is taken away from them in time they recover and show no ill effects, but if they are allowed to eat it too long they never recover. After eating the weed awhile the animals walk with a slow staggering gait, the coat becomes rough and they have a wild, staring look. The affected animals have hallucinations, cannot be led or backed and lose flesh. Where there are very large patches of the loco or rattle weed it has been found profitable to fence the patches, especially if it cannot be grubbed off. When the loco weed is cut, it should be done just before the seed pods form, so that there will be no danger of the seeds scattering.

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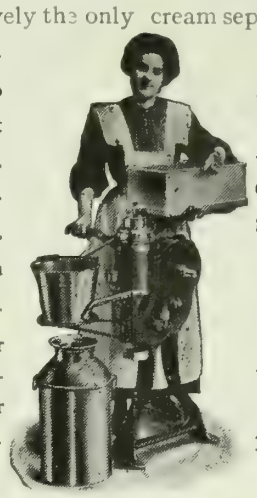
It has continuously held the **World's Record** on all practical points of efficiency since the Pan-American Exposition 1901.

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The Grand Prize

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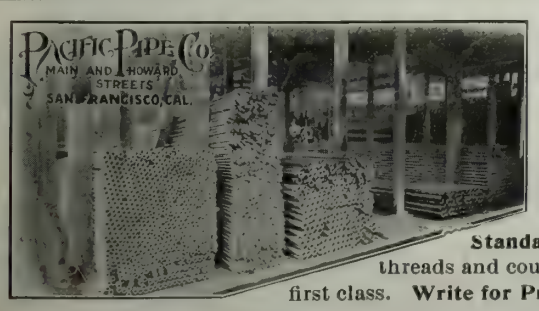
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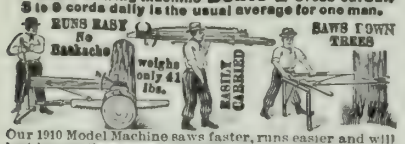
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THE FUTURE SUPPLY OF BEEF.

Hon. J. Warren Keifer writes as follows for an exchange in the central range region of the country:

If the corn-and Western States did not rear and fatten many more of the calves born than they do in New England and the Eastern States, beef would be 50 cents or more a pound. I can well remember when dressed, farmer-killed beef sold at three cents a pound by the quarter. I expect to live to see, if unfriendly legislation continues, choice beef at 50 cents or more a pound and scarce at that. The area adapted to cattle raising and feeding is contracting rather than enlarging, and the consumers friendly legislation to the cattle industry is the worst sort of economic policy. The natural and universal cry is for cheaper living. The removal of the duty on hides will inevitably reduce the now inadequate supply of beef, increase the cost of living universally, and promote a gigantic and now prosperous trust.

More than 33% of our population is directly, and vastly more of it is indirectly, interested in the cattle industry on account of the value of the hides of cattle, and everybody in the United States is interested in encouraging and enlarging the industry to secure a proper supply of beef. So the question is not even principally the protection of a cattle-hide producing industry, but one of promoting the production of large cattle for their beef and other valuable parts, in which everybody is interested. The relative value of the hide of a large beef animal is now, and has long been on an average about one-seventh the value of the whole animal when ready to slaughter. For example, a fat steer that would sell for $65 would ordinarily produce green hide weighing about 80 pounds, worth, say, 11½ cents a pound, or $9.20. The old duty added materially to the value of such an animal for the farmer.

If cattle are reared and fattened in the West in the future to the usual number, it will be because the price of beef steers has advanced. Every cattle hide brought to this country will take the place of the hide of a beef animal raised and fed here on a farm or ranch and to that extent destroy the home beef-cattle industry, thereby increasing the price of beef already now too high. More will be lost by putting hides on the free list to the beef consumer on a single steak he eats than he would lose on account of dutiable hide leather in any pair of shoes he wears. The whole people, as well as the raisers and feeders of cattle, will be benefited by fostering the cattle industry at home and the gold running into many millions of dollars annually that it will take to buy cattle hides abroad will be kept at home to swell this country's wealth. Unless free cattle hides result in supplanting our own cattle product and cause our gold to go abroad to buy the foreign cattle product the removal of the duty will result in nothing.

The only possible way to keep up even our present supply of beef cattle with hides on the free list will be to increase the already too high price of beef sufficiently to encourage cattle raising and feeding and this would give the packers cheaper, although the same relative number of cattle hides they now have which, according to the leather trust free-hide circulars would still leave them able to control the hide and tanning business in the United States. The beef cattle will suffer principally with cattle hides on the free list. Cows will be kept for their milk and dairy purposes, but their calves will be slaughtered and not reared for beef cattle—only for cows—because they will not sell for enough to pay for the extra feed, care and risk in raising. Farmers are like other people; they will not raise or feed cattle unless it will pay. Removing the duty on cattle hides of large weight will seriously affect the number of beef cattle.

HOODING A VICIOUS BULL.

Dehorning only partially, but the hood effectually subdues the most vicious bull. A writer in Farm and Home gives this as his experience:

A bull's hood is made of good harness leather; in width it is 28 inches; in depth 18 inches; the ear holes are three inches in diameter, and the horn 2½ inches; these are five inches apart, measuring to the center, and eight between the horns. The edges should be smooth that there be no abrasion of the skin about ear or horn from a comfortable fit. If too large, a gore a few inches in depth can be taken out and then laced. Or a better way is to cut and bevel opposite edges and lap over to a snug fit and rivet. Four oil-tanned hame strings are riveted one side, and four short double pieces, with a loop, on the opposite side. The hood is laced under the jaw and securely tied.

A Case in Point.—I own a Jersey bull (Tormentor); at one year of age he showed an ugly disposition. I had his horns sawed off close to the head; now at two years of age, he wears a hood, having made a determined effort to kill the milkman. Of the number owned within the past 20 years each has, at some time, shown a disposition for mischief, and two of them severely hurt the keeper. Bulls are dangerous when caressly handled, and so are cows if they have not been handled when young; a Jersey heifer, without being more or less handled, soon becomes wild, and it is a doubtful and difficult job to make a gentle cow of her. This breed of cattle is exceedingly nervous and must have early and gentle treatment, for this trait is convertible and becomes viciousness.

Were I raising cattle on the range, not a drop of this blood would be wanted, for they would soon become as intractable as deer. This much has been learned, that the highstrung, nervous family is the better for a butter cow; the American breeders will, in time, eliminate defects; the last and most difficult task will be to eradicate or modify this nervous vicious temperament.

This improvement begins with the adoption of the hood, a half dozen generations from subdued or hooded bulls will give a distinct improvement in temper.

Ring and Staff.—Every bull should, at one year of age, have a ring in his nose, and the staff in place of rope or chain to safely control him. I saw a bull toss a strong man with ease; had it been a staff he could not have reached him. At another time I saw a bull led into the amphitheatre with a rope, clean the ring in short order. Insert the ring to staff as a very necessary feature in the safe management of bulls.

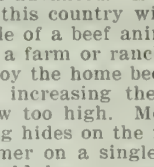
A GREAT HOLSTEIN-FRIESIAN.

Mr. Gillett, of Rosendale, Wisconsin, gave at a recent dairy convention in that State an account of how he secured a great cow, and what her yield was. It will interest our readers who have Holstein-Friesians.

My father established a herd of Holsteins 30 years ago, and I have had active charge of this herd for 21 years. The second year of my father's breeding operations he went East, and selected the old, imported cow, Johanna, then some 10 or 11 years old; she was owned by Gerrit S. Miller, of New York, and was bought on a special order from Holland as being one of the finest cows of the Holstein-Friesian breed from Friesland at that time. It is from this cow that we built our foundation herd and later we purchased Colantha, another imported cow, for which we also paid a very large price, and it is the cross of this Colantha upon the Johanna family that has produced the great cow Colantha 4th's Johanna. Colantha 4th's Johanna is in my estimation as perfect in type, conforms as closely to the ideal conformation of a Holstein-Friesian cow, as any animal I ever saw. I have always entertained great hopes of her capabilities, as I also entertain great hopes of the capabilities of other cows now in my herd, from which we hope to hear later and which are of similar breeding.

Colantha 4th's Johanna, unfortunately, and on the other side perhaps fortunately, did not breed for a term of three years. At the age of four years she showed such wonderful development, and freshened on June grass, and not knowing of the present system of treating milk fever and having lost so many of our valuable cows with milk fever, I did not dare to again breed her to come in in an older form of grass, consequently we intended to carry her over, and have her come in again the next fall. I think through this management she failed to breed, and she consequently did not have a calf for three years. I will say, however, that during her four-year-old form she milked with us nearly 20,000 pounds of milk, making nearly 700 pounds of butterfat. The year previous, the third year, she milked over 15,000 pounds, and the first year, at two year old, she made over 12,000 pounds.

This cow milked for a period of 365 days, an average of 75 pounds and a little over per day. She showed an average of 3.71 pounds of fat per day during this entire period. She was not bred during this time, but is now, I hope, safely in calf, and the day before I left home she milked over 55 pounds, and it is 16 months since she calved.



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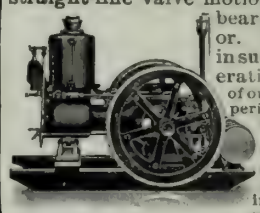
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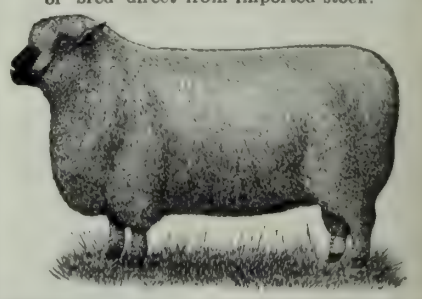
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Ed Brown was in the office of John Frederick, arranging to renew his fire insurance. Frederick was looking up the descriptions, valuations, etc.

"Let's see," he was saying, "any changes in the property described as follows, to wit:"—and so on? You've been doing some building, haven't you, Ed."

"Yes," Brown answered. "I've built a new barn, and put on some new roofs. I've got this Rex Flintkote Roofing on all my buildings now, including the house. No more shingles or tin or tar-and-gravel for *me*."

"Good for you, Ed. Now, this Rex Flintkote Roofing is fire-resisting, isn't it?"

"You bet it is. I made sure on that point. I sent for a free sample of Rex Flintkote Roofing, and tried it with live coals of fire. Then I tried it with water, too, — never feazed it. There's no getting-away from dead sure prove-up tests like these."

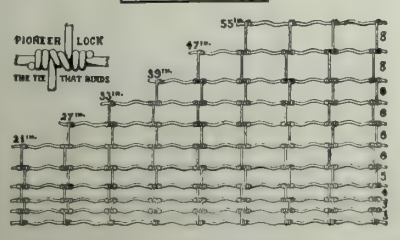
"You're right, Ed. I have to keep posted about different roofings. Fires nearly always start on the roof. In the cities, where they have strict building laws, people aren't allowed to use shingles and other inflammable materials for roofs. And there's just as much danger from flying sparks around farm buildings. Something might be wrong with the chimney on the house—threshing-machine engines are around shooting up sparks—a dozen-and-one ways a fire might start, if you havent got a proper roof.

"But—here's what'll tickle you, Ed. I will try to give you a lower rate of insurance, now that you've got Rex Flintkote Roofing on your building.

"Is that so! Well, Im going to tell every farmer in the country about it, and I guess they'll all be sending to Boston for that book which tells about Rex Flintkote Roofing. If anybody wants to know about it, Mr. Frederick, you tell them to write

J. A. & W. BIRD & CO.
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Water gates for pipe lines. Send for catalog.
POMONA MANUFACTURING CO.,
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The Poultry Yard.

THE LEGHORN OF THE DUCKS.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

The full egg basket, like the full dinner pail, is synonymous with prosperity. It follows that whatever helps fill it is worth the consideration of the farmer; and here the Indian Runner duck may come in as a valuable assistant to the hen. This bird has been aptly termed the Leghorn among ducks. When properly handled and well supplied with egg-making rations a yearly average of from 180 to 240 eggs may be obtained from a small flock of these ducks, and from 150 to 200 eggs from a flock of 100. The eggs are pure white in color, large and well flavored and have a reputation for being especially good for fancy cake making. Though the flesh of these fowls is of fine quality and the ducklings excel as broilers, for other purposes as a market fowl they cannot compare with the White Pekin. Like all strictly egg breeds among birds, they are small and active and busy foragers, and like the Leghorn among chickens they are hardy and practically non-sitters.

As the name implies, this breed of ducks is a native of India and the birds run instead of waddling duck fashion; they further vary from the duck family by being dry-land birds. They are said to do better without water to paddle and swim in, though like all ducks they must have an abundance of pure drinking water always before them and of sufficient depth to immerse the head and wash out the nostrils. The standard weight of the Runner is 4½ pounds for the drake and 4 pounds for the duck. The color and markings are the same in both sexes; the former is light fawn or gray and white: the neck and head white with cap and cheek markings of fawn or gray and the lower half of the body white. The neck should be long and thin, the longer and thinner the better; the breast round and full and the body long and narrow, carried erect and resembling the penguin in shape, and with the wings of medium length and carried close to the body. The bill should be extra long, strong and of good width at the base; in color yellow spotted with green in the duckling and green with a black bean in the mature bird; the legs medium length set well apart with straight toes webbed, and both shanks and toes a deep yellow.

To hit the high egg record credited to this breed of ducks requires strong, pure-bred stock kept in good condition. In starting with breeding stock the duck should be bought in the fall that they may become wonted to their new location before the breeding season. They are home-loving birds and very sensitive to change, which is sure to retard their laying for a long while. This is a hint to the duck raiser to keep his stock comfortable and contented for best results. When starting in the spring it is safer and cheaper to purchase hatching eggs from an experienced breeder of these ducks.

YARDING AND HOUSING.—The ideal location for ducks is a well drained brushy piece of waste land with a sandy creek cutting through it. On this coast a protected range of this kind, if not open to the raids of varmints, answers the requirements of the Indian Runners without any housing. Two successful breeders of these ducks, one in Washington and one in California, supply no further protection for the mature ducks. The ducklings, however, must be protected from rain and dampness until fledged. The first three weeks marks the critical period of duckling life; then they require uniform warmth and dryness. After that age the loss need be hardly one per cent. A low shed answers for their housing, but it must be free from drafts and dampness and open on the side away from the prevailing winds; the floor should be kept dry with each night a clean bedding of short dry litter. Cleanliness is very essential. Duck quarters become much more filthy than those of chickens. The Indian Runner is better adapted to the town lot than any other member of the duck family, being small and free from the annoying "quack," but they will not do well when closely confined. If kept in any ways limited quarters they should be occasionally changed to new ground and the old runs purified with lime, then cultivated and planted to barley.

FEEDING AND WATERING.—This is the most important point in the care of ducks. The duck having no crop the food must be reduced to a mushy condition in the mouth, from which it passes direct to the gizzard. Tender vegetation along water courses, insects, snails, minnows, etc., are their natural diet. Much whole hard grain is not good for them. Few of the large Eastern breeders feed any whole grain other than wheat and Kaffir corn. Of the two Pacific coast breeders before mentioned, the one in California fed two mashes a day containing 12 per cent or thereabouts of fresh meat and green bones; the one in Washington fed entirely dry mash in hoppers, 50 per cent of which was made up of bran and dry alfalfa leaves equal parts, the other 50 per cent consisting of one-fifth part each of corn-meal, middlings, wheat, Kaffir corn and beef scraps with the addition of about 10 per cent of sifted shells. In this latter case a vessel of clean water is kept by the feed hopper and the ducks are allowed to help themselves. This formula is especially recommended for ducklings, the dry alfalfa being the safest green feed and at the same time the strongest. Ducks are enormous eaters and rapid growers. They like to take a "snack" at night as well as through the day, and it is well to keep a hopper of this dry mash before growing and laying ducks constantly. Sand is another requirement, and a pile of clean sharp sand and grit should always be at hand. On all standard duck farms a hopper of sharp grit and one of crushed oyster shells are kept in every pen.

THE BREEDING SEASON.—On this coast the breeding season begins in February and covers the three spring months; also some good hatches may be had in September and October. These are the natural breeding periods and the only seasons that will insure strong vigorous ducklings.

Poultry Notes.

The United States Board of Agriculture in its last report gives the value of our egg output for one year as $290,000,000.

The editor of the Petaluma Poultry Journal has figured out that the poultry shipments from Petaluma average each day $4730 for eggs, $911 for poultry and $157 for baby chicks, making a total of $5798 for every day in the year, Sundays included. The associate editor rises to explain that Petaluma does not produce that yearly $2,116,604 of poultry products; Petaluma merely ships them from Sonoma county. Petaluma in herself is not raising poultry.

ORLANDO VS. THE ENGLISH SPARROW.—Orlando has done one thing which every town of prominence has failed on, says the Orlando Reporter, and that is to keep out the English sparrow. These pests are distributed over the country in box cars, where they go to feed and are shut in. When the car is opened in another town they simply fly out like any other hobo or tramp. This Florida town has managed to kill them so successfully that now when freight trains stop in Orlando with them on board the conductors of the freight say that the sparrows refuse to get off.

The report of the carloads of big prize winnĕrs from the East that were entered in the A.-Y.-P. poultry show at Seattle scared out the Pacific coast fanciers, particularly those of California and Oregon—and the B. P. W.'s never got this side of the Mississippi! Those of our fanciers who did show at Seattle are highly elated. The treatment occorded by the management is described as "royal" and the winnings highly satisfactory. W. S. Sullivan, whose ad is permanently located on this page of the RURAL PRESS, on his Buff Orpingtons won 1-5 cock, 1-2 cockerel, 1 hen, 1-3-4 pullet, 2 pen.

A LIVE ISSUE.—When Judge S. Davis of Marshall, Mo., was a young man, says the New York Sun, he had a popular candidate against him in his run for the legislature, so he cast around for something to turn the scales. He found it one day in a newspaper item to the effect that western Missouri farmers and poultrymen were losing their grain and stock by the depredations of swarms of rats. He determined to run on the platform, "Death to rats!" It was a live issue. The farmers of Saline county were more interested in getting rid of the rats than in the crime of '73. They took to young Davis and his issue and triumphantly elected him. Then they directed him to get busy. He prepared his law against rats, supposing that the legislators would treat it as a joke, but they listened gravely and passed the bill. Sam Davis' rat bill provided that "it is hereby lawful for any county court to offer a reward not exceeding 5 cents per scalp for the destruction of rats; provided that no reward shall be paid for any number of rats less than 50." In some of the border counties, notably in Bates and Cass, the county clerk had to move out of his office to make room for rat scalps. After several wagon loads had been purchased at Missouri's generous rate, it was learned that the industrious Jayhawkers across the line had been slaying rats and smuggrilng them into Missouri. Some even went to breeding them to keep the market supplied.

POULTRY.

ORPINGTONS — Sullivan's famous "Buffs" heaviest layers known. Grand lot of stock for sale, $2.50 and up. Eggs for hatching $2 and $3. **W. SULLIVAN,** Agnew, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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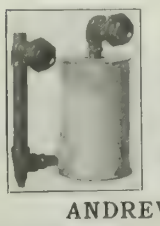
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The Home Circle.

Never Give Up.

Never give up or sit down in despair
  Saying it's no use to try;
The clouds never lowered so darkly as yet
  But there'd be sunshine and light by and by.

Never give up; if you do you are lost
  On the mazes of sorrow's long night;
Keep your heart cheerful whatever the cost;
  Keep you eyes looking the while for the light.

Never give up, for though fate does her worst,
  Did you ever yet know of a day
That the night did not herald with darkness at first,
  Or a night that did not roll away?

Never give up! so you fight the good fight;
  And of you none shall say he was lost;
Keep your eyes looking the while for light,
  Keep your heart cheerful whatever the cost. —*Selected.*

Doll's Lonliness.

He jumped out of the hansom and tossed a half-sovereign to the man, with tne careless air habitual to him, but the other's thanks were stayed by the expression of his fare's worn, handsome face, that he had never before seen without its gay, good-humored smile. The old butler, too, standing at the open door of the big, gloomy house, eyed his master stealthily, and noted the unfamiliar look that sat so strangely on the familiar face.

"I am not at home to anyone, Jenks."

"Yes, sir. Shall I take tea into the library, sir?"

"No," was the curt answer. The door of the library was closed with a decisive hand and locked.

He crossed over to the fireplace and stood for a few minutes leaning on the mantelpiece, with his haggard eyes star ing down into the recesses of the glowing coal. Then, still with that odd, calm face —that odd, gray, pinched look about his handsome mouth, he seated himself at the writing table, and for the next ten minutes there was no sound but the tearing of papers. He wrote two letters, both equally brief, and addressed one to his wife and the other to his lawyers and placed them before him, and without a pause, in the same methodical way, he opened a drawer and brought out a small revolver. He did not pause then, and, moving his head, took a slow survey of the room, as though he wished to carry with him on the journey whither he was bound a last remembrance of his surroundings. His blood-shot eyes fell on the clock—a fantastic thing that seemed to mock the sober grandeur of the apartment; the hand pointed to five minutes to five.

A grim smile flitted over his face.

"I will wait until five," he said, aloud.

Still holding the revolver, he twisted round in his chair with his gaze on the clock. There was no shrinking in his eyes, no tremor in the set, clean shaven face, that might have been fashioned out of gray stone; there was life only in the burning eyes.

Four minutes to the hour. Three minutes. Two. Eternity swung in sight —the portals of death were open, when someone of the living world rattled impetuously at the handle of the door, and, finding it locked, knocked with a boldness that demanded entrance.

With an ugly word he rose to his feet and swayed dizzily like one intoxicated.

"What do you want? Who is it?"

"It's me, father—Doll," said a clear childish voice.

"Go away, Doll," he said, thickly. The blood came ebbing to his face for a moment at the horrible thought of the child's nearness at such a time.

"Go to Miss Carter, Doll—I'm busy."

"But Miss Carter's gone to a wedding—her sister's you know, and she won't be home till seven," said the voice dolefully, "and it's dreadfully lonely. Father, are you there?"

"Yes, Doll, but I can't see you now."

"Not when it's my birthday?" indignantly.

"Oh, daddy, how cold you are; and yet" —peeping past him—"you have got a lovely fire. Darling, are you cross or not well?"

A queer look flitted over his face.

"A bit of both, perhaps, Doll."

"Not cross with me?"

"No, Doll, no."

"You were lonely like me, wern't you? And you wanted me—really?"

"Old woman, I can't let you stay here—this evening. What is that Carter woman about that she leaves you alone?" he demanded, impatiently.

"Oh, darling," said Doll, reproachfully, "she had to go to her sister's wedding. I should like to have gone, too, and Miss Carter wrote mumsey and asked her, but mumsey said it was out of the question." He waited with the handle of the door in his hand, but Doll was not to be so easily got rid of.

"Are you very busy, darling?"

"Yes.'

"She gave a deep sigh.

"I was dreadfully lonely upstairs," she began, apologetically; "I don't care two pins about Miss Carter being away, but it's my birthday, and—and"—tragically—"you never wished me any happy returns."

Happy returns of such a day. Poor little Doll!

"I'm a brute, Doll," he said, unsteadily, "not worth wasting a thought upon."

He took her little round chin in his fingers and looked down into her honest eyes—beautiful, thoughful eyes—replicas of her lovely mother, but with a depth, a soul in them that had never shone in the sparkling orbs of the fashinoable society beauty. Now as Doll's eyes met his he flinched before them, for their pure glance seemed to reach the recesses of his guilty soul.

"Ten today, are you? Getting quite an old lady," with a forced smile. "Good angels guard you, sweetheart, for many years—happy years."

Doll nodded and looked grave; for father to speak so sadly, and to speak of angels, too, was decidedly our of the common. She regarded him intently for a minute or two, then said, impulsively:

"Father, let me have tea with you—it would be a perfectly glorious birthday party. Say yes, do."

He would have come out with a refusal —the tension he was enduring was terrible—but his lips refused to give it utterance. This would be the last request that he would have the power of granting.

"Very well," he said quietly. "Have your own way, Doll."

She gave a little ecstatic scream and flew into the hall like a radiant white bird, too impatient to ring.

"Jenks, Jenks! I am going to have tea with father! Bring it to the library directly, please, and the cake!"

He went to the table and tossed the two letters he had written into the fire, and locked the drawer that held the revolver and brought the key to Doll.

"Doll, old woman, I want you to put that key away till I ask for it. Lock it away safe."

"I'll put it in my desk," said Doll, proud to be intrusted with anything of her father's.

And when at last she left him he stood in the hall watching the little white active figure running up the great staircase. And when she had gone from his sight he stood still, for into his careless brain had come a sentence till that moment forgotten:

"And angels came and administered."

And as it was in the ancient day, so it was now.—Elizabeth M. Moon.

The Flower Garden.

For a good crop of spring flowers seeds of the following varieties should be sown now: Candytuft, larkspur, ten weeks stocks, corn flowers, marigolds, snap dragons, California poppies, Shirley poppies and sweet peas. Sweet peas should be planted in a shallow furrow, placing the seeds about three inches apart and covering two or two and a half inches with soil well mixed with manure. By the time the plants are six inches high they should have wire netting to run over. To secure a succession of bloom, seeds should be sown about three times a year.

CHRYSANTHEMUMS.—By this time the growth has all been made on chrysanthemums and they are beginning to show bloom. Water them well and give liquid manure once a week. If quality rather than quantity be desired, remove all the buds but one on each stalk and see that the plants are well staked. If troubled with black aphis or green fly, use tobacco powder on the leaves in the early morning while the foliage is damp.

Her Condition.

A trained nurse tells the New York Sun this story of a Mrs. Malaprop, of Brooklyn:

"She was calling on a very sick case of mine, and, like many women, she was unwilling to let any one be sicker than she had been. When the patient had described her symptoms and her sufferings she retorted, 'I know how you feel. Once I was four days in a state of complete kimona.' "

To Better Conditions in Rural Homes.

Perhaps one of the greatest movements of interest to women on the farms of late years is that of holding institutes, local, county and State, for the education of women along lines calculated to raise the standard of mental, moral and physical welfare of the family. Institutes especially for women were held in twenty-one States last year, and in several States women lecturers were on the staff of the regular Farmers' Institutes. Ignorance in the home regarding proper food and sanitary conditions really endangers the life of its members. For years lecturers have dwelt upon the balanced ration for stock, how to feed the soil that the best crops may be harvested, how to maintain sanitary dairies that better prices may be secured for the product; but how little is known of the best food and how to prepare it for the family. The need of better sanitary arrangements around the rural homes is proven by the report of children's deaths furnished by George D. Leslie, statistician of the State Board of Health. From his last report we quote: The children' epidemic diseases—measles, scarlet fever, whooping cough and diphtheria and croup—cause relatively more deaths in the rural districts of California than in the twenty-four freeholders' charter cities. Thus, in 1908, the proportion per 1000 total deaths for measles was 3.4 in rural districts, against 3.1 in the twenty-four cities; for scarlet fever was 5.0 in rural districts, against 2.0 in the cities; for whooping cough was 5.6 in rural districts, against 4.1 in cities; and for diphtheria and croup was 13.3 in rural districts, against 11.8 in cities.

Surely a great work is waiting to be done for the homes through rural districts by the institutes for women, and California mothers should be in the front ranks demanding that meetings be held for prompt and effective organization.

Another movement of great interest to women, especially of rural communities, is the county library bill, which became a law last April. Under its provision a fund is raised, through taxation in any county desiring to have a library, and all the people may have access to the books as they are kept moving from one district to another, thus giving a wide range of subjects without great cost. If this law is properly applied every rural community may have its quota of good literature, and with telephones, rural delivery and a circulating library, who will say that life in the country is one of loneliness and isolation.

Get a women's institute organized in your county, then have a county library—both may be had for the asking—and your life and that of your neighbor will be made happier.

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THE MARKETS.

San Francisco, November 10, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

An easier feeling in the Eastern markets has had no perceptible effect on Coast prices, which are still firm, with a slight advance on some grades. Buying, however, is rather less active, the market being held up by the attitude of sellers, who hold their grain for stiff prices. White Australian is in demand and scarce. Local dealers quote as follows.

California Club		$1.85
Sonora	$1.85	@2.00
White Australian	1.90	@2.00
Northern Club	1.70	@1.72½
Northern Bluestem	1.82½	@1.90
Russian Red	1.67½	@1.70

BARLEY.

The upward tendency in prices is again apparent, both cash and future grain being slightly higher on all grades except common feed, which is not in great demand at present. Buying for local interests is of moderate proportions, but the export market is still active at the new quotations.

Brewing	$1.48¾	@1.50
Shipping	1.48¾	@1.50
Good to Choice Feed, per ctl.	1.45	@1.47½
Common Feed	1.40	@1.42½

OATS.

The large arrivals here from the northern States have not weakened the market to any extent, as the majority of offerings are strongly held, some grades being hard to get except at an advance. The supply, however, is still largely in excess of local requirements, and buyers are taking little interest. There is some movement of seed grades, but ordinary grain is quiet.

Red, choice	$1.65	@1.75
Common	1.55	@1.65
Red, seed	2.00	@2.25
Black	2.40	@2.65
Gray		Nominal
White	1.60	@1.65

CORN.

All grades are very dull in this market. There is none of any consequence coming in, and buyers take little interest in what is offered. There is considerable Egyptian corn on the market, but it has found little sale and the prices are lower.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk.		1.57
Mixed, in bulk		1.55
White, in bulk		1.61
Egyptian—White		1.65
Brown		1.60

RYE.

Eastern rye is offered below the appearing quotations, but is not wanted. Choice grain is scarce, and most of it is held at top figures, with occasional sales. The movement, however, is not large.

Rye, per ctl.	$2.00	@2.10

BEANS.

The market continues in a very unsettled condition, with frequent changes in prices. Arrivals have been very heavy for the last week, but with a fair inquiry for shipment the market has developed no weakness. Pink beans have been in demand for speculative business, and are very firm. Notwithstanding the rapid upward movement of prices here during the last few weeks, local dealers believe that present values are not justified by the real condition of the market, and expect to see some decline before long. Limas are well sustained, and are meeting with more demand than before, as there is a large short interest.

Bayos, per ctl.	$5.00	@5.25
Blackeyes	4.00	@4.10
Cranberry Beans	4.25	@4.35
Garvanos	2.75	@3.00
Horse Beans	1.50	@2.25
Small Whites	4.50	@4.75
Large Whites	3.00	@3.50
Limas	4.15	@4.25
Pea		Nominal
Pink	3.50	@3.65
Red	6.50	@7.00
Red Kidneys	4.50	@4.75

SEEDS.

A further increase in demand is noted, and the movement is about at its height, but aside from this the market shows little feature. Prices on most lines are quite firm, but show no quotable change.

Alfalfa, per lb.	17½	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb.		4 c
Canary		4½c
Flaxseed		4 c
Hemp	3¾	@4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard		Nominal

FLOUR.

Prices are now rather low, in comparison with the grain market, and with an advance expected buyers are actively in the market. In addition to a general movement in the local trade, there is more export business than for some time at this port. Some northern millers have advanced their prices, but local quotations are as before.

Cal. Family Extras	$5.80	@6.30
Bakers' Extras	5.40	@5.80
Superfine	4.80	@5.10
Oregon and Washington	5.30	@5.50

HAY.

Last month's arrivals were somewhat smaller than for September, as the large buyers provided for their needs earlier in the season. According to the San Francisco Hay Association, the supply available in the country November 1, amounted to 258,000 tons, as compared with 116,000 tons at this time last year. Notwithstanding the large increase, a healthy market is expected. Local dealers estimate that 120,000 tons more will be required for this market, and that the remainder will be readily absorbed by outside markets, leaving no excessive stock on hand at the end of the season. Prices show no quotable change.

Choice Wheat, per ton	$19.50	@21.00
Other Grade Wheat	13.00	@18.50
Wheat and Oats	14.00	@16.50
Tame Oat	14.00	@17.00
Barley	10.00	@13.50
Wild Oat	10.00	@13.00
Alfalfa	9.00	@12.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 70c

MILLSTUFFS.

The demand for the leading descriptions is not unusually heavy, and with liberal arrivals from the north the market is rather easy, though prices are still held. With higher prices for the raw grain, rolled barley continues to advance, but miscellaneous feedstuffs show no change of any kind.

Alfalfa Meal, or mealfalfa, per ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.50	@29.00
Broom Corn Feed, per ctl.		Nominal
Cocoanut Cake or Meal at Mills	25.00	@26.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	36.50	@37.50
Mixed Feeds	28.00	@33.00
Oil Cake, per ton	39.50	@41.00
Rolled Barley	31.00	@32.00
Shorts	31.50	@33.00

VEGETABLES.

Receipts are light in nearly all lines, but the market is still quiet, and there is very little improvement in prices. Tomatoes are doing a little better, after being a drug on the market for some time past. Arrivals of beans and peas from the south have not been well received, as the supply is in excess of present demands. Summer squash, cucumbers and green peppers are higher, as there is little of attractive quality coming in. Celery has been arriving very freely, and with excessive supplies the market is weak, as quoted. Onions are unchanged, but inclined to easiness, with increased supplies.

Onions—New Yellow, per ctl.	70@	75c
Garlic, per lb.	4@	5½c
Green Peas, per lb.	3@	5c
String Beans, per lb.	2@	5c
Lima Beans, per lb.	5@	6c
Turnips, per sack		75c
Summer Squash, large box	60@	75c
Tomatoes, per box	10@	65c
Cucumbers, large box	65@	85c
Green Peppers, per box	50@	65c
Celery, per doz.		25c
Egg Plant, per box	50@	65c

POULTRY.

Eastern stock is still very plentiful, with four cars at hand early in the week. Local poultry is generally weak, though some lines, particularly fancy hens, are in demand at steady prices. Squabs are a little easier. Dressed young turkeys are in strong demand at steady prices. There is less inquiry for live turkeys this week, but a brisk demand is looked for next week, and prices are firmly held.

Broilers	$4.00	@4.50
Small Broilers	3.00	@3.50
Fryers	5.00	@6.00
Hens, extra	7.00	@9.00
Hens, per doz.	6.00	@6.50
Small Hens	5.00	@5.50
Old Roosters	4.00	@5.00
Young Roosters	6.00	@7.00
Young Roosters, full grown	7.00	@8.00
Pigeons	1.00	@1.25
Squabs	3.00	@3.50
Ducks	4.00	@9.00
Geese, per pair	1.50	@2.50
Turkeys, Gobblers, live, lb.	20	@23c
Dressed Turkeys, lb.	25	@27c

BUTTER.

Butter has stood about the same all week, present quotations being as before on all grades. The market has been rather inclined to easiness, with only a moderate demand for local distribution and ample supplies. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb.	31½c
Firsts	30½c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

The upper grades have been quite weak for several days, the present quotation being the highest point for nearly a week. Extras were quoted as low as 49 cents. Firsts have declined 5 cents. The upper grades are in fair demand, but supplies have been somewhat larger, and trading is largely on storage and Eastern stock.

California (extras), per doz.	53½c
Firsts	45 c
Seconds	30 c
Thirds	28 c
California Storage (extras)	31 c

CHEESE.

Quite a sharp advance is quoted on nearly all grades. Supplies have been of very moderate proportions, and with a liberal demand for shipment the market is closely cleaned up. All local fresh stock is higher, as well as Eastern, storage flats and Oregon Y. A.'s.

Fancy California Flats, per lb.	17½c
Firsts	16 c
New Young Americas, fancy	18 c
Oregon Flats	16 c
Oregon Young Americas	18½c
N. Y., fancy	19 c
Storage, Fancy Flats	16 c
Young Americas	17½c

POTATOES.

The market is easy again, and while river and Oregon stock is still moving at former prices, Salinas Burbanks show a decline. The market is again flooded with poor offerings of sweet potatoes, which move at low prices and depress quotations on better stock.

Potatoes—River Whites	60@	80c
Salinas Burbanks	$1.25@	1.35
Oregon Burbanks	90c@	1.00
Sweet Potatoes, ctl.	75c@	1.25

FRESH FRUITS.

The last of the summer fruits have been cleaned up, and the market shows comparatively little feature at present. Apples and pears are in a little better demand, with prices as before. Raspberries and attractive lots of strawberries are higher, but off lots are neglected. Cranberries are more plentiful and lower. General offerings of grapes are cheap, with hardly any demand, but good sound lots of table varieties find ready sale at better prices. Some choice quinces find ready sale at better prices, but there is plenty of cheap stock on the market. Other lines are dull.

Raspberries, per chest	$ 9.00	@10.00
Cranberries, per bbl.	9.50	@10.50
Strawberries, per chest	3.00	@10.00
Huckleberries, per lb.	6@	8c
Grapes, per crate	50@	75c
Lug boxes	50c@	1.00
Apples—		
Fancy, per box	1.00@	1.50
Choice	75@	90c
Common	40@	65c
Pears —		
Winter Nelis	1.25@	1.50
Other varieties	50c@	1.00
Quinces, per box	50@	85c
Pomegranates, small box	50@	65c
Persimmons	1.00@	1.25

CITRUS FRUITS.

Oranges are attracting more attention, though the new navels are not yet moving very freely. Arrivals are quite liberal, and prices are a little better, though tangerines are weaker. Valencias are firmly held, with a good demand. Grape fruit is more plentiful, but prices are unchanged, and other lines are as before.

Valencias	$ 2.50@	3.50
Tangerines, crate	1.25@	1.50
Navels	2.50@	3.00
Choice Lemons	2.50@	3.00
Fancy Lemons	4.00@	4.50
Standard	1.50@	2.00
Limes	5.50@	6.00
Grape Fruit	2.50@	3.50

DRIED FRUITS.

Increasing firmness is noted all along the line, as stocks of all descriptions in growers' hands are rapidly being reduced, and the supplies taken on by packers are moving freely both for export and the Eastern trade. From all appearances an early clean-up is likely on nearly all descriptions, as all reports indicate a lack of speculative buying, most purchases being for the current requirements of the trade. The only advance in quotations this week is on white figs, which are in more demand, but greater firmness on peaches and pears is feported in some markets. Peaches are becoming closely cleaned up, as there has been a liberal buying movement in the East. Prunes remain in the same strong position as before, with continued inquiry, though the small sizes are not very active. Raisins show further improvement, and there has been large buying by most of the packers throughout the growing districts. Loose muscatels have been moving freely at last quotation, and some packers are now offering ¼ cent more, with some indication of a further advance.

Evaporated Apples, per lb.	7½@	8 c
Figs, black		2 c
Figs, white		4 c
Apricots	9½@	10 c
Peaches	5 @	5½c
Prunes, 4-size basis	2½@	2¾c
Pears	6 @	8 c
Raisins—		
Loose Muscatels, in sweatbox		2¼c
Thompson Seedless		2 c
Seedless Sultanas		1¼c
London Layers, 3 crown	85	@95 c

NUTS.

Both almonds and walnuts are now mostly out of growers' hands, and are moving freely in the trade, with a good outlook for higher prices. Some large shipments of walnuts are still being sent to the northern market. California chestnuts are offering in the local market at the prices quoted, but are a small factor in the trade.

Almonds (new crop)—		
Nonpareils		14 c
IXL		13 c
Ne Plus Ultra		12½c
Drakes		10 c
Languedoc		9 c
Chestnuts, California	10@	12½c
Walnuts—		
Softshell, No. 1		11½c
Softshell, No. 2		7½c

HONEY.

Honey is still dull, and with considerable stock in the country prices are weak. Local dealers are holding for previous quotations, but the general price at which extracted is sold in the country is 4½ cents, with 5 cents as the outside figure.

Comb	10	@15 c
Extracted, Water White	7	@ 7½c
Extracted, Amber		6 c
Old Extracted	3½	@ 4 c

HOPS.

Some large sales have been reported recently, and there is a strong demand from brewing interests all over the country it is expected that the market will clean up at the present high range of prices.

Hops, Old, per lb.	14	@18 c
New crop	24	@27 c

WOOL.

California wool is dull and featureless. Practically all the desirable clips have been sold, and the remaining stock receives no attention.

Fall clip, Northern Free	12	@15 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

Prices remain unchanged since last report, with the exception of a slight decline in dressed ewes. Live beef and mutton are firm, with a liberal movement from the country. Hogs also remain firm.

Beef: Steers, per lb.	6½	@ 7½c
Cows	5½	@ 6½c
Heifers	5½	@ 6½c
Veal	7½	@10½c
Mutton: Wethers	9	@ 10 c
Ewes	8	@ 8½c
Lambs	10	@11 c
Hogs, dressed	9	@11½c
Livestock—		
Steers: No. 1	4	@ 4½c
No. 2	3¾	@ 4 c
Cows and Heifers: No. 1	3⅜	@ 3½c
No. 2	3	@ 3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5½c
Medium		5 c
Heavy	4	@ 4½c
Sheep: Wethers	4½	@ 4¾c
Ewes	3¾	@ 4 c
Lambs	5½	@ 5¾c
Hogs: Grain fed, 100 to 150 lbs.		6¾c
150 to 250 lbs.	7¼	@ 7½c
250 to 325 lbs.		7 c
Common Hogs, lb.	4½	@ 5 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., November 9, 1909.—The old citrus season of 1908-9 is over and that of 1909-10 has started. This past season has been the very largest in point of output that we have ever experienced and its 38,071 cars will probably stand as the high-water mark for a year or two at lease. These figures represent the shipments from south of the Tehachipi and to make the total for the State the output from Tulare, Butte, Fresno and Sacramento counties should be added, a total of 2500 cars, or in round numbers, 40,500 cars of oranges and lemons.

Though the old official shipping season closed on October 31st, the oranges from the old crop continue to go out and over 70 cars of valencias have been shipped in the past week, the seasons thus lapping each other, as navels are now going out of Tulare county in force. New navels are also going out from the south, three cars having been shipped from Orange county up to this time. The fruit in the south is said to be as highly colored as in the north, though it is conceeded that there is not the sugar in the one that there is in the other.

Prices are being scaled a little closer. The shippers who claimed they were getting orders at $2.50 f. o. b., on first cars now state that they are making a little closer figures. It is understood that the Exchange is quoting a price of $2.85 delivered to the Eastern jobber, and the cash man is asking $1.75, money right in his fist before the car leaves.

In the south the shippers of the first navels claim that they received $2.00 a box, and that they were now quoting $1.75 to $1.85 for the Thanksgiving trade, though at the same time stating that they could not supply much fruit at these figures.

The call for California lemons is not brisk but the supply is so short that prices are very good, from $4.00 to $4.50 a box at this end. The Sicily supply is also short, there being but 15,000 boxes available this year as against 41,000 boxes at this time last season, and 38,000 boxes in 1907.

The total shipments to the close of the old shipping year, October 31st, were 31,886 cars of oranges and 6185 cars of lemons. Since the first of the month there has been 70 cars of oranges and 35 cars of lemons shipped as against 13 cars of oranges and 42 cars of lemons in same time last year. The citrus fruit shipments for past few years have been: 1903-4, 25,117, oranges and 2782 lemons; 1904-5, 25,608—4274; 1905-6, 22,175—3789; 1906-7, 23,986—3507; 1907-8, 24,538—4959.

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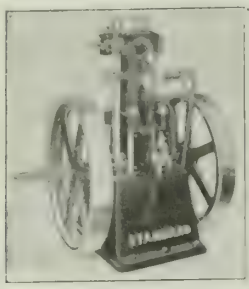
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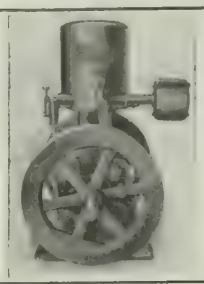
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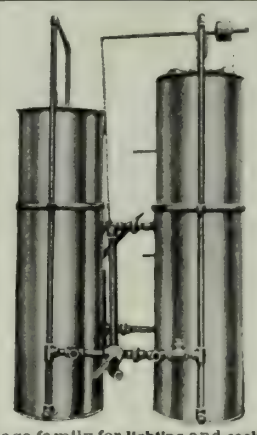
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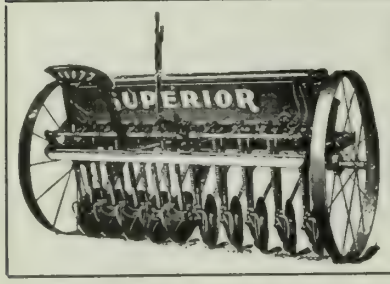
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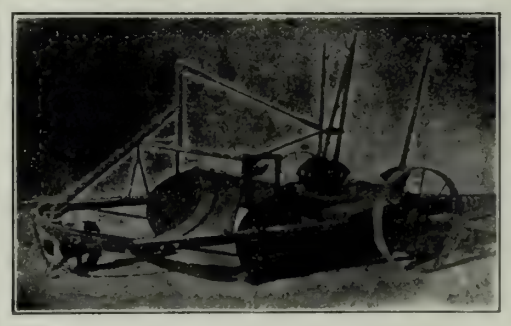
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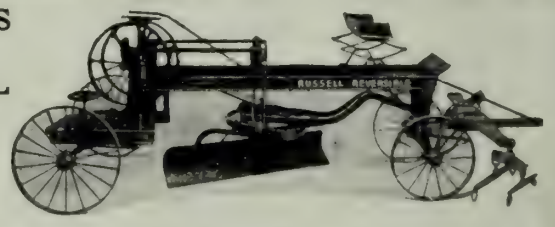


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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 21. SAN FRANCISCO, SATURDAY, NOVEMBER 20, 1909. Thirty-ninth Year.

Growing Strawberries for Market.

Written for the PACIFIC RURAL PRESS
By Mr. G. H. HOPKINS, Burbank, Los Angeles County.

In our opinion a sandy loam is the best soil for strawberries. It seems as though they were firmer and of better color, both of which are qualities to be considered in growing for market. If possible, it is better to plant a full stand at once, thereby getting a full crop a year sooner than by planting at a greater distance and allowing them to run, in order to make a stand.

The soil should be rich to get the best results, and, as the plant is a shallow feeder, the fertilizer should be applied on the surface, after planting, and cultivated in. If stable manure is used it must be well rotted.

In choosing varieties it is absolutely necessary that one should plant a variety that is known to be firm as well as a good table berry. Another consideration is good color and form, so they will look well in the basket. It is well enough to experiment with different varieties in a small way, but when one is going to plant an acreage one should be pretty sure that the variety planted is going to do well in that locality. There is probably no other State where soil and other conditions vary so widely as in California. In the Pajaro and Santa Clara valleys, where most of the berries for the San Francisco market are raised, the Brandywine, Melinda and Longworth's Prolific are the main sorts planted, with the Brandywine leading. In the Sacramento valley the Dollar, Brandywine and Excelsior do well, and no doubt some other varieties, but they lead as a market berry. In the San Joaquin valley the Brandywine, Marshall and Jessie are used chiefly, and about in the order named. For the Los Angeles market the Brandywine and Klondyke are the two great varieties used, with some acreage in Excelsior and A-1. It will be seen that the Brandywine does well throughout a wider territory than any other variety.

With your ground planted, about all there is to do the first year is to give them sufficient water and cultivate often; also be sure to keep runners pulled off. It is also a good plan to pick off the first bloom that appears in the spring, so the plant can make a better growth. They are pretty sure to bloom again, so that one can probably get berries enough the first year to pay the cost of taking care of them. Before the second year, however, one should have arrangements made for placing his crop.

Like all other fruits, financial success depends on marketing the berries to good advantage. If one has a small acreage near some good country town there will not be much difficulty in finding a market at remunerative prices, and there is really more money made under such conditions, because with the help of the whole family the berries can be cared for and picked without hiring much help. The writer knows of parties having four or five acres near good inland towns who received 6 and 7 cents per basket last season at a time when they were worth 3 cents in Los Angeles, and the towns were not a hundred miles from Los Angeles either. At the same time Los Angeles fruit shippers were shipping berries to these towns and selling them for 4 cents. Therefore, the man who has a home market is independent. Should there be too much competition in your home town, arrange to ship them, but not to the city. As the city is shipping to your market you must find a new market farther from the city, say to the mining towns, if you cannot find a market nearer, and this is the difference. If one ships to the city market the grower pays transportation, besides 10 per cent commission for selling. If you can find a market the other way, selling direct to country dealers, they pay transportation and you save commission. Should the grower be located near a large city, if he has, say, two to five acres, no doubt he could find regular customers among the retail dealers to handle his whole crop. If the grower has a large acreage, arrangements might be made with some wholesale shipper to take the whole crop; or shipments could be made direct to dealers as above mentioned.



Five Acre Berry Ranch in Tulare County That Has Made Its Owner Independent.

In considering the question of marketing berries we have figured on an honest pack of fancy berries. Unless the grower intends to do this he had better quit before he begins, because he could not sell to the big shippers for the reason that they have to have a prime berry of good size or they could not hold their trade. He could not sell to the city dealer because he wants nothing but a fancy berry, and for this he is willing to pay a premium. Nor would it be possible to make the second shipment to the country dealer. Therefore a fancy pack is necessary.

The plants should be picked over every four to six days, according to the season, in order to get prime berries. Such berries are red and have a shiny appearance. The next day, or the second day at the most, they will begin to go down, so to sell well they should be on the market before they lose their luster. No berries should be put on the market that are either green or overripe, neither should the very small ones be put into the basket, nor any but a perfect berry.

For the local home market they can be faced or not, according to the wants of the trade, but for shipping it is much better to face them, as they will carry better and shrink less; while for shipping in refrigerators they must be faced. Some objections have been made to facing or capping the baskets, claiming it is dishonest putting the big berries on top. But as a matter of fact there are just as good berries in an honestly packed faced package as in a loose pack, while the consumer will get one-fourth more berries, as would easily be seen at the end of a 500-mile journey.

Something has been written about the competition of Japanese in raising strawberries. It is a fact that most of the berries grown around Los Angeles and San Francisco are raised by Japanese, but to claim that Americans cannot compete with them is to acknowledge the superiority of the Japanese, which the writer is not willing to do. We are willing to admit that the average Japanese has a remarkable faculty for learning, but more by imitation than by initiative. He is the grower most likely to put imperfect berries into his pack, either too green or too soft. The man who can raise a berry that he can ship, or a berry that will satisfy the demand of the fancy retail trade of the cities need fear no competition from the Japanese.

AN EXPLODED FALLACY.

We suppose that the mysterious tree doctors who aim to cure all the ills which trees are heir to by boring the trunks, had faded from the eyes of men, but they seem to be sending out their seductive literature from obscure corners. An esteemed subscriber in Ventura county recently sent us a circular dated from a point in Arizona which offers a cure for all "blights, insects and worms," and when once inserted into the tree the latter requires no farther spraying or attention. Not only this, it puts new life into the tree. It does not say that it will pick and pack the fruit and sell it at a profit, but the circular-writer evidently overlooked that.

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Nov. 16, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.68	8.47	6.24	56	34
Red Bluff	.30	2.63	3.76	58	36
Sacramento	.11	2.36	2.27	62	36
San Francisco	.39	3.43	2.51	64	44
San Jose	.29	2.44	1.89	62	30
Fresno	.49	2.21	1.42	60	36
Independence	.14	.48	1.29	56	26
San Luis Obispo	.32	2.33	2.41	66	38
Los Angeles	.33	.91	1.39	72	44
San Diego	.90	1.46	.88	64	48

The Week.

California promotion has a conscience. If we should write: "True California promotion has a conscience," it would simply be a trite text for a dry sermon, the thought of which makes us weary of preaching and the reader of listening. But to declare that our promotive efforts embody the high moral purpose of which a man's conscience is the mentor, is a juicier text, because infidels may talk back. Of course when we say that California promotion has a moral basis and recognizes moral responsibility, someone may claim that such effort must, in the nature of things, be true promotion and promotion of the most noble and durable kind—but we refuse to preach that sermon, even by inference, because we desire the advantage of surprise to keep our audience awake. We therefore take it for granted that, in the minds of some, at least, it may be a little startling that those who are leading in agricultural promotion in California have consciences unseared by the hot air which is held to be their vital breath.

We reached this conviction in this way. It was our fortune to be invited to take part in a general rally of county promoters under the auspicies of the California Promotion Committee, which was held in Visalia on Saturday of last week. The whole day and evening were filled with talk about how great California is, what great things California is doing, and how California is doing them. It was a glorious opportunity for ardent atmosphere, but was it thus employed? Just there comes in the surprise which we are counting upon to enliven the dullness which we are trying to escape. The fact is, that we never heard in a single day so many invocations of truth. Of course the irreverent may sneer that the livery of heaven has often been thrown over the shoulders of the demon of Ananias, and we have to admit that we have seen that sort of thing ourselves, but it was not so in this case. The protests of the speakers against promotive efforts which have led competent people to expect too much and which lead incompetent people to expect anything but disappointment, were too earnest and pointed to be insincere and too specific and definite to be politic platitudes.

Incidents were cited in which gross exaggerations were indulged in by promoters through the process of using pictures of improvements in one part of a county or valley to float sub-divisions of land remote, wholly different in quality and untried, so far as the products of the lands shown in the pictures were concerned. Efforts to do a mail order business in California farms, through which an intending settler was induced to buy farming land he had never seen, and to base expectations upon products untried on the lands conveyed. It was even suggested by one rather radical speaker that people who would buy farms without seeing them were likely to be "undesirable citizens," and more apt to give the State a bad name than a good one. It is not necessary to cite more instances to prove that the spirit of the meeting was genuine and that the official promotive efforts of California, at least, have a quick conscience actuating them. This, of course, gave more emphasis to what was said of the sound enterprises and public spirited efforts for development which were being made in all parts of the State, and what is really being accomplished is enough to fill a Californian with new enthusiasm for the progress of his State and admiration for the insight and energy of his fellow citizens. The meetings were among the most unique and inspiring we have ever attended.

Due emphasis was placed upon the significance and promise of the meetings of fruit growers now being held by State Horticultural Commissioner Jeffrey, of which we have already spoken appreciatively. It is clear enough that the future of California horticulture, which the Visalia meeting chose as its chief subject, is closely conditioned upon packing better fruit and upon opening broader avenues for its distribution. How to get growers together in all fruit lines as they now are in handling citrus fruits is surely the question of the hour. The Vacaville region last week placed itself upon record as participating in the Placer county effort and supporting its conclusions. What these conclusions will be, will appear at the meeting of growers and shippers, which will be held in Newcastle on November 22nd, and to which we exhort all growers to give attention. Probably no better investment could be made by growers in other districts, the cost of being in Newcastle on that day, to catch not only the information but the spirit of the new movement. All growers, no matter where they live and work, will be welcome for this is a State-wide movement—and one of the most important which has recently arisen.

Next week we shall begin publishing in the columns of the PACIFIC RURAL PRESS, the second and revised edition of our book on "California Vegetables in Garden and Field." This work appeared in 1897 and met with much favor because it gave plain instructions of how to grow all kinds of esculents under the peculiar conditions existing in California. It was out of print and a new edition in preparation, when the San Francisco fire destroyed everything involved in the work. Press of work has prevented the writer from reassuming the effort to re-issue the book until recently, and now in order to bring the subject matter before the public with the least delay, the republication will proceed at once as a serial in the PACIFIC RURAL PRESS, to be placed in book form immediately thereafter. In this way our readers may have suggestions at once about the phases of the subject which are most seasonable, and those who save the weekly issues, as everyone who subscribes for the PACIFIC RURAL PRESS should, will have the treatise complete. Subscribers who only scan our pages from week to week, do not get the value which would be permanent to them if they preserved their files and used the half-yearly indexes to find things they wish to know as occasion may arise. Much of our own time is employed in repeating elementary information which every subscriber who has his indexed file could find in less time than it takes him to write a letter asking us to repeat it. We are disposed to emphasize this point because of the appearance of this treatise on California vegetable growing as a serial. Probably the publisher may have announcements to make on the subject in the columns in which he lays his heart open to his patrons. That is his concern, not ours. It is our editorial sentiment that, perhaps, the appearance of the book in this form may bring us nearer to the confidence and interest of the readers of our journal and they will write us freely of their own experiences, where they either agree or depart from the suggestions which we make. It is our candid opinion that a carefully prepared weekly journal on a technical subject is better than any book can be. The book is indispensable as furnishing elementary information for reference; the journal is alive and its chief function should be to keep its subscribers abreast of the progress of an industry. For this reason we hope that the general treatise may help the journal in its effort against ignorance, and that we have more readers ready for the advanced class in this important branch of California horticulture.

The visit of the Irrigation Committee of the United States Senate to this Coast, to which we referred last week, is impressing the Senators with the importance of continued progress in irrigation work, as we expected. According to current reports Senator Carter, of Montana, chairman of the committee, has declared that the accretions to the reclamation funds are inadequate to make rapid progress, and that some system of credit must be arranged to finance many of them and hasten their completion. The committee will recommend the issuance of interest-bearing warrants or certificates against the reclamation fund, which will allow rapid work and which will permit immediate benefit to the occupants of the lands, also permitting them to begin cultivation, anticipating their payments to the reclamation funds. This is certainly a rational proposition. Whatever the actual settlers of these lands can have to help them pay the cost of their farms, should certainly be given. We are in favor of as much as possible for actual improvements and as little as possible for speculation.

All will be glad to know that the assurance is given that nothing is likely to arise to interfere with the wise use of sulphur in preparing next year's dried fruits. At the last meeting of the State Board of Trade, in answer to a question, President Briggs stated that the growers were safe in following the same methods in vogue during the past season, pending a decision by the referee board. In the event of an adverse decision ample notice will be given to the growers and handlers of fruit to prevent loss. It is interesting to state, also, that the referee board, under the direction of one of its members, Dr. A. E. Taylor, is conducting, at the University at Berkeley, another eating test of sulphured dried fruit properly prepared for consumption, and a considerable number of people are subsisting upon free rations of such fruit under the closest expert observation and introspection. The decision of the board does not rest upon this experiment, but it is being most carefully conducted as collateral evidence. We trust and expect that the board will never be subjected to such partisan and unscientific opposition as they encountered at Denver. It was an insult to the science of the country.

The telegrams from the East announce that Mr. William E. Block, of New York, has been appointed Chief Special Agent of the Census on the Pacific Coast, in charge of the investigation of agriculture and manufactures. It seems rather a slight upon the Coast to select for local work a man who, perhaps, has never lived in the West. Mr. Block may be all right for the whole national subjects, but have we no resident economists and statisticians west of the Rocky Mountains who could have been chosen for the local work?

Probably no better enterprise could be undertaken than what Sacramento is to enter upon. We are told that a small orange grove of a dozen trees from the Fair Oaks colony is being uprooted under the direction of President D. W. Carmical of the local Chamber of Commerce, to be shipped along with other exhibits for display at the National Live Stock Association at Chicago in a few weeks. Men will be sent along with the trees to keep them in good shape while bearing fruit. From Chicago the orchard will be taken to the Omaha Corn Fair and other midwinter attractions in the East. Nothing will be more attractive than oranges on the trees. They have done good service before at the great fairs. In fact California enterprise in showing things as they grow in this State began with the Centennial Exposition of 1876, and has increased since then with continually more striking exhibits. But it will be awfully hard to maintain growing temperatures for citrus fruits while knocking about at the East with temperatures below zero on the wrong side of the stove. Good-bye poor orange trees; you perish in a good cause!

Queries and Replies

Oranges and Potash.

To the Editor: I am an owner of a California orange grove and am investigating the question of potash in California soils. I submit to you the following: 1000 pounds of Florida oranges contain 4.79 pounds, and of California oranges 2.11 pounds of potash. Soil analyses show that California soils abound in potash much more than Florida soils. If the orange tree gets potash in Florida, where potash is scarce, or is provided in the fertilizers, why does it not get it in California, where potash abounds? The formulas of leading fertilizers compounded for the California groves show great difference in regard to this question. Those of us who live in the East are often reminded that the Florida orange is superior in those qualities for which potash stands. It is necessary for the California growers to know why the abundant potash is not doing what it may reasonably be expected to do. It seems to me this subject should be investigated.—California Grower, Chicago.

We cannot find warrant for the first statement that you make, that the potash content of California oranges is less than half the potash content in Florida oranges. Where did you find such a statement and by what authority is it made? We have looked over analyses of California and Florida oranges, some of them analyses made in Florida, some in California, and they give the average of Florida oranges at .257% of potash and the avarage of California oranges, .219%. The oranges were not of the same kind, which may account for the variation, but the amount is substantially the same. It seems, therefore, unnecessary to account for a difference in potash content which the data we have in hand does not demonstrate.

California observation by growers generally, and our own observations as far as they have proceeded, indicate that applications of potash are desirable to the orange in California, even though the analysis does show much more potash in California soils than in the soils of Florida, but why this is true except on the hypothesis that the potash shown by analysis is not available has never been explained. We have the matter continually under observation and have had for some time, and the desirability of applying potash, even to soils rich in that substance by analysis, is demonstrated not only by the orange but by other crop bearing plants.

The Elusive Olive.

To the Editor: At present olive groves can be purchased around here for about what the bare land is worth, as they do not seem to pay. It appears to me that if one knew just what kind of fertilizers to use and in what quantities to apply them, he should be able to make money by purchasing these neglected groves and by applying fertilizers and water, etc., bring them into a paying proposition. Can you tell me what a normal tree should produce, and how long it takes for them to respond to good care. I have had no practical experience in the olive industry, and would be very thankful for any information.—Enterprise, Los Angeles.

While it is true, probably, that many unproductive olive trees can be made productive by rational fertilizing, irrigation, pruning and insect killing, it is by no means true that even such treatment will make all olives profitable. We would advise no one to take up the effort without a thorough knowledge of horticulture and without plenty of money or some other income producing crop. No one can answer your question as to what a tree will produce or how long it will take it to produce it. The problem which you mention is one of the most difficult which has arisen in our fruit growing.

These remarks do not apply to the olive as it demonstrates its free bearing in places which it enjoys. We mean that in places where the olive gets to acting funny do not be too sure of curing it.

Protecting Orange Trees.

To the Editor: I am starting an orange grove at the very base of the foothills in the Tulare orange district. At present I am concerned, particularly, with the care of the young trees for the coming winter. I am advised by parties here, first, not to wrap the trees; second, to wrap them; third, to wrap with corn stalks tied about the trunk and foliage; fourth, to wrap with four-inch strips of burlaps, wrapped spirally from top to bottom, the burlap to be left on through the summer as a protection from the hot sun. May I ask for your advice in this matter? I incline to the burlap plan, but wish to do what will produce best results. I am new to this country, and find hardly any two people agreeing as to methods.—Beginner, Tulare county.

There are two purposes in wrapping young orange trees; one is to prevent them from injury by frost, and that should be done now if you have reason to think that you are in a frosty situation. In most places where oranges are most largely grown, such protection is only rarely necessary and is not usually given. Still until you know your situation better, it might save you from some losses to protect the young trees with burlap or corn stalks, as is most convenient; either will do if some covering is secured. Do not bundle them too closely.

The protection of young orange trees from sunburn of the bark is universally desirable. All young trees should have their stems either wrapped with burlaps or thoroughly protected by a good coat of whitewash, which will reflect the heat from the bark and prevent burning. We are not sure of the desirability of trying to cover two purposes by one wrapping, but should be inclined to burlap the whole tree, say early in December, and after the frost danger is over readjust the wrapping so as to protect all bark which is not shaded by the foliage. Of course, as your trees grow, they should be trained so that the foliage will protect the bark by its shade.

For Larger Fruit.

To the Editor: In our French prune orchard the fruit always runs to small sizes. We contemplate using commercial fertilizer this year and would like to know the kind to use. Apricots, silver prunes and almonds do well. Please tell me the time of year to apply it.—Grower, San Benito.

If you are sure that your prune trees receive moisture enough during the summer time to produce large fruit, the question of fertilization is, of course, the next one to consider, but if moisture is not sufficient, no amount of fertilization will help the trees. There are many cases in which prune trees need a good summer irrigation to carry on their work satisfactorily with a rather late ripening fruit. If you are sure, then, that the moisture supply is ample, you should apply a fertilizer containing nitrogen, phosphoric acid and potash, the first named being especially concerned in increasing the thrift of the tree and the size of the fruit. If you have stable manure available, it can be confidently used as containing all the substances which the tree may require, and stable manure should be applied at this time of the year and plowed in now or allowed to stand on the surface to be leached out by the winter rains and plowed in later. If you have no stable manure, you will find commercial fertilizers, including nitrogen, satisfactory, and they can be described to you by our advertisers who are publishing good statements on this subject.

Early and Late Vine Pruning.

To the Editor: Will you please advise me in regard to the proper time for pruning Thompson Seedless vines? What I particularly wish to know—would these vines, pruned in December and January, be more apt to be damaged by the spring frost than they would be if pruned, say February 15th? If early pruning could be done with safety it would be a great help as one could plow before the grass gets so high, and before the land would get hard.—Subscriber, Fowler.

Vines pruned early will start growth a little earlier than those pruned late. If you are in a frosty place this may make much difference. You can, of course, prune away part of the cane early and cut back closer later in the season if you do not mind the double work or are willing to do it to get the plow in earlier for the reason you state.

Grain as a Cover Crop.

To the Editor: Please inform me if there is any value in barley as a cover or mulching crop. Also which one of the vetches would do best in our locality?—Amateur, Clovis.

There certainly is. Any green thing that grows has value in making humus when it is turned into the ground to decay. In fact dry vegetation will also make humus, but it is more difficult to decay and may rob the soil of moisture in the process. Legumes take atmospheric nitrogen which other plants cannot do, and, therefore, they do as cover crops what other plants do and more—providing they make an equally large growth. But there are cases in which green grain or weeds may give you more value than a legume, because the former may make much more growth while you have moisture to spare to make it with. As for a vetch we are now inclined to favor the "common" or "winter" vetch—Vicia sativa.

Sheep in the Vineyard.

To the Editor: Would it hurt or damage a two-year-old vineyard to turn sheep into it at this season of the year?—Subscriber, Calexico.

We do not believe sheep are good vine pruners, and we would not put them into a vineyard we thought much of. Still some very good people do it. The danger of injury is small if the sheep are not kept in too long; they can, perhaps, clear away the leaves and cane tips without much damage.

Horticulture.

THE CALIFORNIA FRUIT INTEREST AS A STATE BUILDER.

By E. J. Wickson, of the University of California, at the Counties Committee's Convention at Visalia, Nov. 13.

The California Promotion Committee requests me to address you upon this subject: "What the University of California has done for Horticulture." It seems to me that such an estimate should come from some one who has not been employed in the work and is, therefore, better prepared to judge impartially. All, I think, which it becomes me to say is that the university has always manifested a proper appreciation of the importance and potentiality of the fruit interests and has served them conscientiously with the funds which the State and Nation has liberally provided. From the very beginning of the era of commercial expansion in fruit and fruit products, in the latter seventies, the university experts have expounded the suitability of California soils and climates for a wider range of fruit production than any other State of the Union possesses; they have been at the front in demonstrating and describing methods of propagation, planting and culture which give best results under our unique conditions; they have manifested leadership in the protection of trees and vines from insects, fungi and bacteria, as these enemies have attacked them in increasing numbers, and have in all these particulars, according to current popular judgment, rendered important industrial service to the State. At the present time, more horticultural work is proceeding under university direction than ever before. The various laboratories of the agricultural department at Berkeley are largely occupied with researches in fruit chemistry, plant diseases, insect life and work, pomology and various phases of cultural methods. The Plant Disease Laboratory at Whittier and the Citrus Experiment Station at Riverside, both of which are university establishments, are conducting researches in the use and effects of fertilizers; the resistence of fruit trees to blights; the relative importance and significance of citrus types; the obscure points in the life histories of scale insects, etc., etc., all being matters upon which scientific knowledge is essential. On the Kearney Estate at Fresno, systematic work is beginning in viticulture, cereal culture and alfalfa varieties with the view of increasing the product by demonstration of most suitable varieties. At the university farm, at Davis, new horticultural and viticultural buildings are now being constructed and plantations are under way for use in both instruction and experiment. At the same time a large amount of research and experiment is being pursued in orchards and vineyards in various parts of the State where problems have arisen which must be studied locally in order to yield most direct and practical results. By this hasty enumeration I desire simply to assure you that the university is very busy in the horticultural industry and it is our earnest desire to render service which shall be some adequate return for the interest and support which those engaged in California fruit growing so generously bestow upon our workers in these lines.

Fruit Growing and State Development.—Having thus paid respectful attention to the subject assigned to me by the committee I desire to ask your attention to a broader view of the fruit industries in the line of their influence in State development. The first question about an industry naturally relates to the volume and value of its output. The following may be taken as a fair popular statement of a current annual output of our fruits and fruit products, no account being taken of consumption within the State.

Description.	Millions of Pounds.	Millions of Dollars.
Fresh deciduous	230	4.6
Dried deciduous	237	14.2
Citrus	908	18.0
Raisins	125	5.0
Nuts	14	1.4
Canned fruits	180	9.0
Olive products	...	.5
Wine	240	6.0
Brandy	12	1.5
Totals	1946	60.2

Thus it appears that in one year California sends nearly two thousand million pounds of fruits and fruit products to the markets of the outside world. The current estimate of the value of such a product is sixty millions of dollars.

Gain in Valuation.—But figures of output are only a remote and inadequate achievement of an industry in the development of a State. The contribution of an industry is seen rather in the permanent betterment which may be expressed in assessed valuation and in the quality of manhood and citizenship which rests upon the health, the intelligence and the progressive spirit of the individual. Of these the assessed valuation is most tangible. Let us take a group of counties which lead in fruit industries and mark their development:

ASSESSED VALUATION IN MILLIONS OF DOLLARS.

County.	1876.	1903.	1908.
Santa Clara	27	60	63
Sonoma	15	28¼	35
Napa	8	13	15¾
Solano	9	19	20¾
Placer	5½	7½	12
Fresno	8	31	50½
Tulare	5¼	18¼	26
Los Angeles	14*	165	407
Orange	..	13	20
San Bernardino	2½†	17	33
Riverside	..	14	22
San Diego	2½	18½	31½
	91½	386	710½

* including Orange.
† including Riverside.

The Attractiveness of Fruit Growing.—Here, then, we have a group of counties before and after taking the fruit interest, showing property value increased nearly eight hundred per cent by the operation. Some counties have advanced but little, it is true, but one must remember that in some cases, as other industries declined, their territory would have lapsed to range value had not the grappling-hook cast out into this descending air current caught in a fruit tree. Again, other counties have advanced so remarkably that one is prone to seek the cause in the inrush of Eastern capital for homemaking and city building. But even here it was the glory of California fruit which incited and has sustained the movement. Can you think of Los Angeles as measurable in terms of a sheep or a steer? No, it was the orange which this queen of the south plucked from the tree of destiny, and she has used it as temptingly as did the queen of the older Eden. The record says Eve plucked an apple; the myths say Helen and Venus bore the apple as the sign of their triumphs over man. The erudite horticulturist knows that the "apples" in all these fabled conceptions were oranges. Los Angeles has merely followed the pathway of the ages and held the orange in the eyes of men; if she had done otherwise she would be still pining away in the dust and adobe of 30 years ago.

If, however, one is inclined to regard the fruit growing rather more as incidental than fundamental in the development of southern California, let him consider the growth of Fresno and Santa Clara counties. Their advancement argues indisputably the direct, attractive and constructive power of fruit growing. These counties, and their famous cities of Fresno and San Jose, have arisen to settlement and wealth by the achievements of those who pursued fruit growing and fruit preservation, not for their health, but from strictly business considerations; and the abundant growth of manufacture and commerce is a corollary of the fruit industry.

The contrast of valuations given is trustworthy. The starting point is beyond the flush of dawn of 1880, the high booming noon of 1885, the midnight of depression of 1895; and the closing point is in the present year, where there is neither inflation nor depression, but a cool, calculating spirit, full, however, of the confidence and strength which are born of experience and success. Our fruit industries are in fact in better condition for advancement than ever before, and there are many reasons to believe that, even with their very large achievements, they are still at the beginning.

Fruit and Health.—Let us turn now to another measure of the service to the State and to humanity which may be fairly credited to the horticultural industry—its influence upon physical health and the prolongation of life. It is a fact apparent to every observer who directs his attention to it that thousands have been rescued from untimely graves by enlistment in California horticultural arts. Hither they fly from all the unkind regions of the earth to find, in our out-door life and delightful horticultural work a healing balm which brings color to the cheek, strength to the muscles, and makes existence a joy and not a burden. It can be clearly shown that California horticulture is reducing the world's death rate, prolonging human life and increasing its effectiveness; filling households with light instead of the shadow of the dark valley.

But there is another influence to attribute to California horticulture, and that is, the general food effect of an abundance of choice fruits and vegetables in building up the general health of the people. It is said that California life stimulates one to undue haste in work, and soon wears out the worker. A generous fruit diet, which tends to cool the blood and tone up the system, may enable us to sustain the wear of our rapid style of thought and action.

Fruit and Intellect.—Let us turn to the intellectual force of mankind and ask if it receives aught of benefit in the great prevalence of horticultural arts in the commonwealth. What powers of mind are awakened and strengthened by thoughtful horticultural work? The very word horticultural conveys the idea of discriminating care, diligent effort—in short, the application of thought as well as force to achieve desirable results. All of our choice fruits are the result of culture, of the arrangement of natural conditions and direction of agencies by the mind of man. The improvement of a choice fruit is analogous to the advancement of the human race—the wild types, both in fruit and in men, are inferior. There is no change in species, but an indefinite variation, which extends from worthlessness to the highest utility and nobility.

Now, while this great change is being achieved in the fruit, what is the effect upon the mind of man, which is its architect and builder? Most assuredly it is to stimulate it to new activity, to suggest new and progressive ideals of excellence, to awaken a more cultured and refined taste, to increase appreciation of the beautiful and the love of it—in short, to promote intellectual development. Has it done this in California? It certainly has, and no other industry can rival it in this service.

The Human Interest.—But we have other directions in which to explore the contributions of horticulture toward the advancement of California. We have endeavered to prove it good for wealth, for health and for intellect. The preacher might call all these standards of value too low. He would say you must ask if it is good for the heart. The influence of environment in molding character is too well known to need argument. The services of horticulture in beautifying homes and making them more attractive to the young, are generally recognized. To be impressed with the moral work of horticulture in California one has only to observe the change which is rapidly coming over our ranch homes. The desolate habitation, with its dreary, wind-swept, arid surroundings, is becoming obsolete, and in its place see the tasteful cottage, with its clambering vines, the garden with its wealth of shrub and flower, and beyond them the bowers of orchard bloom, and the vineyards spreading their green carpets over the once arid plains and hillsides. Any preacher will tell you that he can more easily reach the heart when his flock is sheltered in such homes as these, and the moral tone of the community strengthens and deepens as these homes are multiplied.

Last of all, what has horticulture done for citizenship? It has come down from the fathers of the republic that the stability of the Government depends upon the character of her sovereign citizens. Give a people industry, which earns prosperity, promotes physical health, fosters intellectual growth, develops true moral sentiment, and you will have a government whose citizens will be contented, strong, progressive, enlightened and upright. Horticulture is now doing more to people this glorious commonwealth of California with such citizens than any other of our industries, and we cannot too highly honor those who, by early deeds, pointed the way for others to follow, or by glowing, prophetic words stimulated others to effort and achievement.

THE CULTURE OF OLIVES IN CALIFORNIA.

To the Editor: We are accustomed to associate olives with the sunny clime of southern Europe. In America, only California and a limited portion of Arizona and Mexico present the essentially equable climatic conditions which this extremely fastidious tree requires. Although California has grown olives since the days of the mission padres, the Eastern public is not yet fully aware of the fact that California is developing an olive industry which promises to surpass soon the olive groves of the Mediterranean.

The fruit from the type of tree introduced by the padres has long been known as the Mission olive. This type has stood the test of time, and thereby proved the wisdom of its selection. It is recognized as the standard for both oil and pickles. Of the other varieties grown in California, the Manzanillo and Cordal are most highly regarded for pickles, while the Nevadillo Blanco is largely grown for oil making. All of these varieties are rich in flavor and carry from 20 to 30 per cent oil. For the highest returns the olive industry should be combined with that of pickling, by which combination the larger and most inviting fruit can be used for the latter purpose and the smaller passed to the oil press.

The olive does best in a soft friable soil, moderately warm and moist, carrying an abundance of lime and potash. The general culture of the crop is that given most fruit crops. The regular application of suitable fertilizers at proper times is an extremely important factor in successful olive culture. The fertilizers should be chosen with reference to the needs of the entire tree, fruit, wood and leaves. While the olive may grow upon somewhat gravelly and stony soils, a liberal amount of plant food is required for its productiveness, and if this plant food does not exist naturally in the soil it must be added artificially. Of course, the three elements, nitrogen, phosphoric acid and potash are indispensible.

Many of the earlier orchards were planted upon poor soils under the mistaken impression that the trees would grow in almost any place in which other fruits might thrive. As a result of this mistaken idea many olive orchards have been unprofitable. In such locations many trees in the early period of their growth succumbed to drouth, especially those planted on very shallow soils. In other cases, where the depth of the soil was sufficient, the available fertility was low and the trees starved. How important this matter of fertility is in connection with this fruit is shown from the analysis of various portions of the tree, including the fruit proper. In the following table is expressed the relative draught of an average crop of olives upon plant food, as compared with several other kinds of fruit:

	Potash, lbs.	Phosphoric acid, lbs.	Nitrogen, lbs.
Apples	60	30	39
Grapes	39	11	32
Pears	26	10	32
Oranges	43	4	37
Olives	18	3	13

If measured by its fruit alone the olive cannot be considered a heavy feeder, but when the draught made by the tree in its entirety is considered the case is very different and the tree must be regarded as one of the grossest feeders of all orchard trees. The draught made by the tree as a whole upon plant food is shown below:

	Pounds per acre.
Potash	83
Phosphoric acid	35
Nitrogen	86

The relative amount of the three elements of plant food removed by the tree may be graphically shown as follows. The particular thing to be noted in studying the fertilizer requirements of the tree is the unusually large amount of potash used by it. Taken as a whole, the tree must be regarded as a gross feeder, especially with regard to nitrogen and potash.

A fertilizer which is likely to prove satisfactory would have about the following composition:

	%
Potash	8
Available phosphoric acid	6
Nitrogen	4

The phosphoric acid and part of the nitrogen can be obtained from bone superphosphate, while sulphate of potash will serve as a source of potash. The most expensive part of such a fertilizer is the nitrogen. While the larger part of it might be supplied through the medium of blood or tankage and nitrate of soda, the use of leguminous crops is generally recommended as the cheaper, and as materially benefiting the physical condition of the soil, thus enabling the potash and phosphoric acid to be of greater efficiency. Good care, proper irrigation and fertilization will redeem many an olive orchard that has failed as a source of profit.

GEORGE WRIGHT.

PERSIMMON PROPAGATION.

To the Editor: I am writing you relative to the propagation of the persimmon. For several years I have been buying and planting the imported trees as nearly everyone else has done, and found them unreliable and unsatisfactory. First, their root systems are generally poor and a third never grow. Second, they are never reliable in name. Five years ago I planted a block of Tanenashi and there are now, when in bearing, seven varieties. This, then, is my purpose in writing. Is there no practicable method of producing those trees here? Can they be grown from cuttings as quince or pomegranate? If so, how should the cuttings be treated—put in or over a hotbed of stable manure or just in the soil?

Secondly, Mr. Tabor, of Glen St. Mary's Nursery, Florida, propagates his trees on seedlings of the native American persimmon. But native stock suckers badly; then, too, how are they worked over? Are they budded as peaches or plums with a shield bud, or by some special and time taking and difficult method?

I suppose the Japanese seedlings would be the better stock, but there is such demand for the fruit that it is almost impossible to get Japanese seed, but I can get American seed by the bushel for gathering it. What do you think of these stocks and their relative value? Then, again, the nurserymen, themselves, do not know for a dead certainty which is which kind. I think, possibly, three kinds are known for a certainty, for that reason it makes it necessary to propagate from picked trees to be assured of getting what is wanted.

Newcastle. GROWER.

[There has been so little interest in persimmons and so little profit in growing them, until recently, that it is not surprising that the stock is mixed up, and uncertain. The persimmon is usually budded in the same way that is employed for the peach and other deciduous fruits and the American persimmon seedling is greatly used as a stock, as you say. The suckers can be reduced by disbudding below the ground, as is done with the currant and other plants disposed to sucker. The plants can also be grafted readily; a root graft being more successful than top grafting. All authorities consulted omit references to growing from cuttings and this method is probably difficult, if not unsatisfactory. A little experimenting in the way you suggest is, however, very desirable. We are glad that Japanese persimmons are becoming so valuable that it is hard to get seed from them, for this indicates that the opportunity for the fruit in California is extending. It has, during the last 30 years, been mostly a disappointment, on account of the small demand. We would like to hear from growers on all the points mentioned by our correspondent, and on other aspects of the fruit which have arisen in their experience.—EDITOR].

SAWDUST AS A MULCH.

To the Editor: What is your opinion of the value of sawdust (redwood and pine), used as mulching for strawberries or plowed into the soil to loosen it. Nearly everyone around here says that it "sours" the land, but am going to try it on a small plot.—Reader, Pasadena.

Try it, of course, and report results, which will probably depend upon how much sawdust you use and what your conditions of soil and moisture are. A moderate amount of sawdust well mixed with a heavy soil is an advantage. Too much sawdust is apt to ferment, grow fungus and be an injury. Sawdust on a light loam is apt to reduce its water-holding power still lower and do harm in that way.

Forestry.

THE USES OF THE EUCALYPTS.

For all purposes for which the use of hardwoods has been found practicable, eucalyptus may be entered as an invaluable substitute for, or an equal competitor with, any hardwood on the market. While the growing of eucalyptus is an infant industry, since their introduction into California from Australia, the recognition of their utility and value for investment purposes has advanced by leaps and bounds, and the agricultural and financial world, likewise the forestry departments, are feverishly alive to the almost inexhaustible results which directly or remotely are to be derived from extensive eucalyptus cultivation.

The uses of the eucalypts are almost too multitudinous to admit of sane belief, yet one has only to experiment to corroborate, for his personal satisfaction, what may seem like far-fetched statements. With the idea of giving the public generous yet accurate knowledge of the uses of eucalyptus, this article is written, based on investigation made by the Forestry Society. The values of the eucalypts to the country in general will be given first.

With the commercial demands of the nation eating into the forests, consuming the timber three times as rapidly as nature can reinforce the shortage, the National and State Forestry departments are facing a proposition which requires desperate and immediate dealings—a timber famine. The situation besides being menacing would seem hopeless, practically, were it not for the fact that the eucalypts valiantly have come to the front in tree growing to solve the problem of re-forestration. Through the government bulletins, forestry societies and the newspapers, the people have been brought into vivid touch with the shortage problem, likewise the means of salvation of the country, at hand, the propagation of the eucalypts. Barring the countless uses to which it is otherwise adapted, to reimburse the forest supply alone eucalyptus is invaluable to the country. Other than a re-supply to the timber depleted areas the eucalypts are valuable as windbreaks for orchards and dwellings and for other purposes.

The beauty of the grain, the color and the texture of eucalyptus, rivaling many species of oak, has led to its popularity as a furniture product. Offices and residences have been finished with the wood, and cabinetmakers and woodworkers throughout the country have been aroused, through admiration and enterprise, to make a practical study of the eucalyptus wood as a finishing product.

Mistakes in using varieties of the eucalypts for purposes for which the woods were not specially adapted has caused unfortunate misunderstandings concerning the practicability and success of raising eucalypts; but intelligent investigation has passed judgment in favor of an industry which promises to revolutionize commercial conditions directly on the Pacific coast and indirectly throughout the United States.

Much of the fuel consumed in California is eucalyptus wood, which retails at from $10 to $14 a California cord. For fuel, the fastest-growing varieties are planted. Of the kinds planted for other purposes, the weakling trees, limbs and waste are utilized as firewood with gratifying profits.

In house construction, mining timber, flooring and street paving, eucalyptus has assumed popular importance; and for miscellaneous uses, for posts, telegraph poles, railroad ties, piles, bridge timber, wagon tongues, spokes, handles for implements and tools, logs for corduroy roads and insulator pins, the popularity of eucalyptus is inversely proportional to the list given.

Eucalyptus blossoms yield astonishing profit to the bee-keepers. An oil is distilled from the leaves and is used as a compound for many medicines. An extract from the leaves forms the foundation for some of the famous cough syrups. Least important, perhaps, are the beautiful and decorative uses to which the buds are put in making portieres and souvenirs.

Efforts are being made to find a use for every portion of the eucalyptus tree, even for the bark, which, so far, is waste; and it is likely that in this age of wizard economy commercial use will be found to make even the bark a source of income.

AGRICULTURAL REVIEW.

Horticultural Notes.

The Arlington Heights Fruit Company of Riverside was awarded a gold medal on its exhibit of lemons at the Alaska-Yukon Exhibition.

The Sunset Fruit Exchange was organized at Orange last week with the associations at Orange, Santa Ana and El Modena as members.

A meeting of fruit growers is to be held at Newcastle, November 22, to listen to the report of the committee of 15 recently appointed at the Loomis meeting.

The apple crop of the Pajaro valley is pretty well shipped out for the season. To the end of last week over 2600 cars had been shipped, of which over 2300 cars went from Watsonville.

The Maywood Packing Company of Corning now has 2000 gallons of olives pickling in vats. The company has orders for $32,000 worth of olives in gallon cans for the California trade.

Seventy cars, or about 2,000,000 pounds, of walnuts have already been shipped from Goleta this season. There are only about eight cars of nuts left in the locality to be shipped.

Lou Hinton of Plano, Tulare county, sold his five acre young orange grove last week for $5000. This is said to be the record price so far for a three-year-old grove with no well on the place.

A carload of Franquette walnuts from the Vrooman orchard near Santa Rosa was shipped recently to Tacoma, Wash. The nuts were said to be sold for 20 cents per pound, making the carload worth $8000.

At the annual meeting of the Covina Orange Growers' Association, held recently, the reports showed that for 110,631 boxes of navel oranges shipped by the association the past season a general average of $1.10 net was paid per box to the growers. New machinery is being installed in the association packing house to be ready for the coming shipping season.

The Leonard Coates Nursery Co. is shipping a lot of eucalyptus trees (E. corynocolyx, or sugar gum) to Mill valley for planting on Mr. James Newlands' property, more than half way up Mt. Tamalpais. This will add immensely to the beauty of that part of the mountain, besides being an important factor in the conservation of moisture. Mr. Newlands is to be congratulated on the enterprise shown. This company is also now shipping three carloads, 50,000 to a car, of eucalyptus rostrata and tereticornis to Colusa county for early planting.

The announcement is made by the State Commissioner of Horticulture that the thirty-sixth fruit growers' convention will be held at Watsonville from December 7 to 10. The program provides for papers on apple growing in all its phases by representative growers from different sections of the coast. Other topics to be discussed will be leasing of our orchards and vineyards, its economic effect; our markets and transportation of fruit; State highways; health problems in rural life; sulphur question, eucalyptus, fighting frost, almond, citrus, berries and figs. Special rates will be given delegates of one and one-third fare for round trip.

Now that the deciduous fruit shipping season is about over it is found that the total shipments are nearly 15,000 cars, being more than 2000 cars larger than last year. In a recent interview, Manager Frank B. McKevitt of the California Fruit Distributors summed up the season by saying that for the general fruit orchardist the season had been a fairly remunerative one. For those who had cherries, plums and pears to sell the returns had been above the average, while peach and grape growers had a hard season. The shortage of help in the fruit district also contributed to the discomfort of the growers. Mr. McKevitt said: "The crying need in the fruit industry is a more plentiful supply of labor at a reasonable wage and a lower cost of transportation."

General Agriculture.

Nine cars of tomatoes were shipped from Fullerton, Orange county, last week to Eastern markets. The growers received $30 per ton.

W. E. Germain and A. R. Rausch of Willows, who recently purchased a section of land there, have completed a 12-inch well and will install a power pumping plant. The land is to be seeded to alfalfa.

The hop market is reported to be very quiet the past few days, and to ascertain the cause of no bidding Sonoma county growers have appointed a committee to look into market conditions. About 1500 bales of hops are still held in Mendocino county.

According to the preliminary estimate of the Crop Reporting Board of the U. S. Department of Agriculture, the corn crop for 1909 will be a little larger than that of last year. The total production for the United States this year is estimated at 2,767,316,000 bushels, as against 2,668,651,000 bushels last year. The largest production of a single State is from Illinois, which is 366,395,000 bushels.

The California Educational and Cooperative Union was formally organized at Fresno last week. Officers for the coming year were elected and installed. They are: President, W. H. Wrightson of Fowler; vice-president, S. M. Ingram of Kingsburg; secretary, B. M. Cook of Selma; treasurer, F. M. Wrighter of Santa Clara; directors, William Tyler of Imperial, L. J. Church of Santa Clara, J. H. Dawson of Hanford, E. M. Brandenstetter of Placer and V. D. Writmore of Stanislaus. Directors have the power of selecting the next meeting place. Resolutions were adopted favoring the Roosevelt policies of conservation of water powers, favoring the initiative and referendum in politics, favoring farmers' mutual insurance companies, and asking for such legislative enactments as will prohibit the acquisition of agricultural lands, either by purchase or lease by those who cannot or will not become citizens of this government.

Stock and Dairy Notes.

Sam Webb of Holtville, Imperial valley, has gathered together 1600 turkeys which he has fattened for the Thanksgiving market.

B. F. Gould has leased a portion of the old Spreckles ranch at Soap Lake and has transferred a lot of dairy cattle from Monterey county to stock it.

The next annual convention of the Oregon State Dairy Association will be held at Portland, December 9 and 10. An address is to be made by Chief Rawl of



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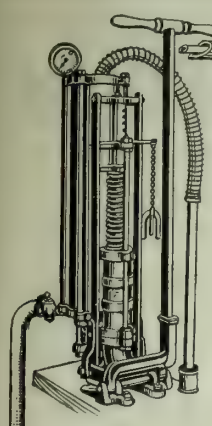
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Trial packets 15c each, 4 for 50c. Write for prices in quantity.

THEODORE PAYNE
345 S. MAIN ST., LOS ANGELES, CAL.

the Dairy Department, Bureau of Animal Industries, Washington, D. C., and another drawing card will be the $100 cash prize for the best dairy products.

The crop of Egyptian corn raised in the Turlock district this season was a good one and is rapidly being bought for poultry food. Over a thousand dollars worth a day was marketed there last week.

Miscellaneous.

Colusa county will vote on a proposition to issue good roads bonds on December 1. The bond issue is to be for $600,000.

It is now stated as a certainty that Oakland parties will build a cannery at Turlock to be ready for operation next summer.

The beet sugar factory at Chino has closed a satisfactory campaign. More than 79,000 tons of beets were used, making 22,277,360 pounds of sugar.

On January 8 the question as to whether or not improvements, such as trees, vines, alfalfa, etc., shall be exempted from taxation in the Modesto Irrigation District, will be voted upon.

The big warehouse at Saticoy, Ventura county, collapsed last week owing to the great number of sacks of lima beans with which it was filled. Considerable loss was occasioned by the collapse, both to the building and contents.

A meeting of the independent sweet wine makers was held at Fresno this week, at which it was decided to cooperate with sweet wine makers of southern California to form a State organization to secure better prices for wine men and growers.

The Los Alamitos sugar factory is nearing the close of the most prosperous season in its history, having handled 80,000 tons of beets, for which it paid about $6 per ton. Contracts will soon be made for next season and the company expects 11,000 acres will be planted.

The Brandon tract, consisting of 3880 acres of grain land lying about four miles south of Le Grand along the line of Merced and Madera counties, was sold last week to Dr. Edmund Payne of San Francisco. The new owner will cut up the ranch into small tracts, set them to fruit and alfalfa and sell to homeseekers.

A decision was handed down in the Superior Court of Los Angeles county last week giving the Southern Pacific a judgment against the California Development Company. This large sum of money was paid out by the Southern Pacific in its work of turning the Colorado river back into its channel in the Imperial valley three years ago.

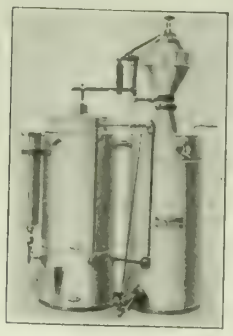
At a meeting of land owners held at Marysville last week it was decided to form an irrigation district covering 4000 acres of land in the Cordua section, northeast of Marysville. A canal is to be built which will carry water from the Yuba river to the land at a very moderate cost and the work is to be rushed, that crops next summer may be irrigated from the canal.

The demonstration train which is being run under the direction of the University of California by the Southern Pacific railway will be at the following towns in the Sacramento valley the coming week: November 20, Red Bluff, Tehama, Los Molinos, Vina, Chico; November 21, Chico; November 22, Chico, Biggs, Gridley, Live Oak, Marysville; November 23, Marysville, Oroville, Bogue, Wheatland; November 24, Wheatland, Lincoln, Davis.

NITRATE OF LIME.

The Norwegian nitrate industry, which has now been developed to the state of making shipments beyond the European continental markets, is also to invade the Pacific slope. It can be readily seen why this form of fertilizer is most adaptable to the California soils, as the latter are poor in calcium and naturally by adding lime and nitrogen to the soils, this manure will be of highest value, being in direct use in a form most available for the plants. It is of interest to note what Professor Dr. Wagner, of Darmstadt, says in this connection: "As the result of several trials with corn, potatoes, sugar beets and fruit trees, as experimental plants, made in 1906, at the Chemical Agricultural Experimental Station, he pronounced: 'The Norwegian nitrate of lime, seems to be a means of manure specially adapted to corn, potatoes, sugar beets and fruit trees. It has at the trials produced the highest results of all nitrous manure.'"

Nitrate of lime contains 13% nitrogen and is 99% pure. It is delivered in wooden barrels of 220 pounds from stock in San Francisco or shipped direct from the works in Norway.



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THE FARMER AND THE GAME LAWS.

To the Editor: I would like to know the value of olives as feed for poultry. They are greedily eaten by chickens and turkeys, and when allowed to fall to the ground, are available for quite a length of time. There are often years when chicken feed is high and also many poor varieties of olives that can be gathered by poultry more profitably than any other way. The great trouble is that robins, which are a protected bird, come along by the thousands, gather the crop in a week, and the poultryman must feed 2 cent feed for a couple of months to pay for it.

In the early part of the season the PACIFIC RURAL PRESS printed one of the several bogus game laws that were enacted, which gave a gratuitious slap at the olive grower by saying that the law protecting robins was a good one. These bogus laws were enacted mostly by those who were interested in collecting as many license dollars as possible and omitted to state that predatory game could be shot without a license, and some even went so far as to claim a person must obtain a license to shoot on his own land.

Another question I would like to ask is: "What is predatory game?" If the State owns the game and the farmer is compelled to furnish the feed and water, it looks as though all game was predatory. A mature deer will consume the feed of a $20 steer. There is no feed eaten by the deer that is not eaten by stock when hungry. It seems as though a rancher ought to be allowed to say whether he wishes to raise deer, robins, quail, grosbeaks, etc., or cattle and poultry.

The PACIFIC RURAL PRESS has frequently shown that it sided with the farmer by its editor stating he would not hesitate to shoot a deer if it were destroying a cultivated crop, but how about eating it, if killed out of season? My dogs and cats could enjoy a feast, but if I killed a deer in the prune orchard out of season, and had a dinner from it, and the game warden caught me, could not he make trouble? Robins to eat, just about pays for the ammunition it takes to kill them, but I would hate to shoot them and have to leave them around to waste.

In speaking of game laws, the only way to protect game is to protect the man who furnishes tne feed and water. Why not give the rancher a show, say one-half of all the game and fish killed on his place, or make a license of $5 to every non-rancher and turn the proceeds over to the rancher for feed? It is well known that robin laws are not observed or enforced in olive raising communities. There would be a great protest over the present laws only it is so much easier to break them than to get rational ones passed.

H. OVERACKER, JR.

St. Helena.

[This is lively and largely rational. Who wishes to continue the discussion? EDITOR.]

A FOREST TREE FRIEND.

State Forester Lull has been informed from Los Angeles of an ingenious scheme by which Henry Clay of Jamul, San Diego county, managed to set forest fires despite the vigilance of Forest Supervisor Marshal. Clay would set a bunch of matches in a clump of dry brush and rig up a frame to support a magnifying glass. At noon the sun's rays through the glass would ignite the matches and in that way start a mysterious fire which the officers could not trace. A dozen fires had been started in the vicinity of the Clay place, and while they appeared to be of incendiary origin, the authorities could not safely arrest the alleged firebugs until they found the remains of one of the contrivances which was not completely destroyed.

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AUSTRALIANS APPROVE OUR WOOL TARIFF.

The Sydney Exchange is disposed to argue well from the effect of our tariff upon their industry in this way:

Our trade with America in raw wool, hemmed in as it is by a tariff which is almost prohibitive, is entirely dependent upon general prosperity in that country. Let some untoward event happen and our exports to America almost immediately dwindle down to a very inconsiderable figure. It is, however, the special requirements of the American trade which practically fixes the standard values of our best wools. It naturally follows that the removal, above the limits, to which other competition can reach, of many thousands of bales of wool, in turn establishes another standard, which we may, for the purposes of argument, designate the next best. The American trade has the effect of grading the clip, and this grading is of a beneficial character. The up-to-date woolgrower will pick out his best fleeces in the hope that they will catch the eye of the buyer for America—the man who seems to have the most money available. It is very much open to question whether the removal of the wool duties in America would not have the effect of doing away with this special incentive to woolgrowers. Whilst the necessity for extra light conditioned wool exists, and the price is paid for them, these wools will be put upon the market. With the removal of the American duties upon wool, the necessity of extra light conditioned clips would cease, and no doubt their production also. This would mean that the standard of our staple product would gradually become a lower one. This is a view which is taken by a good many people who have been intimately connected with the wool trade for many years.

THE OLD ENGLISH SHEEP DOG.

In the course of an article on sheep dogs, a writer in Farm and Home gives an account of the recrudescence of the old English sheep dog, or bobtail. Thanks to the members of the Old English Sheep Dog Club, founded in 1888, this picturesque and affectionate bobtail is becoming more popular every year. Like all other clubs of a similar nature, the members are extremely anxious to keep the breed true to the original. As far back as 1771, Gainsborough painted a portrait of the third Duke of Buccleuch, with his arm around the neck of an old English sheep dog; many prints and descriptions of this breed have been published since that date, and it is a remarkable fact how much they are all in common one with the other. The old English sheep dog has changed less in appearance and character than any other canine specimen. It is supposed by some that the Calabrian of the Pyrenees, the Himalayan drover's dog, and the Russian Owtchah, are all from the same ancestral strain as our old English sheep dog. The foreign dog is much larger, fiercer and more powerful than our own, which may be accounted for by the duty they have had, and in some countries still have, to perform—viz., protecting the flocks and herds from the ravishes of the bear and wolf. The bobtail is a most devoted companion, and were it not for his long shaggy coat, which acts as a medium for holding dirt, would be a household pet. He is used for, and perhaps is of the greatest service, as a drover's dog, although in Suffolk, Hampshire, Dorset, Devon and parts of Wales he has always held the premier position as a sheep dog. The amputation of the tail is a recognized custom of England only, and is supposed to have first originated with the drover, for dogs kept for working purposes were free from taxation, and this method was adopted to distinguish the animals that were immune from taxation. The fact that many puppies are born naturally bobtailed is in accordance with the theory of inherited effects from continued docking. From the evidence that is obtainable there is little doubt that the breed had originally a tail, but not of any great length. The docking, however, has greatly enhanced the appearance of the dog, bringing into prominence the shaggy hindquarters and bear-like walk, which is essential to the breed. As to the classic points of the bobtail, much time has been spent in formulating the 100 points demanded by the Old English Sheep Dog Club. It is noticed that 25 points are devoted to the coat and color alone. Mr. Aubrey Hopwood, describing the sheep dog's general appearance, says: "In his slow action the bobtail should move like a bear, working the fore and hind leg on either side simultaneously, with a curious indescribable shuffle of the hindquarters, which work from loin to toe with every lenghtly stride. Free to move at speed, he should be an active, tireless galloper, covering the ground at a pace quite unsuspected to an animal of his build and traveling with wonderfully little apparent effort."

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3,000	Polyanthema (Red Box)
1,000	Resinifera (Red Mahogany)
700	Robusta (Swamp Mahogany)
32,000	Rostrata (Red Gum)
13,100	Rudis
53,300	Tereticornis (Forest Red Gum)
28,000	Viminalis (Manna Gum)

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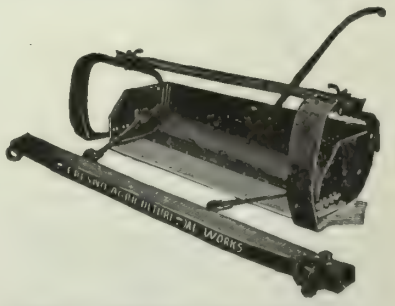
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Live Stock and Dairy.

Prepared for PACIFIC RURAL PRESS
By PAUL P. PARKER.

LIVE STOCK NOTES.

The Triple Bar Live Stock Company was recently incorporated with headquarters at Lemon Cove, Tulare county. The company is to raise mules and other live stock. The directors are: Thomas Homer, Truman Homer, Ed. Ingham, Irving J. Wheat, and C. E. Goodale.

The Chino Land & Water Company recently brought down 3000 head of cattle from the hills to feed on beet pulp at the silo near Chino.

State Veterinarian Dr. Chas. Keane has raised the quarantine on five dairies in Solano county, so that they can now sell their milk. The herds had the anthrax in such a serious form that the State had to step in and wipe it out.

A. Z. Erickson, president of the Seattle milk trust, has been sentenced to 10 days in jail for conspiring to raise the price of milk.

Dr. Murray, of the Bureau of Animal Industry, who has been inspecting the sheep in Nevada, has completed his work. He found the herds in very fair condition, with little evidence of the scab. He states that all the herds are now in transit to the winter ranges.

M. B. Kittrelle, of Modesto, shipped three carloads of fat grape fed hogs to San Francisco last week.

E. J. Tharp lost 40 sheep at Knight's Landing, under peculiar circumstances. A dog got into the corral of 750 sheep and scared them so badly that 40 piled up in a corner and smothered to death.

Ward & Weilmunster have taken their cattle from the hills and placed them on pasture near Fort Bidwell.

Capt. W. H. McKittrick, of Los Angeles, is inspecting his large stock ranch near Wilcox, Arizona.

Byer Bros., the Spenceville stock raisers, have driven their cattle out of the mountains and have placed them on winter pasture near Nevada City.

Hundreds of range and dairy cattle are being driven from the country around Truckee over the summit into the Sacramento valley. The heavy storms of rain and snow of last week is the cause of this plight.

Some of the stockmen around San Luis Obispo tried to oust Dr. D. B. Mazza, the county veterinarian, from office, but the Board of Supervisors, before whom the petition to oust was brought, refused to consider it. The trouble started over some stock.

The United States Government has amended its inspection regulations governing importations of sheep and swine from Mexico for breeding purpose. Before the animals can be imported it must be proven that they are from a clean district, and that they were dipped twice at intervals of ten days before shipping.

The Willms Land & Cattle Company was recently incorporated with headquarters at Knight's Ferry. The directors are: J. R. Willms, A. F. Willms, and W. B. Willms.

The farmers of Madera county are waging war on the ground squirrels. The county is distributing poison at the cost price of 12 cents a pound.

Patrick Connolly, of Livermore, recently sold 1500 lambs at $4.50 apiece. This is the top price in this locality.

The Yuba Dairy Company has purchased 267 acres near Yuba which will be planted to alfalfa.

Livermore sends out many sheep, cattle and hogs to the San Francisco market every year. J. J. Callaghan, a prominent sheep raiser of that locality, estimates that there are 40,000 sheep, valued at $200,000, shipped out annually. John McGlinchy, a cattleman, figures that about $225,000 worth of cattle are shipped out every year.

J. C. Kelley, of Livermore, sold 1500 sheep to Miller & Lux last week.

Moran & Callaghan, of Livermore, recently sold 1500 sheep and lambs to the Western Meat Company.

The Meridian creamery is rapidly increasing its output. At the present time it is making 1200 pounds of butter.

Judge S. H. Couan, of Texas, attorney for the National Live Stock Association, claims that the American cattle market is 1,000,000 head short, and that the price of beef this winter will be unusually high.

A GOOD DAIRY RECORD.

Joe Coite and company who lease 470 acres of irrigated alfalfa land near Guernsey, Kings county, have had excellent results from 77 dairy cows. During September, of this year, they milked 77 cows who produced $619.15, or over $8.04 per cow. In October the record was even better, as the same cows made $687.96, or an average of $8.93 per cow.

Details of the October record are as follows: October 1st to 10th, 1665 pounds of cream with 37% butter-fat gave 616.05 pounds of butter-fat.

October 11th to 20th, 1688 pounds of cream gave 607.68 pounds of butter-fat. October 21st to 31st, 1965 pounds of cream gave 687.75 pounds of butter-fat, making a total of 1911.48 pounds of butter-fat, which sold at 36 cents a pound.

BUTTER MAKERS AVAILABLE AT THE UNIVERSITY FARM.

To the Editor: We are making this announcement for the convenience of California creamery operators who may anticipate securing additional help in the churn-room, in the testing-room, or at the receiving door. The following list gives the names and addresses of those who are taking the course this year, which closes on November 23d. Up to that time they may be addressed at the University Farm, Davis, Cal. Those whose names have a star prefixed have gone to take up their work at the address indicated. Most of these men have had some experience before taking the course. As their number is inadequiate to meet all the requests we shall have before another course is offered, those interested will do well to confer with some of the following at an early date:

J. D. Bailey, Gridley, Cal.
E. F. Bell, Ceres, Cal.
E. W. Bentley, Napa, Cal.
J. Bentley, Sacramento, Cal.
Chas. Berg, Meridian, Cal.
*W. E. Booth, Oakland, Cal.
Karl N. Berg, 36 Commercial street, San Francisco.
*C. J. Emmert, Waterman, Cal.
F. G. Haase, Hardwick, Cal.
*C. Roadhouse, San Francisco, Cal.
K. A. Henricks, Marshfield, Ore.
Geo. Johnson, 2725 Pacific avenue, San Francisco.
Arnold Madsen, Orland, Cal.
J. H. Mason, Salinas, Cal.
O. F. Maurer, Oakland, Cal.
C. W. Monlux, Mt. Vernon, Wash.
E. C. Newman, Lamoille, Nev.
*A. G. Roe, Gustine, Cal.
D. Quintero, Chiriqui, Panama.
*C. C. Teol, Newman, Cal.
J. Vogensen, Petaluma, Cal.
C. R. White, Porterville, Cal.

HERBERT A. HOPPER.

University Farm, Davis, Cal., November 9, 1909.

CONTROL OF TUBERCULOSIS OF CATTLE.

By A. R. WARD, Veterinarian and Bacteriologist, Agricultural Experiment Station, University of California, Berkeley, at "Farmers' Week," University Farm.

Tuberculosis is recognized as an infectious disease. That is to say it is caused by the germs of tuberculosis. The spread of the disease among cattle is governed by the conditions that permit the transfer of the germs of tuberculosis from the sick animal to the healthy ones. In the vast majority of cases calves are born free from tuberculosis, that is the disease is not inherited.

The problem of the control of tuberculosis in cattle concerns itself with the means necessary for keeping separate animals that are spreading germs and hence dangerous from those which have not been contaminated by the disease.

DETECTION OF TUBERCULOSIS.—The earliest method employed for the detection of tuberculosis in cattle is that known as physical examination. This method consists of a careful search of the animal for enlarged glands, evidence of lung disease. In cattle its usefulness is very limited and its application practically results only in the detection of animals that are in the last stages of the disease. An overwhelming amount of evidence shows that animals may be seriously diseased in the sense that they are giving off the germs of tuberculosis and hence dangerous without presenting evidence that would lead to their detection on physical examination.

The use of the tuberculin test for the detection of tuberculosis in cattle makes possible the detection of a much larger percentage of tubercular animals than is possible when mere physical examination is used. The test makes no distinction between slightly and extensively diseased animals; that it is a qualitative and not a quantitative test. Therefore, after a



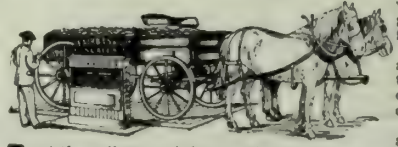
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Who Pays for the Error?



when grains and produce are sold by measure or guess, instead of by weight—usually the honest farmer.

After the hard work of planting, cultivating and harvesting, can you feel that you have made the most of your resources if you do not know exactly how much you have to market—where it came from and how much it cost?

A good scale is just as necessary on the farm as in the elevator or factory. Without it you buy at the seller's weights; estimate the amount of your crops—the gain of your live stock and, perhaps, too often chickens are counted before they are hatched.

Fairbanks Scales in your barn-yard will enable you to credit every field with its exact production; you can keep tab on your feeders and know—not only when they are ready, but what they are costing and what they will bring. When your crops are harvested—you know what you have done for the season just as well as if you had the money in the bank.

You need the help of Fairbanks Scales right at the start, when it takes careful planning to make ends meet, and when you find how much they really save, you will wonder how you ever got along without them.

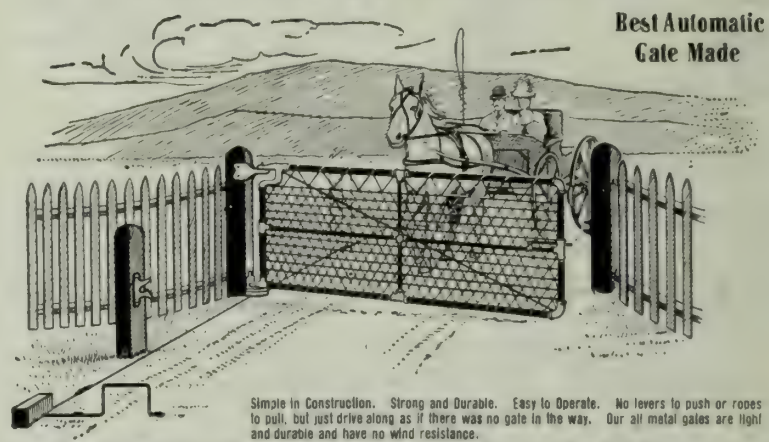
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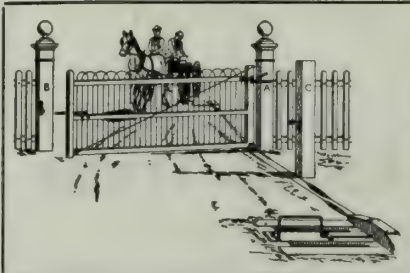
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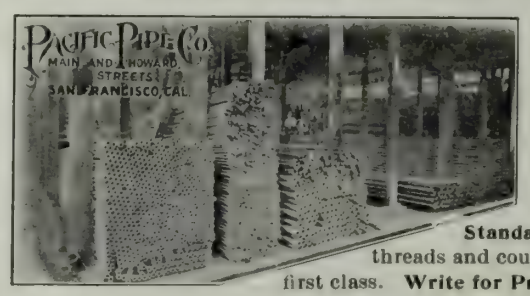
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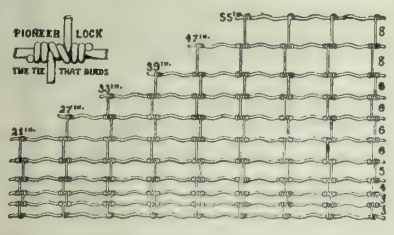
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tuberculin test we can only say, here are certain animals tnat have reacted to this test and they are either slightly or extensively diseased.

This is no drawback, for an animal may be slightly diseased this month, and extensively diseased a few months hence. From the standpoint then of controlling the disease it is just as necessary to detect the slightly diseased ones as it is those which are spreading the germs of the disease at the moment. The results of a tuberculin test, therefore, are always larger than would be naturally expected, if one judges the matter merely from the standpoint of the amount of visible tuberculosis in the herd.

If, then, we are to depend upon the tuberculin test for selecting tubercular animals from a herd with a view to their separation, it behooves us to carefully scrutinize the accuracy of the test and its limitations under various conditions.

THE TUBERCULIN TEST.—The test has been under trial for at least 15 years, and has, during that time been subjected to heated criticism. Belief at present is unshaken that the tuberculin is a wonderfully accurate method for determining the existence of tuberculosis in an animal. That is to say, when an animals shows that peculiar rise in temperature after injection with tuberculin, which we regard as a positive re-action to the tuberculin test, a very large percentage of cases will show upon slaughter evidences of the disease. In something less than 5% of reacting animals, we failed to find evidences of the disease. This is not surprising, for there is evidence to show that an animal may re-act to the tuberculin test as a result of the presence of the diseased mass so small that it cannot be detected after the slaughter of the animal. There is a case on record on an experiment made to determine how soon after the injection of tubercle bacilli animals will re-act to the test. A re-action occurred in 14 days after injection with the bacilli and upon slaughter no evidence of disease could be found. It is, therefore, fair to assume that the animals in question had the form of tuberculosis so minute that the disease could not be detected, notwithstanding the fact that the animals had re-acted to the test.

It remains for us to consider the accuracy of the tuberculin test from the standpoint of the truth of the conclusions drawn from the fact that an animal fails to re-act to the tuberculin test. In other words, is the tuberculin test as accurate in its negative conclusions as it is when positive conclusions are drawn from the test. Is the test as searching as we would like to have it? Does it reveal all the tuberculosis in the herd?

WHAT THIS TEST WILL DO.—In the course of experience in the tuberculin test used to separate tuberculous from non-tuberculous animals with a view to control the disease, a number of interesting facts have been developed.

First. A cow may be extensively affected with the disease and will not react to the test. The statement is generally made that such animals may be detected on physical examination. There certainly are cases, however, where it is extremely unlikely that the existence of the disease would be detected in a non-reacting animal. If the disease is not present in the lungs or in those lymphatic glands which are located immediately beneath the skin, and hence readily accessible to the touch, there is little liklihood that the disease would be recognized.

Second. In purchasing an animal on the tuberculin test there is the danger that an animal may pass the test and later develop sufficient disease to cause re-action to the test. There is a period shortly after the germs of tuberculosis have entered the system during which the animal will not re-act to the tuberculin test. In such a case the test is no protection against the introduction of the disease.

Third. In a tuberculous animal the injection of a dose of tuberculin and causing a re-action will leave the animal in such a condition that it will not give a re-action again to another dose of tuberculin until a considerable time has elapsed. It has generally been considered that the second test will be successful if given at least six weeks after the first one. From my experience I have encountered several cases like this. Five animals were tested, with positive results. Six weeks later four of these were re-tested with negative results. Eight months afterwards they were all re-tested but only two re-acted.

The animals in question were all slaughtered after the last test, and the existence of tuberculosis was demonstrated in each. This is a small amount of experience from which to draw general conclusions, but I may say that evidence of this kind could be indefinitely multiplied from the experience of others.

HOW TO PROCEED.—The lessons to be drawn from these facts are as follows:

When an animal has once re-acted to the test it should be regarded ever afterwards with suspicion. One must not expect to verify the accuracy of the tuberculin test by demanding that the animal re-act twice in succession. Six weeks is not a long enough period between tests.

An animal may fail to re-act at any given test owing to the temporary arrest of the disease. In cattle, as in men, there is a very strong tendency towards recovery from infection with the disease. Nature tends to inclose diseased areas within

(*Continued on Next Page.*)

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PUBLISHER'S DEPARTMENT.

George Fred Otis, manager of the Standard Fence Co., of Oakland, is building up a large business in this line, and especially in durable farm fences. Mr. Otis is an active hustler, and will win out in his efforts.

Arthur P. Knight, the patent attorney, who recently came to San Francisco from Los Angeles, secured his practical knowledge of the profession in the Patent Office at Washington. He has also practiced in New York, and Los Angeles. Mr. Knight comes to San Francisco with the best of recommendations, and we have no doubt will work up a splendid clientele in this city.

W. A. Ward, of Sacramento, is manager of the Valley Seed Co., of that city, and he is proving himself a live wire in the business. The Valley Seed Co. has already secured a strong footing in the avenues of trade, and is forging ahead in good shape. Mr. Ward's experience in the business is extensive, he having been a successful salesman both in the Trumbull and the Morse business, at San Francisco.

Mr. T. C. McMurtrie, of Stockton, formerly of Los Angeles, has commenced the manufacture of concrete tools for making pipe, tanks, stone, etc., at Stockton. He is also selling concrete mixers. His tools are made to ship anywhere on order, and are simple and easily understood in their workings. Mr. McMurtrie also makes a waterproofing for concrete walks, blocks or pipe, that is a guaranteed success. He is meeting with a very good trade with his product, and the propositions he can set forth for concrete uses are certainly interesting. You ought to get his circular.

Messrs. John Mason & Son, are manufacturing an automatic gate at Richmond, Cal., that has strong merits, especially in farm equipment, and seems to operate successfully wherever introduced. The writer finds the Mason Automatic Gate in frequent use in Sonoma and Napa counties, this State, and every user seems delighted with its workings. The Masons, father and son, are erecting a factory over at Richmond, into which will be installed machinery for the more extensive manufacture of their gate. They are certainly up-to-date and enterprising.

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a wall of fibrous tissue which does temporarily at least check the progress of the disease. These healed up areas may, however, harbor live tubercule bacilli in the interior. Slaughter of such animals with arrested tuberculosis has permitted us to demonstrate live tubercule bacilli in the healed spot even though the animal did not re-act to the test.

Thus a cow may re-act today as a result of active progressive tuberculosis and later may not re-act, because nature has temporarily overcome the progress of the disease. The progress of the disease may remain thus arrested for years and then again break out in a progressive form, when it will cause a re-action to the test.

Repeated Tests.—It has long been recognized that one tuberculin test, with the removal of re-acting animals, followed by thorough disinfection of the stable will not check the progress of the disease in the herd. This circumstance was formerly attributed to poor disinfection or the accidental introduction of infection through gross carelessness. This all might occur but there certainly have been cases conducted under the supervision of experts in which these errors did not occur and under such circumstances the blame is laid upon the non-re-acting tubercular cow in which the progress of the disease has been temporarily checked. Moore has made a special study of the behavior to successive applications of the tuberculin test to the animals which did not re-act to the first application of the test applied to a badly infected herd.

This herd of 491 animals showed 96 that did not re-act to the test. That is, 80% of the animals did re-act. These non-re acting animals were placed by themselves and thoroughly isolated from the possibility of infection. They were tested three months after the first test and every six months thereafter. In each case the re-acting animals were promptly removed and the stable disinfected. The results are presented in the following aable:

Date.	No. tested.	No. re-acted.	No. not re-acting.	Per cent re-acting.
1904, July	96	31	65	32.2
1905, January	65	8	57	12.3
1905, July	57	15	42	26.3
1906, January	42	15	27	35.7
1906, July	27	3	24	11.1
1907, January	24	2	22	8.3
1907, July	22	1	21	4.5
1908, January	21	1	20	4.7
1908, August	20	1	19	5.0

The conditions were such in this experiment that we must regard the appearance of re-acting animals in this herd as due to the infected area which had become temporarily healed previous to the very first test. The post mortem examination of such of the animals as were killed bore out this conclusion.

It is interesting to note that tuberculin tests of these re-acting animals repeated after an interval of three months showed that fully 25% failed to re-act. Here is evidence of an oscillation between an active and an arrested condition of the disease as indicated by the tuberculin test.

Limitations of the Test.—We cannot depend upon the tuberculin test to indicate the absence of tuberculosis in an animal. This fact has important bearing upon the matter of the purchase of animals subject to the tuberculin test with the idea of putting in a clean herd.

In practice, purchasing animals from infected herds we are bound to pick up cases of non-re-acting, arrested cases of tuberculosis. These are temporarily harmless but we must keep a vigilant guard to prevent their infecting the herd after they have further succumbed to the inroads of the disease. The only way to do this is to apply the tuberculin test every six months in any herd supposed to be free from the disease. It would be far better to purchase animals only from herds entirely free from the disease.

As a guide in locating such herds it would be well to bear in mind that there is much less probability of finding tuberculosis in a very small herd or in one which has been very thoroughly isolated from other herds. Animals from large dairies are always to be suspected for the very size of the herd increases the chance that infected dividuals have been introduced. In one herd of 450 cows, my associate, C. M. Haring, tested 50 of the best looking cows with the result of 83% of them re-acting. Some years ago I had occasion to test 71 animals which were scattered about a town in groups of five animals or less. Of these only 8% reacted. Wherever extensive tuberculin testing has been carried the conclusion has always been reached that the larger the herd the larger the percentage of tuberculosis, provided the disease is prevalent in the community.

Moore gives some interesting figures bearing on this subject of the purchase of animals subject to the passing of the tuberculin test. Ninety-two cows were purchased on the test in a district where the disease was prevalent. They were kept by themselves and tested every six months afterwards.

Date.	No. tested.	No. re-acted.	No. not re-acting.	Per cent re-acting.
1907, June	92	0	0	.0
1907, June	92	3	89	3.3
1908, January	89	24	65	26.9
1908, August	65	4	61	6.2

Moore gives other instances showing the value of purchasing cows by the test from tuberculosis-free herds as compared with results of cows from infected herds.

COWS FROM INFECTED HERDS.

Date.	No. tested.	No. re-acted.	No. not re-acting.	Per cent re-acting.
1908, January	65	17	48	26.2
1908, August	48	0	48	.0

COWS FROM A TUBERCULOSIS-FREE HERD.

Date.	No. tested.	No. re-acted.
1908, January	52	.0
1908, August	52	.0

Conclusion.—Tuberculosis can be kept in check in dairies by the testing of every animal purchased and by testing the whole herd every six months. This is being done in the certified herds in the San Francisco bay region. It is not uncommon though to have the percentage of re-acting animals go as high as seven. Any relaxation of vigilance as manifested by the semi-annual testing would speedily result in the serious re-infection of the herd. The re-actors must be detected early and removed, before they become centers of infection.

It seems safe to conclude that there is little chance of success in separating a herd of tuberculous and non-tuberculous animals by means of the tuberculin test, especially if the herd is badly infected. The Bang method offers in such a case the only practicable method of getting out of the difficulty. This, in the present form, as stated by Bang, consists, practically, in starting a herd of young stock fed on the heated milk of the diseased herd. The new establishment must be isolated from the old one. The method has a particular advantage that it does not demand the slaughter of animals which have merely re-acted to the test and which may be only slightly diseased.

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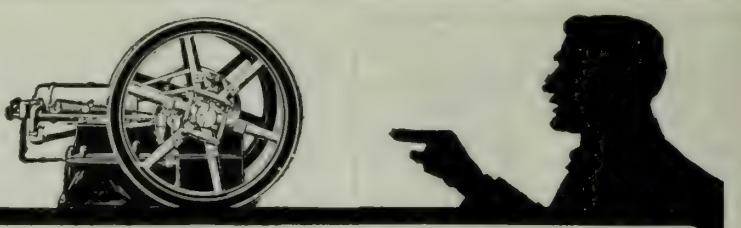
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Portland, Oregon.

The Poultry Yard.

THE POULTRY AND PET STOCK SHOW AT SAN JOSE.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

The management of the Santa Clara Valley Poultry Association report their annual show held in San Jose last week a great success financially and otherwise. The Auditorium rink afforded the best facilities in the way of light, space and general comfort, and the weather was ideal during the more important days of the show. Some 800 well-groomed, blue-blooded birds made up the poultry part of the show, together with the usual number of baby chicks, whose duty it is to illustrate the virtues of their foster parents in the way of incubators and brooders.

Perhaps it will prove of interest to the general reader to learn of the breeds and varieties of breeds obtaining at the present time on the Coast in the order of their popularity as evidenced by the numbers entered at this show, which follow:

White Leghorns, Rhode Island Reds, Barred Plymouth Rocks, Black Orpingtons, White Plymouth Rocks, White Wyandottes, Buff Leghorns, Light Brahmas, Brown Leghorns, Columbian Wyandottes, Blue Andalusians, Black Minorcas, White Crested Polish, White Minorcas, Buff Minorcas. Of Buff Cochins, Black Langshans, Silver Penciled Wyandottes and Rose Combed Minorcas, there were just three birds of each in the show. Grouped, according to classes represented by important numbers, they stood: American Class, first; Mediterranean Class, second; English Class, third. There was a fair display of Bantams and Games; a few beauties in Bronze Turkeys; and in ducks, Indian Runners, Buff Orpington ducks, and quite a number of Aylesbury ducks, but there wasn't a goose in the show—at least not in feathers.

One thing noticeable in the last year is the increasing popularity of the Rhode Island Reds and the Orpingtons. The former breed is near enough like the Buff Orpington in general appearance and attributes to belong to the same family. The name "Reds" is a misnomer, their color is a reddish-buff with black in wings and tail, while with the latter breed the Standard calls for a pale golden buff throughout.

For all these new favorites, the Plymouth Rocks and Wyandottes are holding their own, and we are glad to see that none of the newer breeds can displace that old reliable, the Barred Rock.

There was also a feeble step in the right direction by the entry of a few dressed capons and some scattering market eggs; but they were not presented in an attractive form. Such fine flesh is valuable enough to be set off with fresh parsley and placed in a refrigerator box with glass cover to protect it from impure air, dust and flies; the eggs, too, should have been in neat cartons lined with contrasting colors, a dozen of each kind of all competing. We most emphatically believe in showing the fruits of the fowls as well as the feathers. "By their fruits ye shall know them," is the true standard for judging all things as well as persons. A box of eggs laid by the prize winner and her record for the year or month would add greatly to her attractions in the eyes of the general public, and tend to make the "fancy" more popular. True, there is danger of the "returns" being "padded," but some means of verification could be found.

The dogs seemed to be a star attraction in this show. They were of every size, from the toy poodles, but a few inches long, that trembled in their satin-lined compartments, to the immense St. Bernard, with a roar like a lion; there were dainty Pomeranians with faces as innocent as a baby's and set off with big bows of baby-blue ribbon, and bulldogs with mugs calculated to give one a nightmare. There were Boston Terriers, blanketed and jeweled, and one pudgy little creature that disconsolately hugged her corner, was said to be valued at $1500. There was one long-haired poodle with his black coat cut so that he looked like a harlequin, as the poor animal seemed to realize and tried to hide his denuded hinder parts. Then there were bristly Airedale Terriers and others, and some savage beasts with tawny, spotted hides placarded "dangerous," and last, but not least, there were the useful Collies. But in spite of their mostly soft couches, they raised up their voices and wept, or rather howled, which is a dog's way of weeping, and great was the noise thereof. The poor rooster couldn't even hear himself crow so he gave up trying.

The cats had a section to themselves secluded from the harrowing sight of their sworn enemy, the dog, and though they were no better satisfied with their imprisonment than the latter, they retained the lady-like composure and dignity of their kind. They were mostly cats and kits of high degree. The long and silken-haired Persian, in all the fashionable colors and tints, orange cats, silver cats, brown cats, blue cats and cats as white as the driven snow, all decked out in big bows of satin ribbon in contrasting colors, with satin cushions to rest on, and some in satin-lined compartments. One royal fellow, whose coat of true blue shone like satin, evidently a direct descendant of the feline gods of the East, curled his satin paws under him and looked scornfully upon the admiring passers. Amid this array of feline beauty and exclusiveness, were two wild-cat kittens that reminded one of two hoodlums among a group of high-bred children gotten up in pink-tea style. These kits are surprisingly like the grizzled-gray house cat, except in the matter of tail, and they swaggered around their cage and boxed each other's ears in the rough and tumble manner of hoodlums.

A little boy's exhibit of guinea pigs, which could be petted and handled ad libitum, proved the center of attraction for the little folks.

In the evenings the hall was brilliant with electric lights and festoons of Chinese lanterns, the band played popular airs, and the people thronged the aisles. Undoubtedly, the show was a great success.

Coming homeward we saw another fine show—the Santa Clara valley with its colors of orchard, garden and field washed clean and retouched by the recent rain and glorified in a golden sunset.

Show Notes.

The awards in poultry were placed by a noted judge from the Middle West, D. T. Heimlich, of Illinois.

Two of the foremost fanciers of the State, Mrs. Bemis, of Oakland, and Miss Carrington, of Haywards, breeders of White Rocks and White Leghorns, respectively, owing to sickness in the family of each, were unable to condition their birds for this season's showing. They expect to be on hand next season with a full line of their stock which always stands in the headlines among the prize winners.

E. F. Baldwin, of the San Jose White Leghorn Yards, is a fine example of the poultryman who makes poultry pay. He carries about with him an air of good cheer and prosperity. However, the ribbons tacked to the coops containing his birds were calculated to make even a glum man smile, and Mr. Baldwin is not even related to a glum man. Incidentally, to a brother fancier, he remarked on the reliability of the PACIFIC RURAL PRESS as an advertising medium. "I have advertised a good deal for a number of years in its columns," he said, "and never has my ad. failed to bring me enough buyers to make it a paying investment."

THE KING OF THE BUFFS.—To win one blue ribbon is glory enough for most birds, but the Sullivan cock, Gold Dust, has eight blue ribbons in his belt and is still on the warpath. Judge Heimlich declared him the best male bird in his class. His color is a wonderful golden buff, uniform throughout, with a sheen like sunshine. To attain and keep this shade of even golden buff in his fowls taxes the fancier's art to the utmost, and the fact that the Sullivans have succeeded in keeping their strain of Orpingtons to this perfect shade is a tribute to their skill and high-class breeding. The judge further pronounced their hens the best shaped females in their class. The Sullivan winnings at the San Jose show are, Pen 1-2-3 (Gold Dust, headed the first pen), hen, 1-3, cock, 2-3, pullet, 1, special silver cup for best display, and 3 out of 5 first prizes of a possible 18 club specials.

Apropos of partnerships. They are not apt to work out very well in the poultry business, but when husband and wife enter into the poultry business together as enthusiastically as have Mr. and Mrs. Sullivan, it makes a partnership which can't be beat, and one which is bound to bring down the plums from their especial branch of the business tree.

THE TROPHY VS. THE DOLLAR.—The awards other than ribbons were in trophies of which there were over $500 worth stacked on a table—enough glittering cups and medals to start a business in that line. Now, as it is hard to find a Kellerstrass among our Coast poultrymen, we opine that this amount of round dollars would fit into their needs better than trophies other than ribbons. In fact this thought was suggested by the remark of a fancier that he had not entered his birds in the present show for the expense was considerable, and there were no cash prizes to offset it. A $50 cup is a fine thing to win, but the working poultryman hasn't time to keep it "shined up," and is apt to decide with Omar Khayyám, "Ah, take the cash and let the credit go."

Poultry Notes.

THE INTEREST GROWS.—Thousands of farmers and city business men are studying up on the poultry business as never before. And it is time they did. Chickens and eggs are few and far between in proportion to the population of this great and growing country. The poultry exhibit was very complete in breeds, and entries in all classes of poultry were shown. I heard many discussing the merits of the best kind of poultry to keep on the farm and in city and village lots, but I doubt if the matter was satisfactorily settled.—From Report of Michigan State Fair.

THE BLUE HEN'S CHICKENS.—This is the nickname which tne State of Delaware affectionately cherishes, and this is its origin: Along in 1860, says the New York Sun, the best known citizen was Caldwell of Sussex county. He was a breeder of horses of speed and cocks of combative disposition. As to the latter, and the sport was then genteel, he held to the theory that the character of the progeny depended most on the hen. In pursuing this theory into its practical application he professed his faith in the blue hen, and pitted her chickens in many a winning main. So familiar was this theory that when Caldwell recruited for his First Delaware Regiment, those who joined the colors were quite naturally called the Blue Hen's Chickens, as being the proved best stock.

A PRACTICAL COURSE IN POULTRY.—The Agricultural College of Michigan, which also claims to be the oldest agricultural college in the Union, has a fully equipped poultry department. In addition to poultry, incubator and brooder houses, together with alfalfa fields and yards, there are a large instruction hall and an experimental house 178 feet long, the upper story of which is used for a store room and carpenter shop and the basement, which is fitted complete for the purpose, of teaching the proper dressing and shipping of poultry. The past spring 2000 White Leghorn chicks were hatched and cared for by the students, the course requiring each student to perform every branch of the work from poultry house cleaning to scientific deductions. The course is eminently practical and along lines best suited to poultry keeping on the farm.



To produce a level surface requires a keen plane; to make an exact mortise calls for a true-edged chisel; to bore a smooth hole you must have a clean-lipped bit in a steady brace; to saw a straight edge demands a perfect saw; and so on through the realm of practical work.

Tools that get out of order quickly are useless to the worker. Right here the value of

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with good ground grain products. And this is the thing to do if you can get grain cheaper than to ship it in. EGG MORE is not one of those strong tonics, not advisable to be fed regularly, but it is a FOOD, to balance the ration properly, and you can't buy such balancing materials better nor cheaper than in EGG-MORE. Just a little daily does it. Send for Biddy Booklet with many testimonials. Ask others; the number using it is constantly growing. 25 lbs., $1.90; 50 lbs., $3.60; 100 lbs., $7.

If not sold by your dealer we will prepay the freight within 300 miles. Order a sack of sufficient size to give it a good trial, according to the number of fowls you have. Then if not satisfied, you get your money back.

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GEORGE H. CROLEY, 637 Brannan St., San Francisco. POULTRY SUPPLIES.

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The Boy Is Coming Home.

I tell you it is busy time jest now for me and marm,
The Boy is comin' home to spend Thanksgivin' on the farm;
'Tis ten long years since he went West to mingle in its strife,
He's done first-rate, and, furthermore he's got a Western wife.
We got the letter yesterday, and marm she laid awake
Full half the night to praise the Lord and think what she must bake.
If I should feed the turkey now as she declares I must,
Why, long before Thanksgivin' he would swell all up and bust;
I've had to grind the choppin'-knife and go to choppin' mince,
And things are brewin' rich and fine and fit to feed a prince.
The Boy, he writ for chicken-pie, "With double crust," says he,
"And mixed with cream, that lovely pie you used to make for me."
He wants a big red apple from the hillside Northern Spy,
And butternuts,—I've got 'em round the stovepipe, brown and dry;
He wants to lay the fire himself with maple hard and sound,
And pop some corn upon the hearth when all are gathered round.
He wants the things he used to have when he was but a lad,
'Tis somewhat strange, it may be, but it makes us mighty glad;
We're both a little whiter, but our love, depend upon't,
Is jest as green and stiddy as the hills of old Vermont.
It flustered marm a bit at first about the Western wife,
What she should do for one so fine and used to city life;
But tucked between the Boy's big sheets she found a little slip,
She read it with a happy tear, a gently quivering lip;
"Dear mother," them's her very words, "I write this on the sly,
So don't tell John, but make for him a big, big pumpkin pie;
I know it will delight him, for he still is but a boy,—
His mother's boy,—and so he fills his wife's glad heart with joy."
And so, you see, 'tis busy times jest now for me and marm,
The Boy is comin' home to spend Thanksgivin' on the farm.

—By J. M. Hull in Lippincott's Magazine.

Thanksgiving.

Again we come to the time of Thanksgiving, and what a number of things we have to be thankful for. If every reader will but take a few moments to review the past year—with all of us there will be bitter memories, but also many pleasant ones. The more one thinks over the events of our crowded lives the more will the many blessings enjoyed be appreciated; so let the coming day be the opportunity for making others thankful. Help some person, by word, look, invitation to your home to enjoy your comforts with you, or take part of your abundance to those who can not come, but who need comfort.

Thanksgiving should be the home holiday, it stands for more than feasting, for fashion or for sport. What true son does not wait longingly for the day to come when he can hurry to his distant home and join the family at the old home board? Thanksgiving Day? What mother or father is there who, having an absent child, does not count the very days until the last Thursday in November brings the girl or boy back to the home roof once more? God bless our homes. God bless the family. It was the first institution he ordained on earth. May it be the last to go.

Thanksgiving Day—the day of hospitality and good cheer; the time for the coming together of relatives and friends—which brings us to the subject of the all important dinner. There are always many inviting menus to choose from but the writer confesses to a fondness for the old-fashioned sort in which the meal begins with the carving of the big bird. The would-be poet very cleverly expresses the thought in the following lines:

My turkey, 'tis of thee,
Sweet bird of cranberry,
Of thee I sing.
I love thy breast and wings,
Back, legs and other things,
I love thy good stuffings,
Oh, luscious bird.

To many people, though, a meal is not complete unless it commences with soup and runs through several courses. For those, the following menu may be of interest:

Vegetable soup.
Roast turkey. Baked oysters.
Cranberry sauce. Stuffed olives.
Mashed Irish potatoes. Sweet potatoes.
Brown bread.
Baked beans. Slaw. Squash.
Chicken salad.
Ice cream. Angel food cake.
Chocolate cake.
Salted almonds. Candy. Cheese.
Black coffee.

This menu can be served in four courses, which is plenty long enough if one is doing their own serving. For decorations for the table nothing is nicer than chrysanthemums. If these are not obtainable, a bunch of holly makes a bright centerpiece, and, if flowers are not desired, a toy boat resting on a mirror, flying the Mayflower pennant, with the edge of the mirror well covered with fern, is effective. Another novel idea is to secure a large papier-mache turkey for the center of the table and surround him with a fence made of striped stick candy.

Place cards always add to the attractiveness of a table and can be produced at home at almost no expense. A rather unusual one seen lately was a good-sized card with the picture of four mice on it, outlined in black, bearing this verse:

These are the mice who like things nice
And call upon me and on you,
To sample the food, so plenty and good—
No doubt they are "thankful," too.

THANKSGIVING DINNER RECIPES.

Where oyster soup is preferred and oysters cannot be obtained, oyster plant makes a very fair substitute. Prepare the same as any vegetable, wash, pare and cut in inch length pieces and cook until soft in boiling water. When done, add milk, butter, pepper and salt and serve only the liquid.

The turkey should be dressed the day before using and well washed and salted. In the event of its being an old bird, it may be cooked on top of the stove until tender, in a double pan about one-third full of hot water. Prepare your stuffing of bread crumbs, seasoned with salt, pepper, butter and onion and moisten with milk and one egg. When the bird is fairly well done, stuff it and put into a hot oven to brown. When the turkey is young and tender, no cooking on top of the stove is necessary.

Cranberry sauce may be cooked in two ways—either with or without pressing them through a colander. In either case add plenty of sugar and prepare the day before, so the jelly will harden.

Waldorf salad is very nice with a turkey dinner, and is prepared with equal parts of chopped apples and celery, with English walnut meats sprinkled over. Mix with a good salad dressing and serve on lettuce leaves. This salad must not be prepared until wanted, as the apples will darken.

The foregoing menu does not call for pie, but to most of us a Thanksgiving dinner would not be complete without either pumpkin or squash pie. The following is an old tried recipe for squash pie: Boil and sift a good dry squash, thin it with boiling milk to the consistency of thick milk porridge. To every quart of this add three eggs, two tablespoons melted butter, nutmeg or ginger if you prefer, and make quite sweet with sugar. Bake in a deep plate with one crust.

Grandma's Pumpkin Pies.

Mother's pies are very good for common days,
But, oh, my, my,
You ought to go to Grandma Gray's,
Where we all go Thanksgiving days,
And taste of grandma's pumpkin pies.

The aunts and uncles are all there,
And cousins, too, of every size;
And when the turkey has had his day
And grandma's pudding is stowed away,
Then next will come the pumpkin pies.

Oh, apple pie is very good,
And chocolate, cream and mince likewise;
But if you knew my Grandma Gray,
And tried her cooking, you would say,
Hurrah for grandma's pumpkin pies.

Merely Facts.

"Haven't you and your friend got through that argument yet?" asked a parent of his youngest son.

"It isn't my argument," answered the boy. "I am merely telling Jimmy the facts in the case, and he's so beastly stubborn he won't understand."

Sacred Things?

There is a story worth repeating. The former head of a large private school in Detroit was a gentleman of dignified bearing, refined and correct always in manner and speech. By birth and early raising he was a Vermonter, and doubtless of straight Puritan extraction.

One day in his boyhood his mother called him in from the yard, where he was playing with other boys, to say to him in a tone of mingled sadness and severity:

"Charles, my son, I never thought to hear you use a swear word."

"Why, mother," said the boy, "I didn't use any swear word. I only said 'the devil.' Nobody thinks that's swearing."

"I don't care, replied the mother, quickly, "it's making light of sacred things, and you must not do so again."

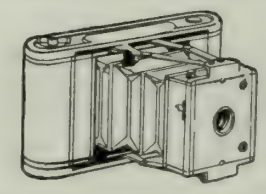
Then He Collapsed.

The first time a man speaks in public he probably suffers more agony in a shorter space of time than at any other part of his career, says Tit-Bits. Young Frankington felt the truth of this very keenly the other day, when he found himself facing an audience of free and independent voters at an election. He had prepared a very fervid oration in support of his father's candidacy, but for the first few moments he could do nothing but gasp. Then, in response to an encouraging cheer, he began to speak.

"Mr.—Mr. Chairman," he stammered, "when I—when I left home this evening only two people on this earth—my father and myself—knew what I was going to say; but now—now—well, now, only father knows."

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THE MARKETS.

San Francisco, Nov. 17, 1909.

(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

Wheat is arriving quite freely from the North, and conditions there affect the local market, some local grades being about cleaned up. There is a good demand for milling grades, with a more active movement than last week, and all the Northern grades show some advance. All cash grain has an upward tendency. Local dealers quote as follows:

California Club	$1.77½	@1.82½
Sonora	$1.85	@2.00
White Australian	1.90	@2.00
Northern Club		1.75
Northern Bluestem	1.85	@1.90
Russian Red		1.72½

BARLEY.

Arrivals of feed and brewing grades continue ample for all demands, and with an easier tone to the market trading has been less active. Prices on feed have been fully maintained, but brewing and shipping grades have been shaded, though there is still a fair movement for export.

Brewing	$1.47½	@1.48¾
Shipping	1.47½	@1.50
Good to Choice Feed, per ctl.	1.45	@1.47½
Common Feed	1.40	@1.42½

OATS.

There is continued pressure to sell on the part of Northern holders, who are shipping large quantities to this port. The large offerings are now having some effect, as the demand has fallen off a little and most descriptions are lower. Buyers show little interest in anything but seed, which is still in fair demand.

Red, feed	$1.60	@1.70
Seed	2.00	@2.15
Black	2.40	@2.65
Gray	Nominal	
White	1.57½	@1.62½

CORN.

Prices are entirely unchanged on the ordinary local and Western descriptions, the latter being inclined to easiness. Egyptian is weak and lower with very little demand. Arrivals are light with little movement of any variety.

California Small Yellow	$1.70	@1.75
California Large Yellow		1.75
Western State Yellow, bulk.		1.57
Mixed, in bulk		1.55
White, in bulk		1.61
Egyptian—White	1.60	@1.70
Brown	1.57½	@1.60

RYE.

Conditions remain as before, with a fair demand for choice grain, and very little to be had. Holders are asking top prices, which tends to limit the movement.

Rye, per ctl	$2.00	@2.10

BEANS.

The market is becoming steadier, though there have been some changes in quotations during the week. The upward movement is apparently about over, as prices are already on an abnormally high level. The volume of arrivals is still very large, but most of the shipments so far received have been to fill immediate requirements, and there is no excessive supply offered. White beans are less active, owing to the comparatively low prices of that variety in the East. Limas are quite steady, with higher prices prevailing in the country. Dealers estimate the crop at 100,000 sacks more than last year. The bulk of the central California crop is said to be sold, and there has also been a heavy movement from some of the southern districts.

Bayos, per ctl		$5.00
Blackeyes	4.00	@4.25
Cranberry Beans	4.00	@4.25
Garvanos	2.75	@3.00
Horse Beans	1.75	@2.00
Small Whites	4.75	@5.00
Large Whites	3.50	@3.65
Limas	4.15	@4.25
Pea	Nominal	
Pink	3.70	@3.80
Red	6.50	@7.00
Red Kidneys	4.50	@4.75

SEEDS.

Quite a liberal movement is going on in the local market, with large shipments to outside points. Prices are firmly held at the former level. Local dealers quote the following prices:

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb		4 c
Canary		4½c
Flaxseed		4 c
Hemp	3¾	@ 4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

The expected advance has not yet occurred, but with a continued upward tendency in wheat it may come at any time. Buying is still fairly active for local interests, and occasional sales are made for export, though the outside movement would be curtailed by any advance.

Cal. Family Extras	$5.80	@6.30
Bakers' Extras	5.40	@5.80
Superfine	4.80	@5.10
Oregon and Washington	5.30	@5.50

HAY.

Arrivals show a slight increase, most of the shipments coming by water on account of the car shortage. Prices are not attracting large offerings of the lower grades at present. Many local buyers are still holding off, as they have plenty on hand, and some grades are a little easier, but renewed activity is expected before the end of the year. Owing to the cold weather, there is a larger movement of hay in the interior. The outlook is good, as there is considerable shipping demand up and down the coast, as well as for the Hawaiian Islands, and some demand from the North is expected before the next harvest. Local dealers quote the following prices:

Choice Wheat, per ton	$19.00@20.00
Other Grade Wheat	13.00@18.50
Wheat and Oats	14.00@16.50
Tame Oat	14.00@17.00
Barley	10.00@13.50
Wild Oat	10.00@13.00
Alfalfa	9.00@12.00
Stock Hay	7.00@ 9.00
Straw, per bale	50@ 70c

MILLSTUFFS.

Prices on bran, shorts and middlings are well maintained, as the market depends upon the North for a large part of the supply, but there is only an average demand. Rolled barley shows no further change, and other feedstuffs are steady.

Alfalfa Meal, or mealfalfa, per ton	$22.00@24.00
Bran, ton—	
White	29.00@30.00
Red	28.50@29.00
Broom Corn Feed, per ctl	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Corn Meal	37.00@38.00
Cracked Corn	38.00@39.00
Middlings	36.50@37.50
Mixed Feeds	28.00@33.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	31.00@32.00
Shorts	31.50@33.00

VEGETABLES.

The last crop of onions has been moving off rapidly and local stock is expected to clean up very soon. The market is accordingly advancing and very firm at the new quotations. Owing to heavy rains, followed by the first frost of the season, tomatoes have been rushed to market from the Bay districts, causing quite a surplus, but the market remains comparatively strong, with a fair sale for all attractive offerings. Other lines are becoming scarce, with the bulk of arrivals from the south. String and lima beans are scarce and high, while summer squash has brought full quotations. Nearly everything is firm and in good demand.

Onions—New Yellow, per ctl	80@	90c
Garlic, per lb	4@	5c
Green Peas, per lb	3@	6c
String Beans, per lb	3@	5c
Lima Beans, per lb	7@	9c
Turnips, per sack		75c
Summer Squash, large box	1.00@	1.25
Tomatoes, per box	40@	70c
Cucumbers	75c@	1.00
Green Peppers, per box	50@	75c
Celery, per doz		25c
Egg Plant, per box	60@	75c

POULTRY.

The market has been in poor condition as far as prices are concerned, though the large offerings of Eastern stock have sold off fairly well at the current values, as retailers are taking on supplies for next week. Owing to the heavy arrivals of Eastern, local stock has had little attention, but it is expected to do better in a few days. Turkeys have been arriving very freely, with a large percentage of old birds, bringing easier prices, though the demand is quite large. Squabs and geese are still quite strong.

Broilers	$ 4.00@	4.50
Small Broilers	3.00@	4.00
Fryers	5.00@	6.00
Hens, extra	7.00@	8.00
Hens, per doz	5.50@	6.00
Small Hens	4.50@	5.00
Old Roosters	4.00@	5.00
Young Roosters	6.50@	7.00
Young Roosters, full grown	7.00@	8.00
Pigeons		1.25
Squabs	3.50@	4.00
Ducks	5.00@	8.00
Geese, per pair	2.00@	2.50
Turkeys, Gobblers, live, lb	19@	23c
Dressed Turkeys, lb	24@	27c

BUTTER.

The market has been rather easy, but is now working into better shape, with slightly increased demands and no great surplus on hand. The only change is on fresh extras, which are 1½ cents higher. Local storage stock is firm, with a liberal demand, while everything else is steady. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	33 c
Firsts	30½c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

All the lower grades have remained steady at the former prices, supply and demand about balancing. Extras have changed a little from day to day, but are now fairly firm at a slight advance, with an improving demand.

California (extras), per doz	54 c
Firsts	45 c
Seconds	30 c
Thirds	28 c
California Storage (extras)	31 c

CHEESE.

There is still a strong upward tendency on all local grades, some of which are now on a level with Eastern. There is a good demand, as supplies here have been considerably reduced and nearly everything is higher.

Fancy Calofirnia Flats, per lb.	18 c
Firsts	16½c
New Young Americas, fancy	19 c
Oregon Flats	17 c
Oregon Young Americas	18½c
N. Y., fancy	19 c
Storage, Fancy Flats	16 c
Young Americas	18½c

POTATOES.

There has been a fair demand for shipment of late, and there has been very little accumulation on this market. There is accordingly more firmness and river stock is higher, though other lines are moving at former quotations. Sweets are also stronger. Local dealers quote the following prices:

Potatoes—River Whites	65@	90c
Salinas Burbanks	$ 1.25@	1.35
Oregon Burbanks	90c@	1.00
Sweet Potatoes, ctl	1.00@	1.25

FRESH FRUITS.

Supplies of table grapes have been quite large, much of the stock offered showing damage from the rain and the market does not clean up from day to day. Prices are inclined to weakness, though all saleable offerings bring former prices. Good raspberries are higher, but there is some cheap stock on the market. In the absence of Longworths, other strawberries are doing a little better. Apples are very firm, with occasional lots held above quotations, and some extra fine fruit from Oregon sold off quickly at high figures. Pears are also in better demand and higher, but other fruits are generally neglected.

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Raspberries, per chest	$ 8.00@	12.00
Cranberries, per bbl	9.50@	10.50
Strawberries, per chest	4.50@	7.00
Huckleberries, per lb	7@	10c
Grapes, per crate	50@	75c
Lug boxes	50c@	1.00
Apples—		
Fancy, per box	1.00@	1.50
Fancy Oregon	2.75@	3.00
Choice	75@	90c
Common	40@	65c
Pears—		
Winter Nelis	1.50@	1.75
Other varieties	50c@	1.00
Quinces, per box	50c@	1.00
Pomegranates, small box	65c@	1.25
Persimmons	1.00@	1.25

CITRUS FRUITS.

With little to be had in the way of fresh fruit, oranges are in more demand, especially as the new navels are showing a better color. Valencias are becoming scarce and bring an advance, while the best lots of tangerines are also quoted a little higher. Lemons are very strong with higher prices for fancy, while limes are lower.

Oranges—		
Valencias	$ 3.00@	3.50
Tangerines, crate	1.25@	1.75
Navels	2.50@	3.00
Choice Lemons	2.50@	3.00
Fancy Lemons	4.25@	4.75
Standard	1.50@	2.00
Limes	5.00@	5.50
Grape Fruit	2.50@	3.50

DRIED FRUITS.

Prices on fruits show no change of any consequence, everything on the list remaining very firm. The primary market on nearly all descriptions is beginning to clean up, but the heavy buying movement is considered about over, and things are quieting down somewhat. Local packers are still in the market, however, for all desirable lots offered at the current figures. Peaches are scarce and quite firm and there are few apricots to be had. Prunes are quiet in the East, but there is still some movement locally, though most of the crop has been bought up by packers. The position of raisins is becoming stronger all the time. They are scarce in the East and the demand is good. According to all reports the packers have already secured most of this year's crop at the low prices recently prevailing. They are buying up all that is offered at the former quotation, some paying as high as 2½ cents, but most growers are unwilling to accept these prices, and the market is rather quiet as a consequence.

Evaporated Apples, per lb	7½@	8 c
Figs, black		2 c
Figs, white		4 c
Apricots	9½@	10 c
Peaches	5 @	5½c
Prunes, 4-size basis	2½@	2¾c
Pears	6 @	8 c
Raisins—		
Loose Muscatels, in sweatbox	2¼@	2½c
Thompson Seedless		2 c
Seedless Sultanas		1¼c
London Layers, 3 crown	85 @	95 c

NUTS.

Almonds are closely cleaned up and quotations for stock in growers' hands are now practically nominal. Walnuts are also cleaning up quite rapidly, most of the crop having been shipped both from the south and from other districts. Some packers are now quoting higher prices. The demand in this market is strong and an active movement is going on in the trade.

Almonds (new crop)—		
Nonpareils		14 c
IXL		13 c
Ne Plus Ultra		12½c
Drakes		10 c
Languedoc		9 c
Chestnuts, California	8 @	12 c
Walnuts—		
Softshell, No. 1		12½c
Softshell, No. 2		8½c

HOPS.

Dealers are quoting slighly lower prices than have prevailed for some time, with comparatively little movement, but a large proportion of the crop has already been sold, practically no old stock remaining on hanad.

Hops, new crop	20	@23 c

WOOL.

Conditions show little chance, local dealers offering the same prices as before, which are practically nominal, as there is no movement worth mentioning.

Fall clip, Northern Free	12	@15 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

Live sheep and cattle are in strong demand and are moving freely in the country. Arrivals here are very moderate and prices on all lines are very firm. Some descriptions of beef and dressed lambs are higher, and there is also an upward tendency in live cattle, sheep and lambs. Hogs are firm and moving freely as before.

Beef: Steers, per lb	6½	@ 7½c
Cows	6	@ 6½c
Heifers	6	@ 6½c
Veal	7½	@10½c
Mutton: Wethers	9	@10 c
Ewes	8	@ 8½c
Lambs	11	@12 c
Hogs dressed	9	@11½c
Livestock—		
Steers: No. 1	4	@ 4½c
No. 2	3¾	@ 4 c
Cows and Heifers: No. 1		3½c
No. 2		3 c
Bulls and Stags	1¾	@ 2 c
Calves: Light		5½c
Medium		5 c
Heavy	4	@ 4½c
Sheep: Wethers	4¾	@ 5 c
Ewes	4	@ 4¼c
Lambs		6 c
Hogs: Grain fed, 100 to 150 lbs.		7 c
150 to 250 lbs	7½	@ 7¾c
250 to 325 lbs		7 c
Common Hogs, lb	4½	@ 5½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, November 16, 1909.—The present cool weather, which gives color to the oranges, together with the size of the fruit here in the south, makes it a certainty that our southern oranges will be earlier than they were last season. By that is meant that as far as outside appearances go they will be nearly a month ahead of where they were a year ago.

Some navels are now going out from the south for Thanksgiving trade. This is fruit that has been sweated to bring out the color and this color is never anything but a pale yellow at the best. The writer saw oranges being sweated this past week that had been in the hot room for four days and were then only colored in spots. Many of the stems had dropped out, which will induce decay, and it was altogether a very inferior looking lot of fruit and one wonders why any dealer would want to handle such a mess.

From reports brought back by shippers who have visited the East this year it is evident that it is only a question of a short time when it will be impossible for any shipper to sell immature fruit in quantity. This year they are showing the shipper this fact more than ever before. The fact that valencias were in the market much later than ever before has had much to do with this, and orders for northern navels are the lightest for many years. A dealer said to one of our shippers that they liked the California navel better than any other orange when it was right, but until that time they would let them alone. They spoke very well of the Louisiana oranges and have been eager to get them, though prices received for them do not at all compare with valencia prices, nor with the prices quoted for the northern navels.

The rains in the north and the lack of available cars has somewhat interfered with shipments. About 350 cars have gone from Tulare county and not over 20 from Butte county. A friend writes from Oroville, in Butte county, that though the fruit is sweet, it is still very green and that there will be nothing like the output for Thanksgiving that there was a year ago.

Valencia prices remain high, but with almost no demand at this end, most of the fruit shipped going to the New York and Boston auctions, which have stood up remarkably well under the constant heavy supply for this time of the year. The shipments are only about five cars a day at this time but the rains may have been responsible for this and we can look for an increase and we expect valencia shipments every day for the balance of November.

Lemon prices are high in the East but the call for lemons out here is light, as the dealers are only buying for immediate wants. Asking prices here range from $3.00 to $4.50 a box cash.

The foreign supply available in the next 30 days is 15,000 boxes as against 48,000 boxes last year, and 41,000 boxes in 1907. This is the lightest supply in years and the indications now are that prices will remain high until the main crop comes in about the first week in December.

Alfalfa Farms

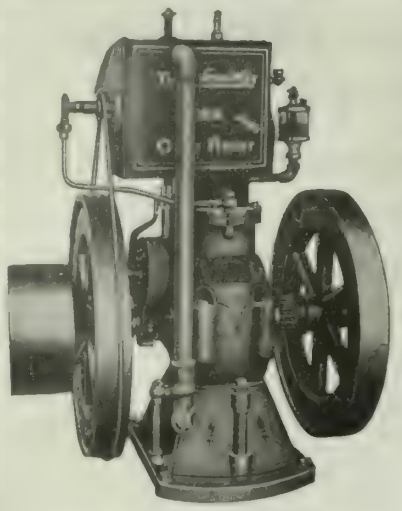
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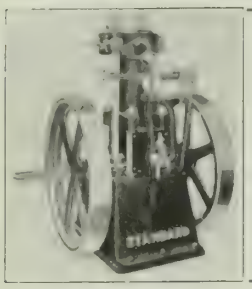
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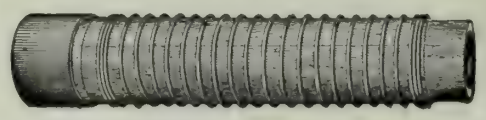
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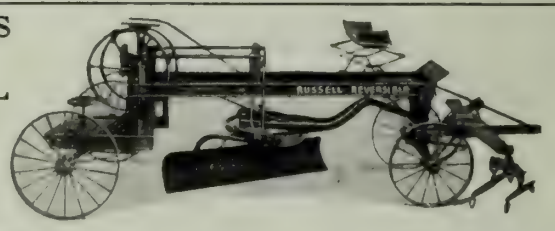
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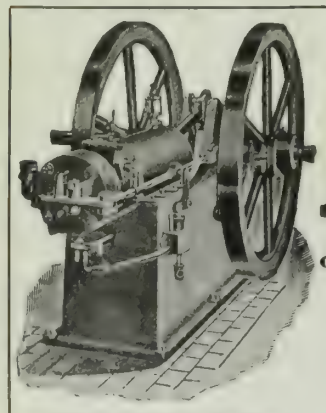
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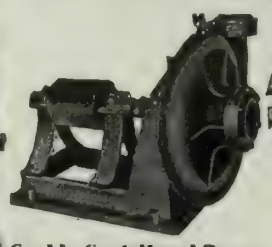


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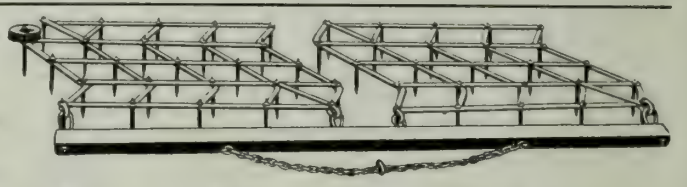
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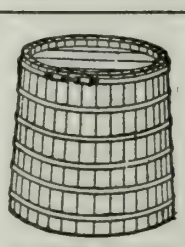
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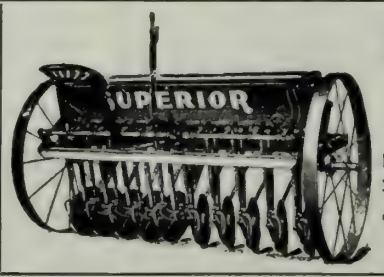
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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 22. SAN FRANCISCO, SATURDAY, NOVEMBER 27, 1909. Thirty-ninth Year.

OPPORTUNITY FOR DAIRYING IN CALIFORNIA.

By Mr. GEO. A. SMITH, of Corcoran, at the Creamery Operators' Convention at Porterville.

The dairy business in California in the last few years has made wonderful strides of progress. It has grown by leaps and bounds and is rapidly being recognized as one of the important branches of agriculture, if not the most important in our great State, and it must continue so if it keeps pace with the rapid development of our great country, but it seems as yet far from catching up with the demands of an ever increasing population. The dairy business today is generally recognized both East and West as the safest, surest and best paying branch of agriculture, and its results are almost mathematical. If this be true, what is the opportunity for dairying in California?

The Modesto-Turlock irrigation project, together with others of a similar character in this and other States, has demonstrated the cheapness and practicability of storing water in the mountains, and has made this system so popular that other systems of a like nature are now under consideration. So that in the near future water by this system will be provided for large areas of worn out grain lands which have become semi-arid through the continued cropping for grain through a long series of years, forcing their owners to abandon grain farming and to cut up into small subdivisions immense tracts of land, which with a necessary and adequate water supply available is soon sold to settlers. When this worn out grain land is irrigated and seeded to alfalfa its productive value is increased many fold and affords great opportunity for profitable dairying, so that localities and towns almost abandoned are made productive, thriving and prosperous.



Scene in the Modesto-Turlock District. Water Which Makes Milk by the Alfalfa Route.

In many localities in this State enormous tracts of land are being supplied with water diverted from streams and made to flow by gravity through canals and ditches and distributed over land of from fair to good quality, which lands are made highly productive alfalfa fields. There the dairy business will be found flourishing and increasing in proportion to the number of settlers that are taking advantage of these favorable conditions. Alfalfa means green feed all the year, and it also means that one acre will provide feed for one animal. A gravity water supply from streams is the cheapest system of irrigation, and the land reclaimed by this system is usually good and especially well adapted to the dairy business, and under these most favorable conditions splendid opportunity is afforded for dairying. A number of important systems of this nature are in successful use in this State. Among the most prominent is the system in use in the Imperial valley. Others less extensive are under consideration at the present time, which will no doubt afford a splendid opportunity to a large number of dairymen to enter this profitable business or to increase the business if already in it.

In many places where it is not practical to secure water from the mountains or streams it is possible to sink pumping wells, which provided with a pumping plant furnished with gasoline or electric power, while more expensive to install and operate, will furnish an adequate, permanent and independent source of water supply at a cost which leaves a satisfactory profit to the owner. A plant of this kind makes the production of from six to eight good crops of alfalfa per year certain, and insures against the total failure in a dry year of valuable crops and prevents the loss of years of toil. The extensive use of pumps and engines among the farmers and dairymen has led to the perfecting of these machines and the lowering of the cost to within reach of the average dairyman. The demand for power to operate pumping plants has also led to the development of electrical energy from water power in the mountains, so that dairymen can now secure power from the electric companies at a minimum cost, largely eliminating the cost for attendance and repairs, and, being so very convenient, this power has become quite popular for pumping plants. The improved equipment and the greater skill in sinking and developing pumping wells have made the development of water practical where heretofore it was thought quite impossible, and is affording excellent opportunity for profitable dairying where none existed on account of the inability to produce cow feed.

In other localities where it is not practical or possible to secure water from the mountains, streams or pumping plants, the development of water by deep boring, while more expensive to install than the three former systems mentioned, the cost of maintenance and operation is less than in any other system, and where artesian water can be secured in sufficient quantities, this system is the best, most independent and satisfactory. As these artesian wells are nearly always found in localities where the land is exceptionally good, there we find the most favorable and the best opportunity for dairying.

A more economical and scientific use of water is being practiced so that the volume of water now available is sufficient to irrigate and make productive a larger area, enabling those already engaged in the dairy business to pursue it more extensively and providing water for land where none has been previously used, thereby affording a greater opportunity for dairying.

The climatic advantages of California for the dairy business are simply marvelous. Our winter is one continual springtime; no snow, no wintry winds, no blizzards, no ice and sleet to decrease the production and make warm and expensive barns necessary. On the contrary, in the winter our dairy cattle are grazing on green pastures of alfalfa and natural grasses. In fact, the dairy cattle of the irrigated sections are never without green feed every day in the year. The absence of humidity in the atmosphere robs the summer heat of its oppressiveness, which is so apparent in many parts of the East. In our haying season rain is unknown, so that the gathering of crop after crop is attended without loss from this source. These ideal climatic conditions no doubt have a great deal to do with the health of the dairy cattle of this State. With our mild winters, our everlasting growing season, combined with irrigation which makes our soil highly productive, and with nature on the side of the dairyman, it is truly the dairyman's opportunity.

The leading dairy sections of California are within easy reach of one or the other of the two great consuming points of the State, namely, San Francisco and Los Angeles, whose dairy markets are the highest in the United States. This, together with its excellent transportation facilities, makes dairying a favorite enterprise with people of both large and small means, who invariably find the returns from this investment most satisfactory.

The average price of dairy products for the last twelve months has surpassed our most sanguine expectations. We can not reasonably expect to receive any higher prices. Therefore the only way left to us to obtain greater profits is to improve

(*Continued on Page 355.*)

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Nov. 23, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	7.64	16.11	7.80	66	44
Red Bluff	1.15	3.81	4.62	68	40
Sacramento	.30	2.68	2.95	68	40
San Francisco	.71	4.14	3.31	62	47
San Jose	.17	2.61	2.24	72	34
Fresno	.04	2.27	1.78	72	38
Independence	.04	.52	1.69	66	26
San Luis Obispo	.01	2.36	3.03	76	38
Los Angeles	.00	.98	1.88	80	48
San Diego	.00	1.46	1.14	72	44

The Week.

The dairy industry has its innings in our columns this wek, just as fruit growing went to the bat in our last issue. The discussion on the dairy opportunity in California, and the way to seize upon it with greatest profit, which Mr. Smith gives upon the preceding page, will no doubt attract wide attention for its confidence and buoyancy, and its statements of fact are presented in a very effective way. The report of the Creamery Operators' Convention at Porterville, which largely occupies our Live Stock Department in this issue, catches well both the material and spirit of the occasion, both of which will be carried to fuller expression in later issues. Surely the dairy is great and growing in California and is doing incalculable service in individual prosperity and in State development. Our editorial supervision of these attractive dairy writings has filled us with a mixture of reminiscence and argument, and we have to sieze upon the editor's only way to get relief from a surfeit of anything, and that is to print it.

We never can forget that we were brought to California 35 years ago because our employers, who were the owners of the PACIFIC RURAL PRESS at that time, were told that we knew something about dairying, which was considered up to date at that time. Our first writing and first teaching and first efforts to promote organization of producers were all in dairy lines. A few years later came the great awakening in export fruit; we looked through the same lenses with many other, and, behold, a California peach seemed larger and more beautiful than a cow, and we have sat under the tree ever since, watching to see how much greater it could get, and it is still growing and still to grow. But we have never forgotten the cow nor neglected to observe her animal beauty nor to appreciate her industrial service to the State. Older readers may remember some of the ways in which we have tried to emphasize her significance in California agriculture and the claims we have made for the cow as an agent in agricultural progress. At this time, then, when the cow has been called from the field to the rostrum of the convention to show her relation to State development, we are disposed again to state some facts which appeal strongly to us in this connection.

The annual output of products of an estimated value of twenty-five millions of dollars constitutes the dairy industry, one of the leading agricultural interests of California. The fruit products are more than twice as great, and the grain crops have, in years good in price and yield, been twice as great; but fruits and grains have attained their pre-eminence along avenues of export, although we are now bringing wheat from other States. Our dairy products are almost wholly consumed within our own State lines, and though expansion through export seems attainable, it has thus far been realized only in a very small degree, and chiefly for army and navy use. It is fair to claim that what has thus far been accomplished in the development of dairy husbandry in California is but a promise of future greatness, and that present opportunity is vastly greater than achievement. This fact has been clearly perceived for several years, and commendable effort has been continually put forth by dairy proprietors and their skilled employes to lift their work to the exactness of practice and uniform excellence of products which are attained by faithful adherence to modern dairy principles and methods. Without such advancement the industry can only remain provincial and must suffer within its own territory by competition with high-class dairy products brought from other regions, many of which are less favored naturally. So long as we are buying butter, cheese and pork products by the million dollars worth from the producers of other States, it is of very great advantage to the State to promote dairying upon the lines of the best methods and the highest quality of products, because it will cancel the great tribute we are paying to other States for what we can produce ourselves, and because it will enable our people to easily pay taxes upon an increased home valuation instead of really paying taxes here upon the increased valuation in other States, as they are now doing.

But perhaps the broadest conception in this exaltation of the dairy interest lies in proper appreciation of its relation to other branches of farming. The cow is the cornerstone in successful mixed farming. It is becoming more manifest each year that there is greater safety and prosperity in developing in each region, and in many cases on each farm as well, certain related lines of production to which the conditions are suited. The dairy is a leading factor in diversification, because it is capable of intensive culture and it returns a high priced product upon which much labor and investment can be profitably bestowed. Not only is this of great help in making single farms profitable and their owners prosperous, but it distributes its benefits all through communities, it gives regular employment to thousands, it stimulates local trade and builds up towns and villages and assists in the development and progress of all good enterprises. Proper rotation of cropping and pasturage will restore the grain yield to better figures, and it will bring into our pockets the millions in value of plant food which our purchase of dairy products leaves to enrich distant supply regions. Wherever dairying has been properly introduced into the grain districts of the State there is to be found abundant testimony to the truth of this claim. Dairy extension will restore our formerly great grain product and make it profitable again.

This consideration can be more definitely stated. In the twenty-five million dollar valuation given to the dairy output there is no item for the by-product of plant food in its most available and desirable form. Careful experimentation has shown that the excreta of a dairy cow are worth about 8 cents per day, computed at the standard valuation of the plant food substances which they contain. This for a year would be $29.20 per cow, and for the 430,000 milch cows which the Department of Agriculture credits to California in January, 1909, the total value would be $12,556,000. The worth of manure is conditioned upon the character and amount of the feed supplied to the animal and the current estimates of value may be based upon higher feeding than California dairymen practice. Suppose then we discount the above total one-third, we would still have above $8,000,000 as the value of manure as a by-product of California dairying. This by-product is not sold. If the dairying is properly done, every possible part of it is restored to the soil, not only maintaining but increasing its fertility. The dairy is, in fact, not only restorative, but productive of new plant food in the soil. If then it is claimed that the value of the manure should not be counted, because it is not sold but is restored to the land and used in subsequent production of dairy products, the answer is that the dairy must be credited with this value because it is doing what other leading agricultural industries do not do. Our fruit industries make no adequate return for what they take from the soil, and fruit growers are each year paying a larger part of their gross receipts for commercial fertilizers. Our hay and grain and other field crops are robbing the soil until its poverty is becoming conspicuous, and still very few growers can command knowledge and courage enough to be generous with the soil. The dairy, if at all properly conducted, is a great conservator, and returns to the State continually more than it takes. On this ground alone the dairy industry is of great value to the State, and its improvement and extension are matters of the clearest public benefit.

It should of course be remembered that the great and distinguished service to the State which the progressive dairyman renders is not discharged without the most assiduous work. Dairying is work all through; seven days a week and 365¼ days in the year; but no industry pays better for wise work faithfully done. The requirement of work is unyielding and it must be frankly admitted that an unsatisfactory labor supply is at present one of the greatest drawbacks to dairy production, but the extension of dairying at present prices, which bid fair to be indefinitely maintained, will actually increase the local labor supply because of the attraction which it offers for profitable regular employment. In fact the dairy industry has a clear corrective influence upon what are considered some of the evils in the labor situation in this State. Our present possession of dairy cows employs upward of 20,000 people, and they are continually employed and comfortably housed. In the dairy connected with other crops the hands can give part of their time to other work, as required, and thus the dairy is the key to continuous employment of nearly all farm labor, except in harvest rushes, and will point the way to the better general condition of our farm laborers which is so earnestly desired by all. Thus the dairy becomes a valuable reform agency, ministering not only to the prosperity and comfort, but to the moral welfare of our laboring population.

Queries and Replies

Walnuts and Figs.

To the Editor: I desire to ask your opinion upon the advisibility of putting lime upon land now in English walnuts and Adriatic figs. The land is bottom land: a light sandy loam, such as is commonly found along the Feather river bottom lands. The trees are about 15 years old, and are of good size. The figs have made an average crop of about two tons per acre the last few years; the walnuts have not averaged over 50 pounds per

tree; that is, the trees too that seem to be immune from the blight. My opinion is that about 20 or 30 pounds of air-slacked lime per acre would materially increase the crop of both the figs and the walnuts. The vegetative growth is good. Some of the walnut trees are 40 feet high, the average about 25 feet. In case you think it advisable to try the lime, how should it be applied? Would it do to scatter it over the land and let the winter rain wash it in the ground? Can you also advise me whether there is any cure for the blight on English walnuts? Would it be practicable to graft immune varieties upon a variety that is susceptible to the disease?—R. I., Marysville.

Lime is usually more valuable on heavy clay soils and on river bottom soils containing a great deal of organic matter, than upon the sandy loam which you describe. Twenty or 30 pounds of lime to the acre is too little to consider either for good or ill. Applications of lime, where lime is needed, can be profitably made at the rate of 500 to 1000 pounds to the acre, spread as you suggest and carried down by the rain. So long as your trees are growing well, and bearing well, the question of fertilization can be postponed. Your Feather river land ought to carry trees for many years without requiring enrichment.

There is no cure for blight on English walnut. The most promising recourse is that which you suggest. Search continually for immune varieties and graft your trees over with scions from immune trees, whenever you can find an immune tree whose fruit is up to the requirements of the trade.

Composting in a Trench.

To the Editor: I do not believe in burning anything that can be used to enrich my land. I am now digging a trench 4 feet wide and 2½ feet deep between fruit tree rows into which I will throw all the stable manure I can get. First, before doing this, I will plow the trench as deep as I can with one horse and then use cultivator to work manure lower than the 2½ feet. On top of this I will throw sunflower stalks, of which I have a large quantity, also a lot of pampas grass stalks which have grown on a large irrigating ditch near by. After this I will throw in last year's brush from the vineyard. I will have both ends of this tract, and of any others I may dig, connected with the irrigation ditch so water can be run in to help rot the trash. I find there is some work about this, but firmly believe it will pay me well in a few years. I would be very glad to know whether you consider it worth the effort?—W. R. P., Tulare county.

Your plan is theoretically correct so far as securing a certain amount of decayed organic matter is concerned, and there is no doubt but this is good for the soil, but there is considerable doubt but that the undertaking will cost you more than the value of its output. We should apply all the stable manure available to the surface of the ground at this time of the year and plow it under during the winter. During the dry season we would scatter the manure to dry in the corral and during the wet season apply it to the land as fast as made. We should burn all the dry trash, prunings, etc., and scatter the ashes, believing that the work and water which you would require would be more profitable if directly expended upon the care of the plants and the cultivation of the soil in which they are grown.

Manure for Rhubarb.

To the Editor: Will you please tell what is the best fertilizer for winter rhubarb? When should it be applied, and how much per acre? Also, what is your opinion on the use of nitrate of soda? Would it be possible to use a cover crop to an advantage in between the rhubarb rows which are 4x5 feet?—Grower, Santa Clara.

A good covering of the land with stable manure, to lie during the rains until the time comes for plowing in, would be a good treatment for your rhubarb plantation. As the crimson winter starts very early, it would be desirable to cover in the manure earlier than with the old varieties which wait for spring heat. In the absence of stable manure, nitrate of soda might be used carefully for an excess is dangerous. Not more than 200 pounds to the acre, well distributed, should be used. We doubt if you can use a cover crop to advantage with the rows so near together, especially with a plant which starts so early. Mr. Wagner, of Pasadena, who is one of the largest growers of crimson winter rhubarb, finds that an application of pomace from the wineries is especially effective in forcing a large growth of rhubarb. We expect to have, soon, a statement of his work in this line.

Chickens in the Orange Grove.

To the Editor: Please advise me the best location for orange growing, price of lands, cost of irrigating, etc., and what percent of profit might be expected from an ordinary grove? Also, whether chicken farming and bee culture could be worked on the same location?—Reader, Schenectady, N. Y.

There is no best location for orange growing in California. There are many good locations with considerable variation in the price of land, cost of water, etc. These facts can only be ascertained by local investigation, which will also give an opportunity or personal study of the lands and other factors influencing production. The profit depends upon all these things, coupled with the skill and energy of the grower, and returns naturally vary from a small to a very satisfactory profit according to conditions.

Poultry growing can be conducted in connection with orange growing and is done to some extent. Bees are usually kept where there is more continuous forage for them, although there are places where orange culture is adjacent to mountain areas or large acreages of alfalfa, both conditions favoring the keeping of bees.

The Old Tap-Root Dogma.

To the Editor: Would it pay to plant apple seedlings, good strong ones, in the orchard and when three or four years old top work them to the varieties desired? It seems to me we ought to get a better tap-root, and I believe, a better root system in general, if they were planted and properly cared for in this way? What is your opinion?—R. L., Butte county.

The eminent desirability of the tap-root is an old horticultural fad, which should be forgotten as soon as possible. Our fruit trees will restore a single, deep-running root if they need it, but they are more likely to send down several such roots if that is their habit, and several such roots are better than one. We would give no attention to the growing of seedlings in place. You will make your life wretched in the effort to get good, uniform trees, and you will waste a good deal of time and money. There is nothing the matter with our California fruit trees when the soil and moisture are right, and no tap-root will make good trees where the subterranean conditions are not suitable. Excuse us if we seem a little didactic in this matter.

How Much Water for an Orange Tree?

To the Editor: Do you consider 250 gallons of water per citrus tree enough for one irrigation—basin style—on sandy loam soil in this climate? I want to set out 50 orange and lemon trees if expense for water is not too high. I have to buy water by the meter at 50 cents per 1000 gallons.—Old Subscriber, Martinez.

It depends, of course, upon how large and old the tree is, and how much fruit it is bearing. If you use 250 gallons to the tree and you have trees at the rate of 100 to the acre, you will be using 25,000 gallons to the acre, which is a little less than one inch of rainfall over the whole surface—which gives 27,152 gallons. This would do if you irrigate often enough. Where you are with a good rainfall and not a very high summer temperature, you could carry an average orange tree with about six such irrigations during the dry season, while in some parts of the State twice as much water, or more, might be needed.

Seedlings Damping-Off.

To the Editor: I send a sample of plants that are dieing without my being able to find the cause. They have been out in flats a few weeks and seemed to be getting along very well at first after being transplanted. All I can notice is that they get dark near the ground and then dry up.—Amateur, Stanislaus county.

Your seedlings seem to be damping off. Presumably they have too much water or insufficient heat to keep the surface of the ground a little dry. Sometimes the trouble can be reduced by sifting dry sand over the surface, so that the ground surface will dry more rapidly after watering. The fungi causing this trouble seems to come from the earth, and cannot traverse dry material. Care, of course, should be always taken against over watering, especially while the air is moist and the sunshine shy.

Pine Needles in the Soil.

To the Editor: Would pine needles be injurious to the soil if they were collected after they had been dead for a long time, and scattered around to prevent soil wash, and to fill up gullies? Of course they would be finally plowed under.—E. S., Butte county.

Pine needles will not injure a heavy soil. In fact, they may lighten up and improve it if not used to excess. On a light, sandy soil, such things, owing to their resistance of decay, would be an injury, because such soils are too disposed to lose moisture by excessive air circulation. In certain cases to hold soil together to prevent erosion, they might be desirable.

The Bijou Walnut.

To the Editor: I am sending three large walnuts. What variety are they? These grew at West Point, up in the snow belt in Calaveras county. There is only the one tree, but it appears a regular bearer. This section is good for walnuts, but we have confined ourselves to the proeparturiens, and they range small, and I thought this nut might do well here.—Geo. Woolsey, Ione.

The walnut is the Bijou—so called because the French make jewel cases of it by hinging the shells. It was introduced by the late Felix Gillet, of Nevada City, who probably supplied the variety you mention also. The Bijou has never been grown except as a curiosity. Your specimens are very fine.

The Prune-Type Question.

To the Editor: What are your pros and cons of the "Morganhill" prune produced by Mr. Leonard Coates, of Santa Clara county?—Reader, Lake county.

We gave our views quite fully at the close of Mr. Coates' article on page 225 of the Pacific Rural Press of October 9. We believe we are going to get better types of prunes by the process which Mr. Coates is endeavoring to apply, and believe, also, that a similar process should be adopted by all growers and nurserymen. Just what it will amount to in the long run, has to be determined by experience.

For a Shady Lawn.

To the Editor: Kindly inform me if you know of any grass suitable for planting a lawn that will grow in the shade, the lawn being in a town. Would clover be better than grass, and if so, what kind of clover would be the best?—Reader, San Rafael.

Orchard grass will do better under trees than any other grass we know, and it justifies its name in California. It is apt to become bunchy and coarse, but the general aspect is satisfactory if cut frequently. We do not know any clover which does not make greater requirements of sunshine and water.

Horticulture.

COMMERCIAL ASPECTS OF THE FRUIT INDUSTRY.

From an address by Mr. F. B. McKevitt, manager of the California Fruit Distributors, at the Counties' Promotion Convention at Visalia, November 13.

The Need of the Hour.—With the great increase in acreage it has been necessary to seek every available outlet, so that every city capable of using a carload of fruit in a week shall be supplied. Energetic efforts have been made by our shippers to open new markets, and every season sees new towns added to the list of our customers. Not only is this work being done in our own country, but each season many carloads are taken across the ocean in the great refrigerators of our steamers, to be sold to appreciative customers on the other side.

Probably one of the greatest factors which has operated to put the business on its present footing is the plan of selling our fruit at auction, as is done in all of our most important cities. We now deem it impossible to successfully handle the business at private sale, as this was not at all satisfactory years ago when the volume of shipments was comparatively insignificant, and would be entirely inadequate now when it occasionally exceeds 200 cars daily.

In the smaller markets fruit is sold by most of the shippers on an f. o. b. California basis, the value being determined as nearly as possible by taking into consideration the available supply, probable prices in the great auction markets, and Eastern competition. This is a satisfactory method of handling the business, and would be more so if all the shippers would unite in so doing, but occasionally a firm is found willing to sell fruit on a delivered basis, which amounts in fact to about the same thing as a commission deal, and has the effect of absolutely killing legitimate f. o. b. business. It is a short-sighted policy, which, if carried far enough will result in bringing about a condition that existed years ago, when this branch of the business was considered so unsafe that but few firms dared to engage in it.

Quality.—The Pacific Coast States produce the finest fruit in the world. It is sometimes, in fact, frequently, claimed that our fruit does not equal in flavor the smaller and less handsome product of the East, but the comparison is always made on the other side, and to compare California fruit picked in a hard, ripe condition suitable for 10 to 12 days' shipment, with local fruit well ripened before picking, is manifestly unfair. Our fruit picked in the same condition is in no way inferior to the Eastern article in flavor, or any other good quality, and in size and beauty leaves nothing to be desired. Some fruits, however, ripen best off the tree. This is true of most varieties of the pear, and some kinds of plums. Our magnificent Bartlett pears are equalled nowhere else in the world, and some of our plums, the Climax, Kelsey, Wickson, etc., are equally fine when picked in a creamy yellow condition, and allowed to ripen in the box or crate. It should be our aim to cultivate the varieties having this characteristic, as we would in this manner be able to do away with any objection that has been made because of any of the short-coming noted above.

Pear Blight.—The fire blight has threatened to destroy our pear orchards, but the heavy loss of the first three years experienced with this dreaded foe has diminished to comparatively trifling loss since, and the disease, while by no means stamped out, does not cause the intense alarm of the past, and it is hoped that with favorable climatic conditions, and intelligent care, the danger may be passed and the orchards saved for long years of profitable production. The plum tree at this time has no important foe, and it is believed that the pear and these fine varieties of plums will grow in popularity in the East, furnishing a promising outlet for the large acreage that is now and will hereafter be devoted to their culture.

Peaches.—Peaches are probably more widely cultivated here than any other fruit, as they do well almost everywhere in the State. Large quantities are canned and dried, and literally thousands of carloads are available for Eastern shipment whenever the market conditions will justify. Unfortunately for us the chance for a large and continued outlet throughout the season for the fresh article does not often come, as cost of transportation and labor is so high that we are not able to compete with the Southern and Eastern product, and can expect to ship heavily only in the occasional season when for some reason the local crops are failures. Eastern buyers complain that many of the California peaches are lacking in color, and are, therefore, unattractive. There is some merit in this complaint, and if we ever gain a commanding position in this particular line it will be because some painstaking experimenter will do for the peach industry what Luther Burbank and others have done for plums—originate and test new seedling stocks which shall have good size. With a succession of such fruit ripening from the beginning of the season to the end, and carefully graded and packed, there would be a strong possibility that we could meet the Eastern peach in its own home markets, and do so successfully from the financial standpoint.

Grapes.—European varieties of grapes find a congenial home in California, and of these as a table grape the Tokay is undoubtedly the best known and most popular although the Malaga, Thompson's Seedless, Muscat, Emperor and Cornichon are also well known, and the Malaga and Emperor particularly are steadily growing in popularity. Much harm has been done to the grape business by shipping immature and sour fruit. It is a short-sighted policy, and does incalculable damage, as a single purchase of such fruit will absolutely kill all desire for grapes until after many days the disgust engendered is forgotten. A law should be made forbidding shipment of this fruit, unless it contains a sufficient amount of sugar to make it edible. I am satisfied that such a law would be invaluable to our grape interests, and it is time something was done, as production is increasing much more rapidly that the demand. Today with a crop of shipping grapes exceeding 5000 carloads it requires every energy of our shippers to dispose of the fruit to advantage, and what we will do five years hence, when the output of Lodi alone, estimated by her best authorities, will reach 12,000 to 15,000 carloads, is a serious problem.

Other Fruits.—The most important of the deciduous shipping fruits handled by the members of the California Fruit Distributors have been referred to briefly. It is impossible to more than mention here the great apple industry, which in this State has reached its highest development at Watsonville, where over 3000 carloads were produced last year, and where there are still many thousands of young trees not yet in bearing; the cherry industry, which supplies to the East its highest priced and earliest fruit; the great canning industry, which consumes thousands of tons of our finest products, finally to ship them all over the world; the dried fruit industry, which markets other and more thousands of tons of our raisins, prunes, peaches, apricots, pears, plums, apples and figs; the wine industry, with its output of millions of gallons of pure and wholesome wines. Each of these great industries, on which books must be written to tell the story of their magnitude, can receive the barest mention, but must be considered when discussing this subject in order that the wonderful extent of the business may be realized.

The Outlook.—With this vast production the question may well be asked, "What is the future of the industry?" "Will profitable markets be found, and can we secure the necessary labor to handle the output?" In answer to this we must admit we are growing now too much inferior fruit. We are not growing too much of the strictly fancy article, and probably never will. It is, therefore, in this direction we must look for relief. The day is passed when quantity is the consideration—quality now must be the cry. Heavy pruning, perfect cultivation, judicious spraying, careful thinning, correct picking, and honest packing, must now be depended upon for results, and just as these points are studied and made the basis of our efforts in just so far may we expect to succeed. Then with the best of fruit much will depend on the manner in which same is marketed. If shipped into all markets by different interests acting independently and without knowledge of what is moving and where it is going our efforts will be futile, and the results disastrous, as our own fruit would furnish the competition necessary to break the markets.

Nothing but the most intelligent, careful and painstaking distribution of these shipments by one central agency, such as the California Fruit Distributors, can be expected to correctly perform this work, which all must admit is the great essential to success.

Labor.—The labor problem is one of the most perplexing with which we have to deal. Labor for our orchards, vineyards and gardens is steadily growing scarcer, and as steadily advancing in price. With the great scarcity is not only a shortening of hours and decrease of output, but an indisputable increasing unwillingness to do a fair days' work; where a few years ago we figured the cost at 10 cents a crate or box for picking, now it exceeds 15 cents almost universally, and not frequently reaches the prohibitive cost of 30 cents.

It was said years ago as the most potent reason for the exclusion of the Chinese that they furnished cheap labor, and they did (it was good labor, too), and that the white man could not meet this competition. Because the fruit grower thought there was truth in this, and that it would be better for the country if the work was given to the white man, he allowed this eminently satisfactory laborer to be ruled off our shores.

It is, however, a fair statement that no larger proportion of white men are working in our vineyards and orchards today than were to be found there 20 years ago, and the cry of cheap labor cannot any longer be raised. We have Japanese and Hindoos, all we can get, and all the white men who will work, and still we are short. The whole United States is short of laborers for the field and orchard, and we do not know where to look for relief—the law forbidding us to turn to where labor is plentiful, and need of work is great. We are compelled to stand by, and see the difficulty of securing labor assume such threatening proportions that we are driven to our last alternative—that of renting our orchards and vineyards to someone, generally a Japanese, who is able to secure workmen, and to get out of them the full day's work that makes that day's work profitable.

The deciduous fruit business will never be placed on a perfectly safe and sound basis until we have, first, a sufficient amount of dependable workmen to harvest the crop, at a reasonable price; secondly, a sufficiently low rate in the great markets of the East at such a price as will enable the great army of prosperous workingmen to become regular purchasers of our products, instead of depending entirely upon the wealthier classes, as we do at present.

SMALL FRUITS IN THE PAJARO VALLEY.

By Mr. R. G. Einfalt, Secretary of the Watsonville Chamber of Commerce at the Counties' Promotion Convention at Visalia.

Few vocations in this State offer the liberal reward if intelligently and conscientiously pursued that is returned from the culture of small fruits, among which the strawberry is easily first.

As statistics bear out the claim that the Pajaro valley produces and ships each year more strawberries than any other section west of the Missouri river, it is but reasonable to assume that whatever has been gathered in the way of experience and data in this section relative to the strawberry may be offered as a fair criterion by which other berry growing sections may be judged.

From the thrift of the plants in this section and their prolific bearing on soils along the Coast where frequent fogs are swept inland and are alternated with such genial sunshine as glorifies our Coast line, the strawberry, as well as other popular varieties of berries, attain their greatest excellence and return their richest rewards.

The strawberry, in this section where it has shown its most remarkable possibilities, bears continuously from April to December, the first shipments for the present year having been made April 2nd, and are continuing unabated to the present time.

The records of 1908 show that 5,000,000 pounds of strawberries were shipped from this district, and when it is understood that the cost of caring for and hervesting this crop is from $1.50 to $1.75 per chest, while the marketing returns show an average of $5.00 per chest, the possibilities that lie in the culture of this very popular and luscious table fruit become at once apparent.

The varieties that have proven their popularity by long and consistent tests are the Brandywine

and Melinda, which show an average yield of 125 chests to the acre, although another variety developed by a Sonoma county grower is now striving for favor and is known as the "Moody," named after the gentleman who enjoys the distinction of having created it.

In seeking the best information that I could get relative to the subject in hand I have the opinion of a gentleman who has shown his interest in the culture and development of new varieties by hybidizing the native Coast strawberry (Fragaria Chilensis) with over one hundred Eastern named varieties and those of the highest repute on the Coast in the effort to create a perpetual bearing or repeating crop variety, that would produce abundantly a berry of the qualities embracing beauty of form, brightness of color, fineness and firmness of flesh and the flavor of the wild berry; one that would show a robust plant and prove a good plant maker, and it is his opinion that this comparatively new variety whose origin is somewhat veiled in obscurity is easily superior to anything that has so far been created.

Mr. Streater says of this variety: "I have given this strawberry close study the past six months. The plant is strong, robust and an abundant plant maker. Plants set three years ago are still robust and the flower is perfect. After being picked the fruit stands up longer than most varieties. The shape of the berry is faultless, while the size is large to very large. The color is a glistening red, as also is the flesh, while it possesses the most delicious flavor and a most pronounced aroma—every quality that a perfect strawberry should possess."

While my data concerning the blackberry, the raspberry and the popular Eastern variety, the black raspberry, is not complete it is generally recognized that these varieties when intelligently and conscientiously grown and cared for render returns fully as profitable, considering the amount of time and space devoted to their culture.

While fully appreciating the valuable work which the agricultural department of our great State university is doing, in scientifically battling the different blights which at times seize upon our tender plants, vines and trees, I believe that all assembled here will concede that neither botany, bugology or biology is necessary to render a keen appreciation of the strawberry shortcake, the toothsome blackberry jam or the succulent cherry pie.

Citrus Fruits.

CULTURAL NOTES.

Written for the Pacific Rural Press
By Mr. Edgar Wright, of Los Angeles.

I want to record the results of an experiment with oranges from Tulare county. Not exactly an experiment either, simply that I picked a few green oranges while in that region during the first week of this month with the idea of bringing them home for the purpose of seeing just how long it would take them to color up under normal conditions, that is, without being forced in any way. The oranges in question were absolutely green, without any appearance of color, but the pigment in the skin was there all right, because in two days after the picking, the fruit began to turn pale, in a week it was very well colored all over, though a pale lemon color, while today, 16 days from the time it was picked, it is a rich color and fit for any market. I notice that there has been some shrinkage, that the skin is tending to stiffen a mite, and I find that upon cutting the fruit that the skin is very thin, the orange full of juice and running over with a pronounced acid flavor, not to say sour, which is quite agreeable to my own taste. In consequence of this experiment, as I have called it, I am satisfied that the dealers who bought northern oranges that were picked at any time after the first of November for their Thanksgiving trade, will be highly pleased with them, not only with the appearance but with the eating quality as well.

By the way, the term northern oranges, as applied to those raised in Tulare county is rather a misnomer, and some of the southern fruitmen object to the term. Tulare county is not, by any means, in the northern part of the State, and a line drawn through the geographical center of California would leave Tulare county far below the line. As applied to the Butte county fruit, the term would be all right, but we have heretofore included all under the heading of northern fruit and there seems to be no other general way of designating them except that in some cases they are referred to as fruit raised north of the Tehachipi. It was to give them more leverage with the growers of Tulare and Butte county oranges that the exchange changed its name a short time ago from that of the Southern California Fruit Exchange, to the California Fruit Growers' Exchange. The growers up in that section had been so long referred to as northern growers that they did not feel like joining a southern California organization, though in reality they were themselves growers in the southern half of the State.

I also had a very fine chance to compare this northern orange with one raised at the extreme southern limits of the State, at San Diego. There is an expression to the effect that comparisons are odious, and if the comparison had been very greatly to the disadvantage of either orange, I might have hesitated to express myself publicly on the subject. The orange from the south was picked on the 18th inst., and, as yet, was rather poorly colored, but to my surprise was the sweeter of the two, though paler inside and possessing neither the juice nor as thin a skin as the other. Here we have a condition that seems to disprove existing theories. It is said that the hot days of the summer in the interior valleys of Tulare county, and the other homes of the early orange, Fresno, Kern, Sacramento, and Butte counties, up north, the Imperial valley in the south, and in Arizona, put the sugar into the fruit, thus making it early. The climate of San Diego is supposed to be cooler than the other places mentioned and I am sure that it is so yet, the fruit is sweeter. I have always understood that it is the cold that brings out the color, and I also believe that this is true, and yet in the winter months, and so far this year, the weather in San Diego has not been cold at any time, the color is almost as far advanced as in the fruit from Tulare county. I am inclined to think that to compare this fruit with some that has been and is now being packed in Orange county, to be all in favor of the Tulare county stock, for all I have tasted has been decidedly sour, and all I have seen rather illy colored. Notably some that had been four days in the sweatbox of a local packer and which was not yet half colored, and which had lost the greater part of its stems, and which was altogether very disagreeable looking stock. This was fruit that had been picked too early and before the skin pigment had become fully formed, fruit picked from this time on probably being much better, both as regards color and sweetness, though not up to the fruit that I tasted of either place before mentioned.

According to reports from Florida we are going to lose all the prestige we ever had as being a leader in the orange business, and now Florida is going to be it. Down there they have scraped along a great many years with their very crude facilities for packing the orange, but with the coming of the new Florida Citrus Fruit Exchange all this is to be changed, they are going to have all the best and have it all in a hurry, they intend to out-Herod Herod himself. They are already on top with the finest packing house in the world, California machinery, California men to put it up, and a California man to superintend it all—Bob Thompson, of Highland, I know him well, and expect to visit him in the future, for his version of the story. I do not think that Californians have, as yet, awakened enough to the situation to condemn Mr. Thompson as a traitor. It seems that this new packing house contains all the devices that were ever invented to improve the work in a packing house. They have the automatic weighers, the sumpers, the sizers, collapsible bins, belt-conveyors for fruit and chain-conveyors for boxes. Every orange is washed and then placed in a dryer where it is treated with an air-blast to dry it quickly, and while the article in question does not say that each orange has a valet and a private bath room, one would infer that this might be the case when he has read of the care with which each orange is to be handled from start to finish.

It is the care from start to finish that counts, and not the intricate machinery. The less machinery that one can get along with, within limits, of course, the better. Without this qualifying phrase one might say that it would take us back to first principles and that to pack wholly by hand would be the best, and it can be said without reserve, that it would be the best except that it is impracticable. I once heard one of the leading exchange managers, Mr. Dreher, of Pomona, a man whom I admire very much, say that what a packing house needed most was brains and not machinery, and one of the most successful grower-packers in California, Mr. Rumsey, of the Alta-Cresta groves, near Riverside, substantiated this, saying that less machinery used the better, that careful handling was the thing, and he told that when he built his packing house he had dedicated it to G. Harold Powell and his associates, an inscription to that effect being chisled upon the corner stone.

It was the detailed description of the baths that attracted my attention more than anything else, for any packer in California will admit that washing fruit starts it to decaying, no matter how carefully that washing is done, nor what solution is put into the water to prevent it. I have a friend who runs a packing house in a district where at certain times of the year the fruit is very dirty and needs washing to make it look good. He has the improved washers and also has the best dryer in the country, but he has proven over and over again for his own satisfaction that the washed fruit, particularly lemons, will not stand up like the unwashed fruit. No, machinery and swell packing houses are not the whole thing, as our Florida friends will find out. They will greatly improve their pack, and I have already heard from Eastern jobbers that they have already accomplished this to some extent, but the millenium is still just over the hill where the rainbow touches the ground.

I ran into a meeting of the Fraternal Fertilizer Faddists lodge the other day. It happened at Redlands in the office of the Redlands Fruit Association. The Fraternal Fertilizer Faddists were so intent upon the order of business that I was not noticed and so escaped challenge. Brother Davis was in the chair and there were several growers and a Highgrove man present. This makes me think of a report of a steamer wreck I once read of where 60 souls and a Boston man perished. They all talked fertilizer and I was not very much surprised to hear them disagree upon nearly every point brought up, for that has been my experience ever since I have been trying to report the ideas of the growers. I am not going to try to tell what they all said for that would be violating one of the rules of the fraternal order, and besides, I did not dare try to note anything for fear of being detected and fired. I slipped out before the meeting was over, and afterwards went back and told Mr. Davis, who is the manager of the Redlands Fruit Association, about being at the meeting, and he said that he had been so engrossed in the subject that he had not noticed me. He said that he had rather talk fertilizer than eat. I do not suppose he meant to eat fertilizer, for there were several samples in sight that did not look or smell any too good.

I realize that there is so much difference of opinion among growers as to the best methods that I have often wondered how long it would be before some means were taken to bring them all to the one and correct mode of doing things. I have always thought that the time would come some time, and in a recent article I said as much. but put the time very far in the future. Perhaps I was wrong. I was talking with one of the best soil experts in the State a few days ago, and he tells me that given a certain piece of ground the expert can go on to it and tell to a certainty just what fertilizer it needs, just what it is best fitted for, how much water it will take—in short that he can tell the grower how to handle his grove by rote so that he could meet every existing condition in an intelligent manner. If the time has arrived I am glad of it, and this man's claims should not be lightly overlooked, for he has a State-wide reputation. The process costs money, to be sure, for this man though a philanthropist to some extent, has to live and surely the laborer is worthy of his hire. An expense incurred in this manner is money well spent for to go groping in the dark when light is at hand is not only expensive, but very foolish.

California Vegetables in Garden and Field

By E. J. WICKSON, of the University of California.

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GARDEN LOCATION AND ARRANGEMENT.

Several things should be considered in locating the farm garden, for much depends upon selecting: first, the best soil for the purpose the farm affords; second, situation with relation to protection, warmth and drainage; third, nearness to water supply for irrigation; fourth, nearness to the home and protection from intrusion. It may not be possible to combine all these points in a single situation, and then it may be advisable to make two locations, or, in making one, to sacrifice convenience to the more imperative conditions of exposure, soil and moisture.

Choice of Soil.—General considerations in connection with soils may be found in other chapters. Of course, for ease of work as well as for other considerations a rich loam should be chosen—the best that the ranch affords. As to grades of loam, the lighter should be chosen for the winter garden because of the better natural drainage and warmth and the short time in which such soils will take tools and seeds well after heavy rains. The heavier and more retentive soil will better suit the summer garden. Sometimes these two soils may be found beside each other in the same acre; sometimes the soil can be readily improved in these lines, as may be seen in the chapter on soils, or small pieces at a distance from each other may be chosen if each has distinctive fitness.

Situation and Exposure.—Situation should be considered, for warmth and protection as well as drainage, as is explained in other chapters. Though garden ground in general is most conveniently worked if it has just enough grade for the slow distribution of water, for winter and early spring growth an elevation out of the frosts of the low grounds and into the superior heat of the southerly slopes will be found of advantage. In addition to the ridge above, such protection from north and northwest winds as a windbreak of trees or farm buildings or a high fence will be valuable. There is great difference in the safety and speed of winter vegetables on benches and hillsides, as compared with the lower lands at their feet only a few rods away perhaps. Warm protected slopes are best for winter and the worst for summer vegetables. Shallow soil spread on porous rock is non-retentive and warm for winter growth, but it may be impossible, even with irrigation, to carry good succulent growth on it during the blistering summer heat. Then the deep loams of the creek borders and other level lands delight the gardener with the largest returns for the least water.

Nearness to Water Supply.—The summer garden should be near the water supply, if it be developed from home sources, or the water should be piped to it, which is almost equivalent to moving the reservoir to the garden site. Carriage of water in a flume entails losses by leakage and evaporation and earth-ditches are distressingly wasteful by evaporation and percolation. One often sees water started on its way from the homesite tanks toward a distant garden, making mud-holes and losing volume all the way. In many cases another well-outfit for the sole use of the garden would be a good investment.

Nearness to the Home.—If fairly good conditions exist near the home site, by all means locate the garden there. It will win the interest and profits by the attention of the family, and will yield its supplies directly to their hands in most cases. Besides, with the tools handy, spare hours now and then will be given to its working when the leisure is too short to warrant or incline one to walk to a distant patch. The time thus saved may almost keep the garden going in good shape. Then, a well-kept garden is an ornament and the ornamentation of our rural homes is often rather scant.

Protection from Intrusion.—To be any comfort and gratification whatever the farm garden must be protected from intruders. One of the chief objections to locating vegetable patches here and there in the best situations for special purposes lies in the trouble of excluding wild marauders of all sizes from a jack-rabbit to a deer and the whole range of domestic invaders from the pasture or corral. This fact alone compels many to forego vegetable planting except in the well-fenced house-yard. It is not difficult to inclose a few square rods with wire netting or with the woven stock fence of wire and driven posts—the whole to be rolled up and stored or moved to another inclosure as the progress of the season gives it new uses.

A home-grown fence is quite possible in California, using for pickets the southern cane or the Asiatic bamboos, both of which grow readily on moist land in this State. Posts may be set a rod apart. With an inexpensive machine the canes may be woven into a web, using six No. 14 wires for the chain. If the canes are cut three and one-half feet long, and the fence posts are four feet above the ground, along the top of them a barbed wire may be stretched, so that when completed one has a chicken or rabbit fence as well as a strong stock fence. This fence is very durable, the cane becoming as hard as bone and never rotting; rabbits can not gnaw it, and it will not ignite from burning grass near it as common pine fencing or lath will; stock can see it and hence will not run against it. It can be made of any height desired, the canes growing as high as 12 to 15 feet. It may be taken down, rolled up and moved without injury and at slight expense.

ARRANGEMENT FOR HORSE WORK.

Although our foreign-born friends who do most of the market garden work in California retain their native predilection for hand labor and plan their gardens accordingly, it is advisable that farm vegetable growers should arrange to use as much horse power as possible. Both for this purpose and to facilitate furrow irrigation or seepage ditch irrigating, if the slope suits it, the garden should be somewhat brick-shaped, because of the greater work which can be done with the same or fewer turnings of the horse or team than on a square piece. At both ends there should be a roadway left for turning the team. This shape is equally adapted for flat or ridge cultivation.

In the horse-power farm garden there should, of course, be no permanent walks. If walks are desired, leave spaces lengthwise unplanted and uncultivated and smooth down the surface with a roller. Such arrangements, however, waste land and waste moisture, for the hard ground draws water laterally. It is better economy therefore to evenly cultivate the whole area. Lay out the plantings in straight rows for ease of cultivation, and either plant full rows of each vegetable or continue the row with another kind which requires the same distance between rows. Proper distances for each vegetable will be considered in subsequent chapters. It is convenient to make the distances multiples of some unit. For instance two feet between the rows is about the minimum distance for horse cultivation. Some growers therefore plant at two, four, six, eight, etc., feet distances; others start with three feet and proceed with six, nine, twelve, etc.,—the latter for the largest running vines. This makes rows of the small, upright growers a yard apart, which is rather too great a distance ordinarily.

It is often a great convenience to have permanent distance stakes set close to the fences on the ends of the plot and placing them the accepted unit apart. It is easy to regulate distances by slipping the planting line over two opposite stakes which give the desired separation. If one has a good horse and a good eye, he will, however, probably prefer to use a "marker" made with thills and plow handles properly fastened to a cross-bar eight or ten feet long and fitted with wooden teeth such distance apart as he adopts as his unit of distance between the rows. Starting then with a straight guide-line on the surface on one side, three or four parallel lines can be clearly marked at one driving over. Following these marks with the garden drill, or with the hoe planting, very straight lines of seeding can be done in a fraction of the time needed to work with a line. But whether line or marker be used, it is desirable to rotate the plants year by year so that the narrow and wide row plantings shall change places on the plot, else one might be so supernaturally accurate that the rows would come everlastingly on the same lines, which would not be desirable even if the soil were somewhat displaced laterally by cultivation.

It is great convenience in arranging for due succession in the garden (which will be farther considered in the chapter on planting) to give adjacent rows to vegetables which mature at about the same time. By this arrangement, say, half or a quarter of the garden lengthwise can be cleaned up at the same time and the whole section be at once replanted or plowed up for later planting or irrigating as may be desirable. Of course if early plantings for winter use are made in the same plot with plantings which will go into the summer, each should be in its own quarter of the garden.

In arranging the summer garden in the interior heat, it is sometimes desirable to place low, tender-leaved plants like lettuce between rows of tall vegetables which afford it partial shade. Tall corn or pole beans may thus take the place of artificial screens which might otherwise be necessary.

VEGETABLE GROWING IN YOUNG ORCHARD AND VINEYARD.

This subject is usually discussed from the point of view of injury to the trees and rightly so because the trees represent the greater investments and the greater expectations, but the lowly vegetables have a point of view also and

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by their appearance they clearly declare that whether they hurt the trees or not they would like a better place on their own account. It is a fact that inter-culture of vegetables in an orchard is soon abandoned because the vegetables do not pay for the trouble and by the sight of them one is not surprised that they do not pay. It would probably be much better for trees, vegetables and owner if half an acre, if for home use, and larger area, if for market, should be kept free of trees and handled on a more intensive plan for the production of fine vegetables. When fruit prices were higher and orchard improvements the only avenue to high acre-valuation, it is not surprising that people tried to plant fruit trees everywhere on small tract purchases—even to making clothes-line posts of them, but now as other resources are receiving better proportional esteem, a small, first-class garden spot, worked up to the limits of its possibilities, should receive attention not only for constant money-saving and money-making, but as one of the most valuable improvements on the place.

There is no particular disadvantage or difficulty in growing vegetables in young orchards or vineyards providing conditions are right for it. Fruits and vegetables have been associated in gardens, probably, ever since Adam failed through giving too much attention to fruit. But the association of fruits and vegetables has been successful upon the garden policy of enrichment, irrigation, and the highest known culture. This is quite different from the proposition as it has arisen in California which is to grow vegetables upon the orchard policy of cultivation for conservation of moisture and trust to the natural fertility of the land. It is not surprising that the soil often rebels at the double burden as beyond its strength and dictates its terms to the grower—by so much as you gain of one by so much you shall lose of the other.

It may be seen, however, in the chapters on soils and irrigation that California has natural soils and situations which are quite comparable with the best conditions which intensive culture can produce in the gardens of older lands and, this being true, it is possible to draw upon their rich resources in the same way. It is quite possible then to grow good vegetables between young fruit trees and for a certain period it can be done without irreparable injury to the trees, providing the local conditions warrant the practice. These conditions may be thus summarized:

If the soil be of only average richness, the rainfall moderate to meagre in amount, and no facilities for irrigation, it would be unfortunate to place any other burden on the land than the growth of the trees.

If the soil be not very rich and the rainfall heavy, but the moisture easily lost by percolation or evaporation, owing to non-retentiveness of the soil, and no irrigation facilities, give the trees all the ground and the most perfect summer cultivation possible.

If the land be rich, the rainfall abundant and moisture held well in the soil, or if irrigation can be made use of, it is fair to think of an inter-crop during the early years of the orchard, providing the crop can be profitably disposed of, its nature is such that no heavy draft is made on fertility, and the financial condition of the planter requires immediate return from the land, if possible.

It thus appears that an inter-crop is finally made to hinge upon the grower's necessities, and the inference would be that if the money is not needed immediately, it would be wiser to hold the whole strength of the soil as an investment on which returns are to be finally had in the increased growth and fuller fruiting of the trees in later years.

This views the matter from a commercial point of view and therefore in its most aggravated form. If it is merely a question of whether the home supply of vegetables shall be taken from the young orchard or vineyard, it is less serious and can be more freely commended.

In growing vegetables between the rows of trees or vines, much depends of course upon the time and the way it is done. If water can be applied between the rows late in the summer in such a way that it will not prevent the deciduous trees from going forward to their usual dormancy, or if the grower waits until the fall rains wet the ground sufficiently and then puts in his vegetables for late fall and winter growth without carrying them too near the trees, he can make his winter garden, enjoy its produce, and plow in the debris so early in the spring that no appreciable injury will be done to the trees, unless he is on that line of light rainfall where every possible effort is demanded to receive and conserve all the water that falls. If that be the case he has to cultivate to conserve moisture both winter and summer and should not think even of winter vegetables in the orchard.

Perhaps the chief objection to winter vegetable growing is due to the fact that the crop is usually planted too late and is allowed to occupy the ground so late in the spring that the soil can not be brought into fine tilth which is necessary to save moisture. Instead of this the impacted ground on which the vegetables stood is turned up in clods which no amount of crushing will reduce to tilth and the orchard loses by defective cultivation more moisture than the vegetables consumed in their growth.

The summer growth of vegetables in the orchard is a more dangerous operation and whether it should be undertaken or not depends upon local conditions previously outlined. Perhaps a specific instance may enforce the point and show what may be taken as favored soil and moisture conditions. In the lower lands of the Santa Clara valley, near San Jose, there have been constant contributions to fertility by overflows from mountain water bringing leaf mold and other materials found in the deposits of "slum," which renew and keep up the fertility of the soil. Much of this land has been under cultivation 50 years and upwards, and yet is known as garden soil. Much of this land is adobe, naturally remarkably productive, aside from its benefits from overflow. Such soils have proved able to produce, without apparent exhaustion, orchard trees and the crops that are grown among them. There is an abundance of artesian water for use when needed. It has been a common custom in this artesian belt, so noted for strawberries, to grow onions on the ridges between the strawberry rows, and along the sides of other berry bushes. Onions are thus grown during several successive years until the ground is too crowded. Beets, carrots, peas, and other vegetables are sometimes grown among the berries. Crops of onion seed have been grown among the trees of young orchards without irrigation and the trees have done quite as well as when they had the ground all to themselves. Free use of the cultivator has kept the ground loose and moist, after one or two plowings. By irrigating in the fall, the ground can be plowed so as to start the onions before the rains, though this is not usually done. Onions planted any time between October and February may be considered best, though much depends on the season. It should be understood that, aside from the favoring soil and artesian wells, this locality is in line with the summer breezes that come in from the ocean through the Golden Gate, 40 miles away, adding moisture to temper the otherwise heated atmosphere of the valley. Of course we have only used the onion as an example of a hardy, winter growing vegetable and what we have said of it applies to all other upright winter growers which do not make much lateral extension in their growth.

Such land will carry all growths that can find standing room on it. Similar conditions are found on low, moist valley lands in nearly all parts of the State, both in the Coast and the interior valleys. The land has such wealth of plant food and moisture that summer weed-killing, which is not common in California, is quite a problem. Where weeds will grow in spite of ordinary good summer cultivation, the land will stand almost covering with useful plants and it costs little more to grow them than to keep down the wonderful weeds.

THE PLANTING SEASON.

The chapter on California climates as related to vegetable growing will show that there is really no closed season in the State except in the mountain districts. It is always time to plant something, if the moisture is available, for there is no degree of cold realized which endangers the hardier vegetables. It is true that in December and January in the regions of heavy rainfall, there is apt to be a cold, wet surface soil which does not give a hospitable welcome either to seed or seedlings but even this can be overcome by using lighter soil at a little higher elevation or by the devices for raising plants in the seedbed unless one wishes to wait for February planting as is commonly done in such places. The antithesis of the December and January cold is the July and August heat and drought in the interior, but this too is conquerable by irrigation, with added shade for some tender-leafed plants, or by choosing moist, low land, of which California valleys both on the Coast and in the interior have great areas. The conclusion of the whole matter is that California valleys and foot-hills are naturally fitted for almost endless succession of sowings and gatherings and such temporary unfitness as locally occurs is easily overcome by very simple cultural arts and provisions. Still there are best times for doing things for specific purposes and many of these can only be learned by local experience. An attempt will be made, however, to give hints to newcomers, or to the many who have not essayed vegetable growing and have thus neglected glorious opportunities, which will enable them to realize, it is hoped, some directions in which promising efforts may be put forth.

Seasonable Work in the Garden.—In view of the fact already emphasized that the planting season extends throughout the year and is regulated by local conditions and not by the calendar, it follows that other garden work constantly recurs, and it would be a hopeless task to attempt to specify certain times at which certain work should be done. The vegetable grower must use his own powers of observation and common sense, and not expect to find in print the injunction that on a certain day he must do a certain thing.

(To be Continued.)

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PICKLING OLIVES FOR HOME USE.

To the Editor: A great many people here are interested in pickling olives for their family use. Will you give us directions in an early issue of the PACIFIC RURAL PRESS for pickling olives on a small scale, say 10 gallons or so.—Subscriber, Lindsay.

We have frequently given this information, but it is now the olive ripening season, and as there are hundreds of new subscribers who have not seen our earlier issues, we go into the matter with some detail from the point of view of the reader who has a small lot of olives to pickle. The method is based upon the processes which our large commercial handlers find valuable and is described by Mr. W. W. Skinner of the Arizona Experiment Station as the result of experiments undertaken by him for the purpose of testing a method of pickling olives that might be successfully applied in a small way by persons, as above stated, who have but a few trees and but a few gallons of fruit to deal with. The prime requisites of such a method are that it should require a minimum of time and should utilize such handy utensils and materials as are usually to be found in every home.

VARIETIES.—Experiments were conducted with several varieties of olives, both ripe and green, and several methods of treatment. The two varieties which yielded the best products were the Mission and Manzanillo. Both bear very large fruit. The Mission holds its color well while being pickled, and, with reasonable care in the extracting process, yields a product which is firm and of good flavor. The Manzanillo is superior to the Mission in flavor, but the fruit is of a finer texture and is prone to soften during treatment, nor is the color of the finished product so good as the Mission.

EXTRACTION.—The fruit of the olive, either green or ripe, has a disagreeable, bitter taste, which is due to the presence of a vegetable principle known as "olivil," and before the fruit can become an acceptable article of food, the bitter principle must be removed. The old method practiced prior to the past century, and which is still used to some extent in southern Italy, is to place the fruit in bags in a stream of running water. By a process of leaching, the bitter substance is thus removed and the fruit is ready for the brine. This method, in addition to requiring from three to six weeks for the leaching, requires exceedingly pure water for the processes, and even then the olives are very liable to be ruined by mold and bacteria. It is, therefore, quite impracticable in this country. The method now generally used is to neutralize the olivil with weak soda or potash solution, afterward removing the excess of alkali with pure water. This is the treatment now generally used on a large scale for processing olives. The soda and potash alkalies which are used are obtained as commercial articles under the name of soda lye and potash lye. Of the several methods tried, using different amounts of potash and soda lye, the one which gave uniformly best results was a combination of soda lye, lime and salt. The object of the soda, as before stated, is to neutralize the bitter principle; the lime fixes the color, as the use of soda alone causes the furit to turn yellow, while the salt hardens the fruit, which has a tendency to soften when treated with lye, especially if the treatment is carried too far.

THE PROCESS.—The method of procedure is as follows: The fruit, either green or ripe, is carefully picked into pails about one-third full of water, in order to prevent bruising. This is essential, as bruised fruit will swell during the lye process and will spoil. The fruit should also be sorted, as it is desirable to have each lot of fruit of nearly uniform size and condition of ripeness, for the lye attacks the ripe fruit more rapidly than the green; consequently the ripe and small fruit would be finished while the larger or green fruit would still be bitter. The fruit is then placed in stone jars, observing the same precautions in regard to bruising. Wooden kegs and pails may be used, but they are much more difficult to keep clean, and when once impregnated with the mold, which causes so much trouble, are very difficult to sterilize. The water should be drained off and a solution prepared as follows poured over the fruit: To each gallon of water add two ounces of soda lye, one ounce of lime and one ounce of common salt. Stir thoroughly and let stand for one hour, when it is ready for use. The water for making this solution should be boiled and cooled, thus retarding the growth of the mold, which is likely to give trouble. The solution should cover the fruit about two inches, and, should any of the fruit float, it is necessary to cover with a board and weight. The time of the lye treatment varies from three to seven days, according to the variety, size and ripeness of the fruit. The solution should be examined daily, and should the slick, soapy feeling peculiar to lye disappear, it indicates that the solution is exhausted. The old solution should therefore be poured off and the new solution added. It should also be changed at once should any scum or mold appear. The fruit should be frequently examined, always sampling the largest olives by cutting away a portion with a sharp knife. The progress of the lye toward the interior of the fruit is plainly marked by a distinct dark ring. When the ring has reached almost, but not quite, to the pit it is time to remove the lye and commence the washing. The lye should be poured off and water added. Fresh water should be added morning and night. The wash water should also, if possible, be boiled, for at this stage the olives are an excellent host for the development of mold. The same precautions as above should be observed to keep the olives under water, and the vessels during extraction, washing and salting should be kept closely covered. Depending upon the condition of the fruit, the washing requires from four to seven days to remove all traces of the alkali. This can be determined largely by the taste, for as long as any lye remains in the fruit it has a peculiar hot taste. After most of the lye has been removed, should the olives still be bitter, they may again be treated with lye solution. If the lye is allowed to act too long, however, the flavor is injured and the fruit quickly softens and spoils. The treatment should be carried just far enough to neutralize all of the bitter principle and no farther. Experience and frequent testing are the only methods of determining this. To be absolutely sure



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that all lye is removed, which is necessary, the fruit should be tested with small bits of red litmus paper. To make the test, a half dozen of the largest olives are broken open and the paper pressed against the pits. The paper will turn blue if only a trace of the lye remains, and should such be the case, the washing should be continued until the paper gives no reaction.

THE BRINE.—When free from lye the olives are then ready for salting. A brine should be made containing two ounces of common salt to the gallon of water. The solution should be thoroughly boiled and cooled and poured over the olives. The next day the two-ounce solution should be removed and a solution containing four ounces of salt should be used. If the stronger solution is used to begin with the olives will shrivel. The fruit should next be treated with an eight-ounce brine, and, if intended to keep for some time, finally with a brine containing fourteen ounces of salt to the gallon. A fourteen-ounce brine, however, makes the olives too salty to be used without a slight soaking.

CANNED OLIVES.—A better method of keeping the finished product is to process the olives after adding the eight-ounce brine. For this purpose I used Mason fruit jars and a large tin washboiler, thoroughly cleaned. The jars were filled with olives and brine, rubbers and covers lightly screwed on and the jars placed in water heated to 150° F. for thirty minutes. Jars were then removed and covers quickly tightened. By this process the flavor of the fruit is not injured, and if properly done the fruit will keep at least several months without deteriorating.

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Carbon Bisulphide

COMPLETELY DESTROYS

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BRANDS TRADE HAWFERCO MARK ARE THE BEST

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IS A SIMPLE PROBLEM IN ECONOMICS.

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Sweet stock, rough lemon stock. We have the largest and finest block of seedlings in the State. NAVELS, VALENCIAS, EUREKA LEMONS. Phones: Main 949, Home 2520.

SOUTHLAND NURSERIES, F. H. Disbrow, Prop. PASADENA, CAL.

AGRICULTURAL REVIEW.

Horticultural Notes.

During October there were shipped from the El Cajon velley, San Diego county, 811,000 pounds of raisins.

A meeting of the fruit growers will be held at Bogue, November 27, at 10:30. Commissioner Jeffrey is to be the speaker of the occasion.

While most of the grape growers had a trying season, yet one man at Lodi reports having made a profit of 9% on a valuation of $1000 per acre from his Tokay vineyard.

R. P. Cundiff was appointed horticultural commissioner of Riverside county last week, and Roy Bishop of Orange, secured the appointment to the same position in Orange county.

There was shipped from Napa last week 3000 boxes and 3000 sacks of prunes, the destination of the fruit being Germany. This is the largest shipment ever made from Napa at one time.

The Geyserville Prune Growers' Association sold its entire crop of prunes, of 150 tons, to the California Fruit Canners' Association last week. The price paid for the fruit is not given.

The orange crop of the Corning, Tehama county, section will amount to about ten cars this year. Shipments commenced last week, the most of the crop having been bought by a Sacramento firm.

During the past year, up to November 1, there was shipped from Escondido 323 cars of citrus fruit as against 169 cars the previous year. The lemon acreage in that vicinity will be increased this season.

One thousand apple and 2400 pear trees are to be set out as an addition to the big Casebeer orchard, near Ashland, Oregon, the coming season. Other heavy tree planting will also be made in that locality.

Over 2800 cars of apples had been shipped from the Pajaro valley this season, up to last Saturday night. Cars have not been over plentiful, but as most of the fruit has gone, the situation of the fruit growers is good.

Oronge shipments are now being made from Florida districts under the new exchange organization. Taking their cue from California, the exchange there is advocating holding of fruit till ripe before sending to market.

Heavy planting of orchard trees in the vicinity of Gilroy, Santa Clara county, will be made this season. Prunes will be the leaders in quantity, though quite an acreage of walnuts will be set out. Eucalyptus will also be set out in quantity for future timber and fire wood purposes.

The citrus fair to be held at Dinuba next week promises to be bigger and better than any of its predecessors. All the towns of the citrus belt of Tulare county will have fine exhibits, on each day of the fair there will be football, baseball or tennis games, besides a baby show and band contest.

The fruit growers' meeting held at Newcastle Monday, to hear the report of the committee of fifteen, was largely attended. The repor' of the committee as to marketing and packing fruits was adopted practically as reported. As the RURAL PRESS goes to press early this week, the resolutions and discussion of them will appear in our columns next week.

Returns from the first shipments of oranges sent out from the Porterville district this season show a little better price for the first shipments than last year, and sales already made show net returns to the growers from $2.00 to $2.10 per box. As the crop in that section will be about equal to that of last year, the net returns to the growers will, in all probability, be larger this season than last. It is stated that since the shipment of the first car last month, that many carload orders are being received from the East.

General Agriculture.

A large acreage will be planted to eucalyptus trees around Corcoran this season.

Tomato growers of Orange county received $40 per ton last week. The price being advanced from $30.

Representatives of a tomato packing company are now signing up acreage near Anaheim and if contracts for 400 acres can be secured they will erect a packing house at that place.

A Sutter county bean grower had his bean crop attached for debt last week. Here is a case where beans must raise the wind.

The U. S. Hardwood Timber Company, of Cleveland, Ohio, has purchased 720 acres of land near Elmira, Solano county, and will commence planting the tract to eucalypts at once.

The Tulare Eucalyptus Co. is having its 480 acres of land south of Tulare plowed and will be planted to eucalypts this season. This company recently sold 1,000,000 young trees to a San Francisco firm.

J. S. Jackson is installing a big pumping plant on his 275 acres south of San Jacinto in Riverside county, and will plant out his entire acreage to alfalfa this season, making, perhaps, the largest alfalfa ranch in that county.

It is stated that the E. C. Horst Co. is looking for good land in Lake county to be converted into immense hop fields the coming year. The high price of hops during the past season will cause a large increase in acreage to be devoted to this crop next year.

The news comes from the Imperial valley that owing to the success of this year's experiment of growing cotton there, that several thousand acres will be planted out to cotton the coming season. New gins and oil mills will be erected to care for the crop.

L. H. Tweed, of San Francisco, has purchased two sections of land in Glenn county, near Willows, which he will plant to alfalfa. He expects to install a big pumping plant, and a large traction engine has already been received to use in plowing the ground.

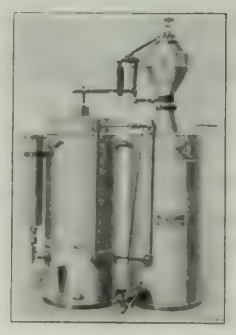
Owing to encouraging market prospects, the Southwest Texas Truck Growers' Association will increase its onion acreage by about 25 per cent over last year. In view of the fact that the association sold over 3000 cars of onions last year, favorable crop conditions would put this year's output at about 3750 cars.

The Lima Bean Growers' Association, with headquarters at Oxnard, announce a raise in the price of beans to growers from $3.82½ to $3.85 per 100, and state that the price will go to $3.87½ within the next few weeks. The association has apparently secured control of the market and will be able to dispose of all the remainder of the crop at good prices.

The statistician of Riverside county has filed his report of the products raised there this year, which he states amounts to about $9,000,000, not counting manufactured products. Of this large amount oranges and lemons contributed nearly $4,500,000, grain and hay over $2,000,000, live stock and wool $1,350,000. Riverside is one of the rich counties of California.

Stock and Dairy Notes.

A street fair will be held at Petaluma at the time of the poultry show, from December 9th to the 11th. The financial management of the poultry show is in the hands of Mr. H. C. Scrutton, and through



Superior Acetylene Generator

1. Installed at small cost.
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200,000 SOUR ORANGE STOCK

For 1910 spring planting. Every plant from Genuine Selected Florida Sour Seed. **Also sweet stock. Don't** buy uncertain and inferior grown plants. This is nursery gospel. **Don't** waste time and money on inferior stock when you can get the best in Southern California for the same price. **Don't** take my word for it: come and see my plants in seed-bed and nursery and be convinced. Plants are 8 to 20 inches now and several months yet to grow. **Contract Now, Get the Best and Save Money.**

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GREENBANK Powdered Caustic Soda and Pure Potash
Best Tree Wash.
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Oregon Grown

"non-irrigated" PEACH TREES "non-irrigated"

No. 1—GRADE—4-6 ft.

Muirs
Lovells
Phillips
Tuscans

If you'll plant Oregon grown peach trees just once, you'll never want to plant any other kind.

ONE YEAR TOPS BUDDED ON THREE-YEAR-OLD ROOTS
"That tells the tale."

TRY THEM.
They're no more expensive than poorer trees.

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MORE SALESMEN WANTED.

THE "BOSS"
Tree Protector
MADE OF YUCCA PALM



Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES.

	Per 1000.
10 in. long, 7 wide,	$ 9.50
12 in. long, 7 wide,	10.50
14 in. long, 7 wide,	11.50
16 in. long, 7 wide,	13.00
18 in. long, 7 wide,	14.50
24 in. long, 7 wide,	17.00
30 in. long, 7 wide,	20.00

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EUCALYPTUS with ROOTS Send for Circular.
HENRY SHAW, Santa Cruz, Cal.

Peach Trees

We have a large stock of Muirs, Lovell, Phillips and Tuscan clings. If you are in need of any of these write us for prices. We also have a full line of nursery stock.

Salesmen Wanted.

Albany Nurseries, Inc.
Albany, Oregon.

his efforts the Chamber of Commerce of Petaluma has contributed liberally to help make it a success.

Several thousand turkeys were shipped from Stanislaus county and also from the southern part of Alameda county to market last week. Prices generally received by the owners were good, being about 20 cents per pound.

An all day meeting to discuss the drainage problem of Fresno county, is called for Tuesday, November 30, at the West Park church, near Fresno. Every man interested in the problem is invited to attend.

Miscellaneous.

A carload of pumps were received at Ducor, Tularecounty, last week from the Pomona Manufacturing Co., which will be installed in that section at once.

The beet sugar campaign for 1909 closed at Hamilton City this week. The season was cut a little short owing to the heavy rains which visited that section last week.

The manager of the Kings County Raisin & Dried Fruit Co., at Armona, states that the plant is to be enlarged to double its present capacity, and to be ready for next season's fruit crop. The company has had a very successful season this year.

The consolidated and independent raisin packers of Fresno have been offering 3 cents for raisins for the coming three years, providing the growers will sign contracts to deliver the crops. So far it is said but few of the growers have accepted the offer.

A new turn was given to the raisin situation at Fresno the past week through the cutting of the price of raisins in the Eastern markets by certain packers. It is claimed that those packers cutting the price are selling short with the hope of bearing the market.

At the recent Alaska-Yukon Exposition, California led all other States in securing prizes. Her exhibitors won 800 awards, 90 of them being grand prizes, 414 gold medals, 155 silver medals, 108 bronze medals and 32 honorable mention. Commissioner Filcher states that the above winnings was more than for all other States and beats former California records at other fairs by 200.

A petition has been filed with the U. S. Land Office at Carson City, asking that 200,000 acres of land in the Amargosa valley, Clark county, Nevada, be withdrawn from entry. A company has been organized by Goldfield men to irrigate the land by means of artesian wells. If the petition is granted work will commence at once and it will take several years to complete, the cost is estimated at $4,000,000 for the entire irrigation system.

THE FRUIT GROWERS' CONVENTION.

The Thirty-sixth California Fruit Growers' Convention will be held in the Christian Church, Watsonville, December 7 to 10, under the auspices of the State Commission of Horticulture.

The program for the convention is as follows:

TUESDAY, December 7, 9:30 a. m.—Call to order, J. W. Jeffrey, State Commissioner of Horticulture; invocation, Rev. D. T. Stafford, Watsonville; address of

(*Continued on Page 354.*)

TREES OF ALL SORTS

25 years experience in growing nursery stock. 1500 acres devoted to the business.

CALIFORNIA HORTICULTURE
The Fruit Growers' Guide,
fully illustrated, describes 2000 different varieties of trees and plants. Contains valuable information.

Sent postpaid for 25 cents in stamps.

Write us today for quotations on your requirements.

PAID-UP CAPITAL $ 200,000.00
FANCHER CREEK NURSERIES
INC.
Geo. C. Roeding Pres. & Mgr.
Box 18 Fresno, California, U.S.A.

GET A ☐ DEAL

PLACE YOUR ORDER WITH US FOR

EUCALYPTUS, FIGS, GRAPES

AND ALL FRUIT AND ORNAMENTAL NURSERY STOCK.

We have the LARGEST stock of EUCALYPTUS grown in Fresno County—1,000,000 TREES and STRICTLY FIRST CLASS. Orders booked now for future delivery. Twenty years' experience in the nursery business, with the increasing trade which we are doing, is conclusive evidence of our square dealing with customers.

Catalogue and Prices Upon Application.

S. W. Marshall Company, Inc.
Box 652, Fresno, Cal.

SEEDS TREES Flowering Bulbs
of
"Highest Quality"
for the particular planter. The right kinds for this Coast; 17 years experience here enables us to do it.

Catalog on request.

Routledge Seed & Floral Co.
169 SECOND ST. PORTLAND, ORE.

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ACME

LIME FOR SPRAYING.

Purest and Best. Largest Barrels.

USED EXCLUSIVELY BY CALIFORNIA REX SPRAY COMPANY, AND MANY OTHERS.

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PACIFIC LIME & PLASTER CO.
7th and Townsend St., San Francisco, Cal.

You Can Double the Size of Your Farm

without buying any more land or without working any more land. This is not done by any magic process but simply by using

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adapted to the particular soil of your farm and thereby doubling its product.

Write for our new book, "The Farmer's Friend," telling you exactly how this can be done. The 1910 issue now ready. Sent Free of Charge to any address.

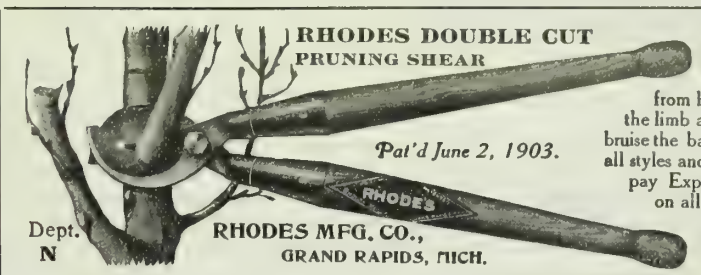
Pacific Guano and Fertilizer Co.,
Dept. C., 268 Market St., San Francisco.

BUG-GO BUG-GO BUG-GO BUG-GO
BUG-GO BUG-GO
What is Bug-go?
(See this space next week.)
BUG-GO BUG-GO
BUG-GO BUG-GO
BUG-GO BUG-GO BUG-GO BUG-GO

FEED THE SOIL
AND THE SOIL WILL FEED YOU

Orange and other fruit growers and farmers all over the Coast highly recommend our fertilizers as producing the grandest results in **quantity, quality of products and profits.** Our fertilizers have the largest sale west of the Rockies, because they make **sure and good crops. Lack of fertility means starved soil.** Our fertilizers **feed the soil** and make it produce abundant harvest. Write and let us tell you about it.

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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

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GRAND RAPIDS, MICH.

ONE HUNDRED TONS

Have you had trouble in securing green feed from the following causes: lack of space or limited water supply which will not permit the irrigation of a large amount of ground?

If so you will be interested in the following:

We have a limited amount of seed of a wonderful plant which will yield from one to two hundred tons to the acre per annum of an excellent green feed equal to lettuce.

From an experimental plot thirty by thirty feet we cut, from June to October, inclusive, 5661 pounds or 37 pounds daily. Being a biannual and very hardy the winter yield, while not as heavy, will be found satisfactory. Seed and expert instruction how to plant and grow for $1.

WESTERN SEED CO., Box 609, San Rafael, Cal.

EUCALYPTUS

We are prepared to supply your wants in large or small quantity for fall or spring planting, the stock is A No. 1. Secure your stock early.

ORANGE AND LEMON TREES.

Our citrus trees are, without doubt, the finest trees on the market. We can supply them in both one and two year buds, in any quantity desired.

We are also large growers of **Palms, Roses, Fruit Trees,** and other stock.

ARMSTRONG'S COVINA NURSERIES,
Covina, Cal.

FOR SALE

500 Cal. Blk. Walnuts, 6 to 8 ft .....@ .15
200 Selected Pecans, 2 to 4 ft .....@ .15
75 S. Ruby Pomegranate 1 year,.....@ .10
75 Sweet Fruited Pomegranate, 1 year.....@ .10
700 Gros Colman, 1 year rooted vine..@ .05
500 Almeria, 1 year rooted vine.....@ .10
Several thousand Almeria and Gros Colman cuttings. Price on application.

C. B. CUNNINGHAM,
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SITUATION WANTED by French gardener; 15 years experience, graduate from horticultural school, and best of references. Private or institution preferred. Address H. B., 123 S. Los Angeles St., Los Angeles, Cal.

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99 PER CENT PURE
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Dissolves completely through absorption of moisture from the atmosphere and soil. Shipped in original barrels of 220 pounds from stock or direct from works.

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TREES

A few 1000 assorted fruit trees at low prices; send for price list.

T. J. TRUE, Modesto, R. F. D., 1.

PACIFIC SEED CO., Grower and Importer of all kinds of seeds, bulbs, onion sets, grass, clover, alfalfa seeds. 609 J St., Sacramento, Cal. Send for catalogue.

Live Stock and Dairy.

Prepared for Pacific Rural Press
By Paul P. Parker.

DAIRYING IN HUMBOLDT COUNTY.

By R. A. Simpson, at the Creamery Operators' Convention, at Porterville.

The first dairying in Humboldt county was about 1858 on Bear River ridge, the butter being packed on mules to the Trinity county mines, in doing so they often had to travel at night to avoid the Indians in war times. This butter sold for 75 cents to $1.00 per pound. From that time up to about 1880 dairying was confined almost wholly to the hills, the valley land being considered too valuable for farming to be used for dairying. But about this time the Danish dairymen commenced dairying on our valley lands and soon turned the tables, fully demonstrating that our valley lands were most valuable for dairying. This was the real awakening of dairying in Humboldt county, for since that time there has been no cessation of development until today, so to speak, the last acre of available valley land is used for dairying, with great profit to the dairyman.

At that time this rich valley land rented for about $5.00 per acre and could be bought for $40.00, good milk cows sold for about $30, milkers' wages $25 to $30 per month, butter 15 to 25 cents per pound, and many of our farms were heavily mortgaged paying as high as 15% rate of interest and the farmers, not dairymen, did well if they could settle their store bills once a year. Now this same land rents for $15 to $20 per acre per year, and hard to buy for $300, good cows $46 to $50 and wages of milkers $40 per month. The development of methods have been slow and strenuous. It goes without saying that all the butter made up to about 1890 was by shallow pan setting, and the box-churn turned in the earlier days by hand and the butter worked on the old-fashioned A worker. Then a little later, a round revolving table came into use, with the same lever or brake and it was thought by many of our best butter makers that the secret of making good butter laid in the particular shape of this brake in order to preserve the grain. I found it harder to please them with the shape of this brake than it is to please a woman with a new hat, and we had lots of good butter in those days. One peculiar method was practiced in working their butter, first it was washed on the worker, salted and worked lightly, then let it lay a few hours and worked again. Probably some of you have practiced this, but would not dare to do so now.

Up to 1880 the major portion of our butter was packed in kegs and as a rule was of good quality. But I have a very vivid recollection of trying to help eat up a 50 pound keg of Bear River butter in the fall of 1874, which proved an exception to the rule. My good mother tried in every conceivable manner to make it acceptable to the palate, but of no use, in biscuits, cakes, pies, and cookies, all were alike refused, but we kept on hoping as we got down further in the keg it would be better but the bottom was just as bad as the top. Now this butter was neither old nor rancid and was alright for salt, color, body and moisture, and was not off in flavor, but as I remember it, it was away up in flavor. I dare say it would have puzzled our retiring president to have guessed the trouble unless he had been on the Pacific Coast longer than I had. As I remember it was said the dairy making this butter had quite a few kegs like it, but just how many they did not know, as they did not score the butter in thise days, and kept the season's make until fall. When the complaints began coming in they were very much alarmed thinking that the whole season's output might be the same. On a close investigation by the butter maker the fault was located. But the only way they could determine about how many kegs of this they had put out was to measure the length of a broom handle. This may seem a strange solution of such a problem. Well, it was this way, in those early days, the coopers had no such thing as a turning lathe, and it was up to the butter maker to whittle out his own keg plugs, so for the want of a nice, soft piece of wood he used an old broom handle which happened to be made out of Port Orford cedar. You can guess the rest.

Later on the horse power for driving the box churn was introduced; this was considered a great advancement. About this time, especially in the valleys, they adopted the plan of shipping fresh rolls in the returnable box. These rolls were wrapped in cotton cloth with a stamp on the end of each roll. A little later the square came into use. It was really amusing to hear the arguments pro and con as to which was the best, it being very hard for some to switch to a different order of things. It was amusing at times to see the scramble after the return empty boxes. Every fellow had his own brand or color on his box, and even then he would sometimes get the other fellow's box. But I have known of instances where the other fellow got back at him. He would come to the wharf and find his box with some one's else butter in it, and rather than make trouble about it, he would tear off the tag and put his own in its place. I guess the poor commission man would get a share of the trouble when returns did not come to the real owner of the butter. So much for primitive methods. This continued until about 1889, when the creamery came.

Our first creamery was accompanied with the usual amount of graft that accompanies new things in a new territory. It was a very imperfect plant costing $15,000, which could be duplicated today with twice the capacity for one-third the sum. Fortunately we had a few local mechanics who took up the matter, and with a few exceptions built all the rest of our creameries in an efficient manner and at a reasonable price. This gave such an impetus to the enterprise that it was but a few years until our county was filled with creameries. With a very few exceptions they were owned and controlled by the dairymen themselves. In some localities they were too close together. In one locality there was as many as six inside of a two-mile circle, each making from five to fifteen hundred pounds of butter per day. Up to 1895 Humboldt county had five or six creameries and not a Babcock tester in the county, all the milk being bought by the hundred regardless of water or butterfat.

In the year 1895 the Arcata Creamery Co. built their first creamery and adopted the Babcock tester. To be sure it created quite a stir among the older creameries. There was much discussion as to the merits and demerits of the system. I well remember the conversation of one creamery manager who had been loud in his condemnation of the tester. It happened in this way. He had worked up quite a city trade in fresh buttermilk; another party who had a milk route in the same city had about that time provided himself with a little up to date creamery using the Babcock tester. Thinking to capture some of the trade, he started passing out samples, but among the "no tester man's" patrons he could secure no orders. So to ascertain the cause he made a personal canvas. On inquiry of the prospective customers they said, we don't like your buttermilk. Why? Because its too thin; there is no butter in it. He was not long in securing some samples of this rich buttermilk, which proved to contain 2.5 butterfat. This soon went the rounds of the creameries as a joke at the expense of the "no tester man," who quietly procured a tester and got busy stopping the leaks.

At this stage of the creamery business the by-products were not of much value. Skimmilk used to sell back to the patrons for from 3 to 4 cents per hundred. What was left over was fed to the hogs, but stock hogs were usually big, and fat hogs very low. At present and for the last few years there is but very little skimmilk being fed to hogs, except those few who use hand separators on the dairies in the hill districts. They make it into casein or dried milk products, paying more than twice the former price for the skimmilk. There is but little hand separator cream produced in Humboldt county. The heavy producers live near creameries or skimming stations, thus giving a better opportunity for better butter, etc.

Many of these better methods have been brought about by the advent of the centralized creamery, which took place about the year 1904. The centralizer has been a great blessing to Humboldt county in many ways. The first improvement it brought about was the improvement of the local creameries, several of them consolidating and refitting with more modern apparatus, which of course raised the standard of quality, and consequently an advance in returns on San Francisco quotations, which means that every dairyman in Humboldt county, regardless of where he sold his milk, has been benefited by the competition brought about by this new order of things. As it was up to this time there was practically no competition, everybody patronizing his own creamery. Another great benefactor in the cause of more uniformly good butter was the United States revenue collector. Up to the time they got busy we produced a great deal of slushy butter. In fact, there seemed to be a premium on the man that could put in the most water. Now the 16 per cent law is lived up to very rigidly. One other fruit of this new order of things is sanitation. Our centralizers have preached this from the first day of their coming, and with the co-operation of the State Dairy Inspector there have been wonderful improvements made along this line, with both daries and creameries.

It looks now as though dairying in this county was at its zenith. As to a profitable business to the man who attends the cow the price of land and rents seem to have reached the limit. But I see relief coming through the cow testing associations which were started here about two years ago. This means that dairying will be done on a better business foundation, the boarders will be weeded out, and her successor will have to pass the test. I think the time is near at hand when the value of a cow will be based on past performances as recorded by the test associations. I have sold several testers to individuals who would not go into the associations because they wanted to sell their herd and replace them with better stock. It is clear to see that the test associations will be the means of bringing greater returns from the same acreage dairied from the same or even a smaller number of better cows, with no more expense, thereby better enabling the dairyman to pay the prevailing high rents. The creameries also profit from the test associations. Through the intelligence of the dairyman they have better patrons, which is very necessary for the future, as I predict the operation of the successful creamery in the future will be far more scientific than was ever dreamed of five years ago. Many of the old methods in creamery operations are getting to be too slow. I know one concern which employs three



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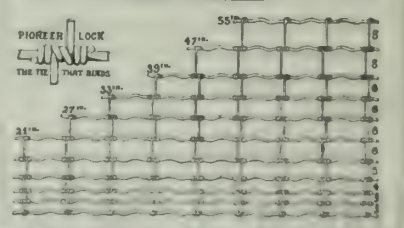
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wagons and three men to deliver cream and casein, which should be done with one motor vehicle and at less expense. In conclusion, I will say that dairying in Humboldt county has been and is yet the most prosperous occupation of any of our rural industries. Our dairymen live in good houses, drive automobiles and good teams, having buggy, surrey and wagon, give their children good educations, dress well and are contented and happy.

CALIFORNIA CREAMERY OPERATORS' ASSOCIATION CONVENTION.

The tenth annual convention of the California Creamery Operators' Association was held at Porterville on November 18, 19 and 20. It was one of the most successful meetings ever held by this body, and much was done for the betterment of the creamery interests over the State. Over 100 creamery operators attended the meeting, every dairy section being represented, from Humboldt county to Imperial county. The keynote of the convention was for a harmonious co-operation of the association and the State dairy bureau, so that a better grade of butter will be manufactured, and this can only be achieved by having cleaner dairies and quicker deliveries of the cream.

Mr. J. F. Boller of Porterville made an able address of welcome, in which he gave over the keys of the city to the visiting creamery men. He was followed by Mr. W. H. Roussel of San Francisco, president of the association, who gave a short talk on the necessity of educating the children in agricultural lines. He spoke of the tendency of the young people being sent to the agricultural schools without having any early training along those lines and expecting to finish a complete dairy course in a few weeks. He said that the public schools should take up the teaching of the rudiments of farming and dairying, so that they will have some of the fundamental principles of the work before they go to the University or Dairy Schools. When this is done we will get better results from the agricultural schools, as much of the time is now take up teaching the elements of farming, which the children should be familiar with before they leave the grammar grades.

When the children are taught farming at an early age the influence will be seen upon the fathers, because they will take advice from the children when they will not listen to an outsides. This is especially true of foreigners, who will take advice from their children when they are suspicious of every one else.

In closing, Mr. Roussel said that the Creamery Association should agitate the teaching of the elements of farming and dairying in the public schools.

In the discussion of the plans and suggestions for the improvement of milk and cream, Mr. C. H. Werder of Corcoran said that the only way to get a better quality of milk and cream was to keep clean both the premises and the person. The inside of the dairy or creamery should not only be clean, but the outside should be just as neat. Discarded boxes and machinery lying around the creamery should not be tolerated. Clean, painted creamery buildings do more to cause the patrons to clean up the dairies than any one thing. Mr. Werder laid special emphasis on the fact that the dairymen should make quicker deliveries, instead of holding the cream for several days, allowing it to get strong and bitter, as this holding of the cream is the cause of so much poor butter which is flooding the market.

Mr. J. H. Faulkner of Oakland said there are two ways of improving the quality of the cream; first, the rigid enforcement of the dairy laws, and, second, educating the dairymen. As for the first method, the State Dairy Inspectors are doing good work, and by punishing the men who run unsanitary dairies they are gradually improving the grade of milk. The second method is for the dairymen to study the dairy business, using only the most improved machinery, taking the dairy and live stock papers, so that they are acquainted with every new phase of the business which arises. Mr. Faulkner attributes a large amount of the poor cream to the unscrupulous real estate men who get settlers to buy land totally unfit for dairying, and with poor soil, dilapidated machinery and worse cows, these people keep on dairying because they can't see their way clear to do anything else.

Mr. J. P. Murphy told how the milk could be improved from the dairy inspectors' standpoint. He said that about 60 per cent of the dairies were in excellent condition, and as a result turned out fine cream, but about 40 per cent of the dairies were unsanitary. Mr. Murphy said that the results of dairy inspection are being seen all over the State, buildings are being whitewashed, concrete floors are being laid and screens put in the windows and doors. They are handicapped, however, by the lack of money. There are only five inspectors when there should be twenty-five. He urged the Creamery Association to go before the next legislature and get $75,000 to carry on the work of the Dairy Bureau.

At the evening session, Mr. LeRoy B. Smith of the San Luis Obispo Polytechnic School gave a very interesting talk on the work which was being done at that institution along farming and agricultural lines.

On Friday morning the past, present and future of dairying in California was taken up by the prominent creamery men over the various dairy sections of California. Mr. R. A. Simpson of Ferndale was unable to be present, so his paper was read. Mr. Simpson's instructive observations will be found in another column.

Mr. H. G. Salmina of Cayucos told of the conditions in the south coast section. He said in part: Conditions around San Luis Obispo have improved greatly since 1891. The gravity method of creaming was in use at that time, and the dairymen knew nothing about cream separators, and the cream was churned in a barrel. While some had horse power for churning, many churned by hand, taking in some instances over a day to churn. Everything was done by guesswork, the temperature, color, salt and working was all guessed. Nothing was known of testers, starters or acidity of milk. There were no barns for the cows or an economic use of the feed. Many changes have taken place, more from force of circumstances, however, than from choice.

Every dairyman in the south coast section has a cream separator, which is run by either steam, water or gasoline. Nearly all have dairy barns, improved farm buildings, comfortable homes and better conveniences than heretofore. Much of the work which has been a burden and a drudgery in the past is now being done with pleasure and profit. There are still certain conditions which hinder the progress of the dairy business in this section. Most of the dairymen are on rented land, and they cannot make the necessary improvements. As a rule the owners expect the highest rents without making any of these improvements. Transportation facilities are very poor and inadequate, not even being as good as they were eighteen years ago.

No part of California offers a better future for dairying than the south coast section. There is an opportunity for development in every branch of the dairy business, and especially so in the improvement of the dairy herds, replacing the scrubs now in the herds with thoroughbreds of the improved dairy type and heading every herd with a good sire.

Mr. J. L. Starr of Los Angeles next spoke of southern California. He said the conditions in that section were very bad when dairying was first started, but fortunately conditions are changing and the dairymen are gradually making the improvements which are necessary to get good butter. Mr. Starr, in conclusion, brought out a good point, in that the dairymen should plan their feed so that they can always have a balanced ration and thereby have a good supply of butter at all times of the year, instead of having the butter come all at once during the summer months.

Mr. E. B. Stowe handled northern San Joaquin valley in an able manner. He said that up to 1897 all the butter came into this section from the "coast," and all their energies were devoted to wheat, but the low price of this commodity coupled with a series of small crops forced the farmers into dairying. The butter at this time was made from whole milk and was a much better quality than is now manufactured from hand separated milk. The dairymen now bring their cream in about twice a week, so that the butter is tainted from the old sour cream. He lamented the fact that the competition was so strong among the creameries that they would take any kind of cream delivered to them. He said that bad cream will soon be a thing of the past, as the creamery operators will either have laws passed regulating the holding of cream or that they will cut the price of this poor cream and force the dairymen to make quicker deliveries of clean milk. Mr. Stowe pointed out the fact that the creamery men had made the present butter market by educating the people to eat more butter, but unless they maintained a high standard the masses would stop eating butter.

Mr. J. R. Murphy said that there was very little butter produced in the south San Joaquin up 1895, when a creamery was erected which produced 300 pounds a day. From that date the dairy business made wonderful strides, so that at present they were making 30,000 pounds per day. In fact, the butter production was increasing so rapidly that it will not be long before we will have to find a foreign market for our butter, but before we can think of going into other markets it will be necessary to make better butter. This can be accomplished by getting more dairy inspectors, and he urged the association to bend every effort toward getting a large appropriation for the Dairy Bureau for this purpose.

The morning session was then finished by an address by J. H. Dawson of Hanford on "The Business End of the Creamery." He said that every creamery should be built on the gravity plan, as it makes sanitation quicker and easier. The building should be constructed of brick and concrete, so as to obviate heavy insurance premiums. It is the duty of every creamery manager to reject set cream or cream with flies or ants in it, so that when a dairyman finds that he can not get rid of his dirty cream he will either have to give up dairying or produce clean cream. Mr. Dawson was in favor of having the various creamery men enter into an agreement that they will not take this unclean

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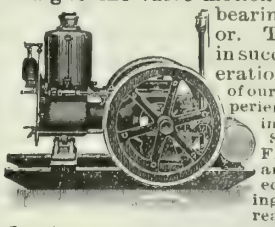
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milk, and notify every other creamery operator when a patron comes with bad milk, so that he will be refused at every creamery where he tries to bring his cream. In conclusion, he spoke of the evils of high and low prices, and pointed out how the high prices stopped consumption and caused the butter to pile up on their hands, and that a fair average price was best for all concerned.

At the Friday afternoon session, Prof. Hopper gave a most entertaining illustrated lecture, and W. H. Saylor delivered an address on "The National Oleomargarine Legislation of Interest to the Dairy Industry." He said in part: The first national laws passed regulating the sale of oleomargarine were passed to raise a revenue of 2 cents a pound, and to stop its sale. The sale of oleomargarine increased from 24,325,527 pounds in 1888, to 126,316,436 pounds in 1902, so that it can be readily seen that the laws were not a success. In 1902 the dairy interests over the United States had a bill passed in Congress in which a tax of 10 cents a pound was levied on all oleomargarine colored in imitation of butter, but when the oleomargarine was not colored the tax was only one-quarter of a cent a pound. This caused a shrinkage to 79,162,115 pounds in 1908, so that it is apparent that this law was not effective. The eleomargarine makers got around the law by using certain fats which gave the same color as butter. It is extremely difficult to convict any one selling oleomargarine unlawfully, because the law says that one so doing must commit the offenuse "knowingly."

The dairymen should get together and see that a law is passed which prohibits the coloring of oleomargarine in any way to represent butter, and that it is not sold or represented in any way as butter. Prohibiting the sale of oleomargarine is extremely important to the dairymen of California, as the butter industry is making very rapid strides and this State bids fair to be the banner butter producing State of the Union.

On Friday evening a banquet was tendered the visitors by the Porterville Chamber of Commerce and the local creamery men. It was one of the best dinners that the California Creamery Association ever attended, and the glorious feast will always linger in the memory of those present. The banquet was held in the large banquet hall of the Congregational church, which had been most artistically decorated by the Ladies Aid Society. The ladies of this society have a place in the hearts of all the visiting creamery men. Along with this most excellent dinner many good speeches and stories were told under the able supervision of the Toastmaster, W. H. Roussel.

The following Saturday morning the visitors were taken over the country in automobiles. After a look at the orange groves and dairies the cause of the prosperity and affluence of Porterville was evident to all.

In the afternoon two very able addresses were made. The address by George A. Smith of Corcoran on "The Opportunity for Dairying in California" will be found on our first page. Mr. C. L. Mitchell, United States Dairy Inspector for California, gave some instructive observations relating to dairy and creamery methods in California, and as space will not permit its publication in this issue, we take pleasure in being able to present it to our readers in the next issue of this paper.

The next business of the association was the election of the officers. C. C. Ridgway of Porterville was elected president, Fred Daniels of Alameda vice-president and J. H. Severin of San Francisco secretary. After which the meeting adjourned to meet in Los Angeles next year.

LIVE STOCK NOTES.

Turlock, Stockton and Davis all want the association convention two years from date.

It seems to be the general opinion of most of the creamery operators that much of the uncleanness in dairies over the State is due to the dairymen renting their property. The owners will not help them put up buildings or make improvements, so that it is very difficult to clean up.

There seem to be a general improvement of the dairy herds over the State. Creamery men from the various dairy sections all spoke of the tendency to put in thoroughbred bulls, and as the dairymen are accumulating money they are putting in registered cows. Another fact which seems widespread in California is the breaking up of the large stock ranges and grain farms into alfalfa fields and dairies.

C. T. Brown of Porterville has an exceptionally fine herd of Holsteins. He is milking 34 cows at present and gets about 900 pounds of milk a day.

It was surprising the number of able speakers among the creamery operators. It sounded more like a convention of lawyers than buttermakers.

Will P. Stevens, the man who makes ice machines; Da Laval Sedgeley; A. C. Hartnack, the man who made Wyandotte washing powders famous; "U. S." Garner, who loves the hypnotist; G. Angus McEdwards of Worchester salt fame, also a live wire in the entertainment line, entertained the creamery men at the Novelty theater on Thursday night. Between acts of the regular show they sang many songs in the "original barber chords"; this melody so hypnotised their guests that they wouldn't leave, and the janitor had to drive them out in the morning.

H. J. Faulkner and shotgun attended the convention in the interests of Baker & Hamilton. George W. Morrow was also there, looking after the interests of Leslie salt.

Chauncey Depew would have about as much chance of beating W. H. Roussel for first honors as a toastmaster that a piece of oleomargarine would have in a prize butter contest.

M. H. Nielson was talking on the rotation of crops, and Ira A. King of Ferndale told a good story on this subject which happened to him while visiting C. H. Werder of Corcoran. Werder was plowing in his fields and putting snakes in the furrows. When King asked what he was doing, he said that he was trying rotation of crops; he planted the snakes and got a good corn crop; he planted the corn and got whisky, and then he drank the whisky and got snakes.

A crusade against unclean milkcans has been started by the State Board of Health. Cans incrusted with dirt and rust will be destroyed.

W. H. Roussell urged every buttermaker to score the butter on exhibition, so that they could compare notes and the awards made by the judges.

Sunny Stanislaus county hopes by next year to produce more butter than Humboldt county.

It is thought that the first creamery was built in Humboldt county in 1888. It was unsuccessful, as they could not ripen or cool their cream properly.

There are 8,000 dairies in California at the present time, and if they increase as fast as they have in the last year, it is figured that the 12,000 mark will be reached.

HE WHO LAUGHS LAST, LAUGHS BEST.

Joseph Sedgeley, who attended the convention in the interests of the De Laval Company thought he would play a joke on the banqueters at the Congregational church, so he came dressed up like a tramp. W. H. Roussell heard of his intentions, so he had the city constable come



to the hall and arrest Sedgeley when he appeared. Will Stevens and Wyandotte Hartnack appealed to Roussel in vain to use his influence with the constable. Finally, however, the constable let Sedgeley loose so that he returned to the banquet in time for the dessert and to recite his ipece, "The Troubles of a Tramp." This picture of Sedgeley was taken before he had been scared by the constable.

THE BUTTER CONTEST.

One of the best features of the Porterville convention was the butter contest. There were 28 entries from all sections of the State, including one from Nevada. In order to give incentive to the buttermakers to enter their butter, a gold medal was given as the first prize and a silver medal as second prize, and all those averaging over 90 points were given $10. All the entries were on display, so that all the creamery operators could see just what was being done by the best buttermakers over the country. Prof. H. A. Hopper and C. L. Mitchell judged the contest and awarded the prizes as follows:

		Points.
1.	H. Ostergard, Etna Mills	96
2.	V. F. Wills, Escondio	95½
3.	I. A. King, Ferndale	95
4.	C. W. Martin, Tipton	94¾
5.	S. Koppes, Ceres	94½
6.	P. Bicker, Grizzly Bluff	94¼
7.	G. M. Foltz, Dixon	93½
8.	O. J. Ridgeway, Porterville	93¼
9.	G. H. Nielsen, Bakersfield	93
10.	C. D. Watson, Lemoore	93
12.	L. B. Shaw, Stockton	93
13.	Niels Jensen, Beatrice	93
14.	F.Leiser, Winters	93
15.	J. D. Bradley, Meridian	93
16.	Joe Bentley, Sacramento	92¾
17.	P. Peterson, Fresno	92
18.	Hans Beck, Fresno	91½
19.	University Farm, Davis	91
20.	W. J. Beck, Laton	91
21.	Porterville, Co.-Op. Creamery	91
22.	C. H. Werder, Corcoran	90
23.	C. E. Jones, Waterloo, Nev	90

TUBERCULOSIS IN CHINESE HOGS.

It is reported from London that 9% of the carcasses of Chinese hogs recently imported into England and thus far inspected by the sanitary committee of the city of London have been found to be affected with tuberculosis. The first shipment of 5000 hogs sold well in the wholesale market. Although they were offered by the retail butchers at 25% below the prices charged for other imported hogs, they did not find favor with the public.

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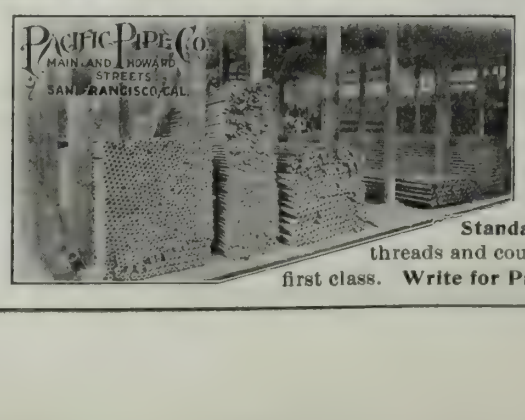
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The Poultry Yard.

WHY THE PULLETS ARE NOT LAYING.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

With eggs tipping the scales at 53 cents and up per dozen, wholesale, the fowl that lays them appears closely related to that fabled bird of the golden egg. A flock of such fowls would make the owner's heart light and his purse heavy in the October and November days.

"That's all very fine," grumbles the farmer, "but when you get down to facts there's nothing doing among the flocks in the October and November days."

Very true. It requires judicious outlay, study and work, seasoned with that "infinite pains" which is the earmark of genius, to produce eggs in quantity during the off-season of egg production; and these things the majority of poultry keepers are not going to bestow on so insignificant a creature as a chicken. So there will always be "nothing doing" in the majority of flocks at this season, and incidentaly there will always be a golden harvest to be reaped by the small minority of farmers and other poultry keepers who realize that money and effort are not thrown away in the breeding and care of fowls.

"But," says another farmer, "I put a good bit of money in chicks last spring and they have had a whole lot of care, and have got away with a lot of high-priced feed; some of 'em are more than six months old, and nary an egg or prospect of one in sight."

We happen to be familiar with this case, and it is typical of many others. Some two hundred day-old chicks of uncertain Leghorn stock and of different ages were bought; part were placed with hens, 50 or so to a hen, and part were brooded in boxes. All were kept in an inclosure where there were a number of old fowls. An epidemic of vermin broke out two or three times and was subdued by whitewash and insect powder, but was not eradicated by persistent after treatment. Though the feeding, together with the general care, was not always regular or of the best, it was so much better than had ever before been given on that farm to chickens that naturally much was expected in return.

At present there are quite a bunch of pullets and some cockerels running and roosting all together, though of different ages and sizes, and a few among them are very fair birds; but none of them have had the steady and vigorous growth necessary to the production of the October and November layers. At the best, it will be along in January and February before there will be regular laying for even the most forward of the lot.

The gilt-edged egg is not secured without effort plus a knowledge of right methods. Had our farmer in the above case put the same amount of money in fewer and better chicks, had he brooded them properly, fed them well and regularly, kept them free of insects, and yarded them according to age and vigor; in short, kept them growing ever minute of their chickhood, they would now be returning him a nice profit on his investment and work, instead of being a dead expense till the price of eggs begins to drop toward spring.

No weakly or stunted pullets, nor even an organically strong one which has not had regular and systematic feeding and care from the egg up, is going to lay in October and November. If eggs were easy of production during this time it would not be the season of maximum prices. As with everything else in life, to get the best results from poultry we must give it our best efforts.

The pullets for fall and winter laying should not be allowed with the general flock or with fowls of different age. Those to begin laying the last of September should be separated, in bunches of 25 or thereabouts, in August and yarded in comfortable quarters. Any change must be made considerable time before the pullets begin to lay; for though they are not greatly affected by such things in the natural laying season, even a change of roosting quarters in the fall and winter will often check laying for weeks. The writer once moved a flock of pullets just starting to lay to a ranch seven miles distant on the 19th of October. They were moved at night and with the greatest care; but, whereas, there were 40 eggs laid the day they were moved, there were only a few scattering eggs laid thereafter until along in the month of January. Many people look upon an animal as a sort of automaton without any special nerves or feeling. In reality, the animal economy is much the same whether it belongs to a human, beast, or bird, and a laying hen often has more cause to complain of her "nerves" than the fine lady. Anything that frightens her or makes her uncomfortable or dissatisfied, checks egg production. Harsh or rough treatment by the caretaker, children and dogs dashing through the yards or chasing the fowls, or the "shooing" and throwing at them allowed to most small children, all reduce the profit from a flock of pullets or hens and tend to scare away that shy production—the nickel egg.

Questions and Answers.

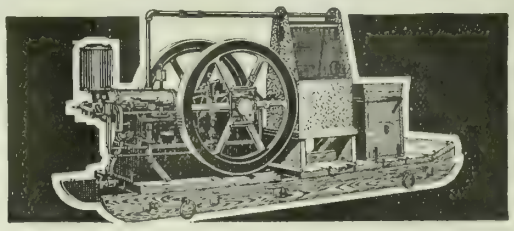
CHICKEN GRAINS.—E. W. W., of Chittenden, Cal., writes: "I am trying to find a variety of corn that I can raise for my chickens. Some one infromed me that there is a popcorn that does not contain the fattening properties, but he did not know what it is called. Then there is what is called "parrot corn." It is a white corn and not very seewt, used for tamales, and Egyptian corn or Dhoura that claims to be a non-saccharine sorghum. Can you tell me if any of the above varieties would be the thing to feed my hens in connection with wheat, etc., or if you cannot, to whom might I write?"

Your informant probably had reference to the White Rice popcorn. In Texas the Mexicans make their tamales of the soft white corn such as grows in the corn belt. There is a Russian cereal called Emmer or Speltz, which has been lately introduced in the United States with much success. It is said to yield from 80 to 100 bushels of nutritious grain to the acre and four tons of hay besides; also that it withstands drouth better than any other grain, is adapted to almost any soil and is easily grown. It is very highly recommended as poultry food. The writer has had no experience with it, but intends giving it a trial. If it comes anywhere near what is claimed for it, it would solve the problem of cheap poultry grain. Any of the seed companies advertised in the RURAL PRESS will give you reliable information on the subject of corn and supply you with the cereals mentioned or with any others suited to your purpose.

We do not think you need to be greatly concerned over the "fattening properties" of any of the corn. The poultry journals are inclined to make too much of a bugbear of this point. The bulk of the poultry produced in the United States comes from the corn belt. The writer on coming to California was almost shocked to see good wheat used as chicken food. Both Egyptian and Kaffir corn, which grow readily in your section, are good for poultry. The former has the higher nutritive value. Neither of them equal the four principal grains, wheat, oats, corn, barley, in value as tissue-builders, but with a larger proportion of meat and green foods they make a well balanced poultry ration. Our advice to poultry raisers is to supply the poultry with plenty of fresh green food and vegetables and a fair proportion of meat products and then to feed the grain which can be obtained most easily and cheaply in their particular locality.



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A hen can't lay a large number of eggs unless she is fed foods from which she can make them. Grains alone do not suffice. Nor haphazard feeding. She must have a full, rightly balanced ration. You can make your own balanced egg-producing food as good as any one can make by merely mixing

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The Home Circle.

Flattering Grandma.

"There never was a grandma half so good!"
He whispered, while beside her chair he stood,
And laid his rosy cheek,
With manner very meek,
Against her dear old face in loving mood.

"There never was a nicer grandma born;
I know some little boys must be forlorn
Because they've none like you;
I wonder what I'd do
Without a grandma's kisses, night and morn?"

"There never was a dearer grandma—there!"
He kissed her and smoothed her snow-white hair,
Then fixed her ruffled cap,
And nestled in her lap,
While grandma, smiling, rocked her old arm chair.

"When I'm a man, what lots to you I'll bring:
A horse and carriage and a watch and ring,
All grandmas are so nice!
(Just here he kissed her twice)
And grandmas give a boy 'most anything."

Before his dear old grandma could reply,
This boy looked up, and, with a rougish eye,
Then whispered in her ear,
That nobody might hear:
"Say, grandma, have you any more mince pie?"

An Elderly Elopment.

"It's no use, mother, I can't give thanks in this fine house like I could with only potatoes and fried pork to eat in the old home. I suppose I'm an ungrateful man, but I do hanker for one more Thanksgiving in the old farm house. There, I've said it," and Jotham Sawyer looked at his wife wistfully, then out of the window at the streets of the busy town.

"I know just how you feel, father, the nearer the day comes the more I think of that old, homely kitchen where I've prepared for John's and Nellie's and Jane's homecoming for so many years. Now they all have homes and families of their own, and we are living with John. It seems kind of odd and strange, don't it, father? The old house that we've lived our joys and sorrows in must be lonesome, too! Dear me, it seems as if I must go home," and tears gathered in the gentle old eyes.

"We've a good place here—I'm not finding a mite of fault. John is all that a son can be, and his wife treats us just like own folks. Nothing seems too good for us in their eyes, and we needn't do a single thing as long as we live, unless we want to," said the man gratefully.

"That's it, father, we do want to. We don't like being laid on the shelf, so to speak. We've always worked independent like, and we don't really know how to let go and shift the burden onto younger shoulders. We're pretty smart yet, considering that you are nigh seventy-five and I am only two years behind you. Seems as if we could get on a spell longer by ourselves, it really does. It isn't as if one of us was sickly," said the old lady with thoughtful pauses.

Then there was a silence, the old couple looking steadily into the bright wood fire, which John would have in their room to keep them company, he said, and thinking of the days of "auld lang syne." Suddenly a cricket chirped on the window ledge.

"I declare, that's the first cricket I have heard for a long while. Do you mind how they used to sing by the great fireplace? I got a little out of patience with their noise sometimes, but you stuck to it that they brought good luck, and you wouldn't let me kill one nor throw one out. Do you remember?"

"'Pears like I remember every little thing that ever happened there, father. That cricket seems to be telling us there's no place like home!"

Silence again, while loving thoughts went lingeringly over half forgotten incidents of the happy past. Disappointments and trials were forgotten—only the happiness remained! Suddenly Jotham straightened up in his chair, a resolute look upon his face, and laughed a little defiantly, as he met his wife's inquiring eyes.

"We'll have to do it, mother, I don't see any other way. We'll just have to go back to the farm for a Thanksgiving, or we can't give proper thanks for our blessings—and the good Lord knows we have lot's of 'em," he said earnestly.

"I don't see how it can be managed. The house is shut, though to be sure, everything is just as we locked the door on it, for we have never had the heart to let John sell off the furniture," she answered, the thought bringing hopeful smiles with it.

"I know how to manage," he returned in triumph. Tomorrow John and his family are going to Clinton on an automobile ride. Pesky things!—the automobiles, I mean. A sensible horse is good enough for us, eh, mother? Well, while they're away we'll go straight back to the old farm. What do you think of that?"

"We ought to tell them," hesitatingly.

"Not a bit of it. We'll elope, and leave a note that'll open their eyes. Remember another time when I asked you to elope with me, and you wouldn't?" he chuckled.

"Where will we get provisions? There isn't a spoonful of flour in that house, not a chicken in the pen—let alone a turkey," she objected faintly.

"We can leave an order with Creedan, he still keeps store at the old place, I guess. Then we can buy anything else that we need of neighbor Smithson, and I wouldn't wonder if I could get a few cranberries in the bog, as long as there isn't any snow to cover them. Will you go, mother? Say yes." And his hand covered the one on the arm of the chair.

"Oh, you haven't forgot how to tease, Jotham! Yes, I will. It may be foolish business, but the old home is a-calling and a-calling and I can't refuse. I'll go, but in the note we leave we must invite John and his family, and make the invitation strong enough to fetch them to our Thanksgiving dinner. It wouldn't be a home coming without some of the children there. I wish Nellie and Jane could come with their broods. Dear me, 'pears like it is an awful long time till tomorrow! I'm as bad as a child that's going to the circus, now that it is settled. I wonder if they'll start early. I'll pack our bag tonight, and I'm going to put in enough to last us for a whole week, father," she said with a questioning laugh.

"So do, mother. We'll stay a week, or more. I declare I feel ten years younger than I did an hour ago! Take your time in packing, mother, don't make any unusual noise about it, for they might suspicion us, and we want to elope in regulation style, eh, old lady?" he said, as he bent and kissed her full on the lips.

She nodded brightly as she began to rummage bureaus and closets, and neither of them heard the cautious steps of John's wife, who, having come into the other room on an errand, had heard the conversation.

"The idea!" she said to John, with some indignation, when she told him the story. "Here we've been doing everything we could to make them comfortable and contented and they actually long for that old farm house!"

"I—I think I can understand," returned John, softly. "I've been longing for a Thanksgiving in the old house for a month, Mabel. Just for the sake of old times, my wife, not because I am not truly thankful for our own home. Let the dear plotters go—we will follow. I'll telephone the girls, and we'll have the whole family at home—with additions, of course. I'll telephone to Smithson, too, and tell him what is up. He'll keep the secret and he'll see that they have what is needed. I'll ask him to send one of his boys up to cut the wood, and Mary to help mother. Don't let them suspect that we know a thing about it—bless 'em! Guess I'll run up and give father a twenty for a Thanksgiving present, so he will not feel cramped, eh?"

The long night passed slowly, for the old couple were too excited to sleep well. But at last John's family were off on their auto ride, and the elopement was made as soon as they were out of sight. The first thing that met their eyes when they arrived at the little station was neighbor Smithson's double express wagon, and Smithson himself shouted a greeting.

"Hello, Jotham, and Mrs. Sawyer, how are you both? This is a surprise that's good for sore eyes. Come out to see us?" he asked as he grasped their hands.

"Well—yes—no, Ben," Jotham laughed a little sheepishly, and then told of the escapade. "You see we hankered for the old home, and—here we are. Ride over with you? Yes, we'd be glad to if it will not discommode you any. Just wait till I leave an order at Creedan's. We can't live on air, though I expect that's the next thing this world will come to. After I get the fires to going I'll run over to your house for some extras that I shall not be likely to find at the store. Got any turkeys this year?"

"Yep, fine ones, and chickens and hams," was the emphatic answer, as Smithson whipped out a blank book. "Give me the order, and I'll fetch the things over. No trouble at all, not a bit. My wife'll be about crazy till she sees Mrs. Sawyer, and I want one of the boys to fix you up a wood pile. Don't you want Mary to help you, Mrs. Sawyer? Her mother can spare her as well as not."

"Well—if she can—I s'pose the dust is pretty thick in the old house by this time," was the answer, as Jotham named over what he wanted and Smithson wrote out the list.

Wnat a homecoming! The first thing that they did after Smithson drove away was to sit on the old sofa with clasped hands and gaze around the familiar room.

"I declare, father, this is not going to do at all, sitting here like two lazy children! Wind up that clock and set it going for company. There's a sight to be done and Thanksgiving only two days off," she exclaimed, rising briskly and throwing open the kitchen door. "You can surely find chips enough to start a fire, and we must get the brick oven to heating as soon as we can. There's sweeping and dusting and the beds to air, besides the cooking, and I feel more appetite than I have for six months."

"I could eat a bear," solemnly avowed Jotham, as he obediently started for the shed, taking the split basket from the nail as he went. When Smithson arrived with the things they did not think to wonder how he had gotten them ready in so short a time.

"If there's anything we've forgotten we'll bring it over when we think of it," he said, as he lifted out the bundles and carried them into the kitchen, where his wife and daughter were greeting Mrs. Sawyer. "I swan, it does look good to see you around here once more. The old house makes me lonesome when it is shut up—it does really—seeing you in it so long. The boys will be over presently to tackle that wood plie. Oh, I forgot to mention that all the old neighbors, and some new ones, are going to meet at our



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house for a Thanksgiving social in the evening. Come over."

"Of course we will—think we'd miss that? And, say, Smithson, I'm going over about milking time to get some milk; haven't fetched my cows from pasture, you know. If you're as lazy as ever, perhaps I'll help you out on the milking," joked Jotham, giving him a sounding slap on the back.

"It wouldn't be the first time, would it?" laughed Smithson. "Come, wife, we don't want to hinder, and there's something to be done at home to get ready for that social."

"Coming, Ben. Goodbye, Maria, I had to come over to se you if I did hinder a bit, and I want a visit before you go back to John's—don't forget that," answered Mrs. Smithson at the door.

Such a busy time followed! Mary swept and dusted and aired the beds, peeling apples and picking over raisins and currants between whiles. Jotham tended the fires, laughing like a boy as he piled the boxes high with wood, and Mrs. Sawyer handled mixing bowl and rolling pin so expertly that the kitchen table was covered with articles to be baked long before the oven was ready.

"I shall give you just fried pork and potatoes for supper, father. I did mean to have some salt codfish with it, but we forgot to order any," she said, as he returned from Smithson's with a three-quart pail of milk.

"What's the matter with mush and milk? That's what I 'lotted on," he answered, producing a paper bag filled with golden Indian meal, and a basket of apples. "There's some sweetings for you, mother. Mrs. Smithson remembered how well you used to like baked sweet apples."

"Well," setting aside the potatoes and hanging the spider on its nail under the sink. "There's another day coming, and I don't suppose fried pork and potatoes are exactly healthy to go to bed on. Folks say they ain't nowadays, but they never seemed to hurt us any. Mary's coming over early in the morning so's to get the turkey ready to bake, and the chickens for a pie. What do you suppose John's folks will say?"

"I care just about as much as I know about it," he nodded decidedly. "I've about made up my mind to stay here years instead of days, if God spares my life that long."

"Oh, father!" and the pink flush that rose to her cheek did not contradict his wish.

Thanksgiving found everything in readiness, the pantry shelves fairly bending with their load of old time dainties.

"If we can't eat it, we can give it away," Jotham had declared, when he mentioned one thing after another, as fast as she could prepare them.

A box came by express, bringing John's donation in the shape of canned goods, dressing and relishes, but the good wife sent them to the cellar shelf and resolutely forgot that they were there.

"It makes me think of town," she confided to Mary, as she mixed a mess after an ancient recipe.

"Seems as if the old house was as glad as we are," exclaimed Jotham, spreading his hands to the open fire. "That forestick actually sings as it burns, and did you ever see so many sparks dancing up the chimney, mother? Those cranberries just waited down there in the meadow for me to come and pick them, and—did you see the apples Brown sent us? He hired our orchard, you remember, and he sent us some of every kind—more'n a bushel. I tell you there are no apples like those that grow in the old orchard!"

"They are just like Smithson's, tree for tree," laughed his wife. "If you think hard you will remember that your father and his set out twin orchards, and the land is the same. But I own that they do taste a little the best to me, father, and I have been hankering for a taste of them. It was good of Brown to send them over."

"Yes, and all the neighbors 'pear to be mighty glad to see us. It seems as if I couldn't go away again, not even to John's house—until I have to. I don't want to be ungrateful but—here are John's folks now! How are you, my boy? Welcome home. What did you think when you read the note?" called the father from the doorway, as the auto stopped at the gate before going to the barn.

"Think?" echoed John gaily, "Well, the most that I thought of was the fact that I'd have another of mother's Thanksgiving dinners to eat! Things do have a different taste here from what they do in town, that's a fact, I am hungry already."

"Really? Then you don't blame us?" questioned the mother happily; then she piloted John's wife and children to the best room and took off the baby's wraps. "It isn't that we don't love you and John and the children, but this is—home!" with a caressing pause before the last word that told more than words could say.

"Don't apologize one mite, mother Sawyer," cried John's wife, kissing her tenderly, "we know just how you feel, though we didn't think of it before. We want you to feel free to come and go as you please, your rooms will always be ready for you at our house."

"I am going to hire a man and his wife to do the heavy work, and you shall stay here as long as you wish," John was telling his father in the other room. "I guess the farm will pay its way with you to oversee it, and when you have a good Jersey cow and a steady horse in the barn, with a few chickens in the pen, it will be still more like home, eh, father?"

"It would be heaven, boy," was the tremulous response, "but is it best for you, John? Can you afford to do this? The farm may not pay with hired help."

"Yes, it is best for me if it pleases you. The happiness of my father and mother will amply repay added expense if there is any. And I am not sure that I do not long for the old home to be kept as much as you do," admitted John with an embarrassed laugh. "But remember, there is always a place and a welcome for you at our home."

"I will, John, I do, and I thank God for it! Now we can have a Thanksgiving, indeed," and Jotham went to find his good wife, the sharer of his joys and sorrows, to tell her the wonderful news, only to be interrupted by sounds of merry laughter as two teams drove up, bringing Nellie and Jane with their families.

"Quite a surprise, isn't father?" asked Nellie. "It was to me. When did you come back?"

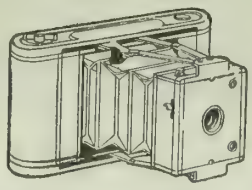
"Just like old times! There's nothing like the old house to hold us together, is there, mother?" asked Jane.

"And here's a little shaver that you haven't seen yet. We've named her for mother," said Jane's husband, bringing forward a bundle of shawls and flannels.

There is no need of telling all about that dinner, some of us are not too young to remember just such occasions. It is enough to say that it was perfect in its way, and its enjoyment became a memory to be cherished in future years. The happiness of knowing that there was a possibility of others like it heightened the pleasure of it. Then there was the social meeting of old friends in the evening. They were all there, and John seconded his father's invitation for all to assemble at the Sawyer farmhouse for a neighborhood Christmas tree.

"This world is going at too fast a pace for us old settlers," Jotham said to his son at parting. "You young hustlers must let us live our lives out in the way that seems best to us. You will understand—some day."

"I do now, father," answered John soberly. "Your elopement has taught me some things."—*George F. Wilson.*



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FARM BOOKS.

The following list of books are kept in stock and are for sale at the Pacific Rural Press office:

	Price.
Shepherd's Manual, by Stewart	1.00
The Hop, by Myrick	1.50
Farm Grasses of the U. S., by Spillman	1.00
Animal Breeding, by Shaw	1.50
New Onion Culture, by Greiner	.50
Home Pork Making, by Fulton	.50
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Chemistry of the Farm, by Warrington	1.00
Cereals in America, by Hunt	1.75
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PACIFIC RURAL PRESS,
667 Howard St., San Francisco.

THE MARKETS.

San Francisco, Nov. 23, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

All local grades are in strong demand, and with offerings closely held prices show a further advance. Northern descriptions are also higher. It is reported in some quarters, however, that no more Northern wheat is wanted in the East and there is some expectation of a slump in the near future on this account. Sonora wheat is quoted at the following quotations.

California Club	$1.77½ @	1.82½
Sonora		2.00
Walla Walla	2.00 @	2.05
Northern Club	1.85 @	1.95
Northern, Bluestem	1.97½ @	2.00
Russian Red	1.80 @	1.85

BARLEY.

Barley is still moving freely for export, with additional cargoes cleared this week. The local market is quite for all descriptions, but prices show a little more strength. Brewing is held a little higher, and all choice offerings of feed are selling at top quotation.

Brewing	$1.47½ @	1.50
Shipping	1.47½ @	1.50
Good to Choice Feed, per ctl.		1.47½
Common Feed	1.40 @	1.45

OATS.

While there is still considerable of this grain arriving from the North, holders are stronger in their views. The demand is still confined mostly to seed grades, which are moving freely. Both black and white oats show some advance.

Red, feed	$1.60 @	1.70
Seed	2.00 @	2.15
Black	2.60 @	2.90
Gray	Nominal	
White	1.67½ @	1.70

CORN.

There is little interest in the market at present, demand and supply both being light. Arrivals of Western grain continue small. Egyptian finds very little sale, and as there is considerable offering, prices are lower.

California Small Yellow	$1.70 @	1.75
California Large Yellow		1.75
Western State Yellow, bulk		1.57
Mixed, in bulk		1.55
White, in bulk		1.61
Egyptian—White	1.60 @	1.65
Brown		1.55

RYE.

There is no feature to the market at present, as buyers are taking on no large quantities. Offerings are light and the former high prices nominally prevail.

Rye, per ctl.	$2.00 @	2.10

BEANS.

The arrivals have decreased quite materially during the past week, and it is believed that the heaviest shipments are over. While many of the local dealers have considered the prices too high, there is so far no indication of any material reduction. The demand for shipment to other markets continues quite strong for practically all varieties, and prices are firmly maintained on nearly everything. Small whites, which have been exceptionally high, are easing off a little, and bayos have also been offered lower, while red kidneys are higher and limas and large whites are strongly held at former values.

Bayos, per ctl.	$4.50 @	5.00
Blackeyes	4.00 @	4.25
Cranberry Beans	3.75 @	4.25
Garvanos	2.50 @	3.00
Horse Beans	1.75 @	2.00
Small Whites	4.50 @	4.85
Large Whites	3.50 @	3.65
Limas	4.15 @	4.25
Pea	Nominal	
Pink	3.50 @	3.70
Red	6.00 @	7.00
Red Kidneys	4.50 @	5.00

SEEDS.

Conditions remain about as before. The market is quite active, with a liberal demand from the interior. Prices are as formerly quoted, all descriptions being firmly held.

Alfalfa, per lb.	17½ @	18 c
Broomcorn Seed, per ton	$20.00 @	25.00
Brown Mustard, per lb.		4 c
Canary		4½c
Flaxseed		4 c
Hemp	3¾ @	4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

Local millmen quote an advance of 20 cents per barrel on all grades and a similar advance has been made in Northern lines. There is still a fairly large demand from local interests, as the advance has brought out inquiries from buyers who had not filled their requirements. The market is firm with a continued upward tendency.

Cal. Family Extras	$6.00 @	6.50
Bakers' Extras	5.60 @	6.00
Superfine	5.00 @	5.30
Oregon and Washington	5.50 @	5.70

HAY.

The arrivals for the past week are somewhat larger, and the local market remains comparatively inactive. Local consumers still have plenty of stock purchased earlier in the season and speculative demand is absent. While former quotations are nearly well maintained, dealers describe the market as weak and a continuation of present conditions is likely to bring some selling. Dealers contrast this season with that of last year, when there was a marked scarcity. There is now considerable pressure to sell, with less outside demand than a year ago and very little inquiry locally. A better movement is expected, however, before the end of the year.

Choice Wheat, per ton	$19.00 @	20.00
Other Grade Wheat	13.00 @	18.50
Wheat and Oats	14.00 @	16.50
Tame Oat	14.00 @	17.00
Barley	10.00 @	13.50
Wild Oat	10.00 @	13.00
Alfalfa	9.00 @	12.00
Stock Hay	7.00 @	9.00
Straw, per bale	50@	70c

MILLSTUFFS.

Bran, shorts and middlings are inclined to easiness, with a slight decline in the latter. Shipments from the North have been quite heavy, while the output of the local mills is fairly large, and the demand is not above the average. Oil cake is also a little lower. Miscellaneous feedstuffs are steady as formerly quoted.

Alfalfa Meal, or mealfalfa, per ton	$22.00 @ 24.00
Bran, ton—	
White	29.00 @ 30.00
Red	28.00 @ 29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	25.00 @ 26.00
Corn Meal	37.00 @ 38.00
Cracked Corn	38.00 @ 39.00
Middlings	35.00 @ 36.00
Mixed Feeds	28.00 @ 33.00
Oil Cake, per ton	37.00 @ 40.00
Rolled Barley	31.00 @ 32.00
Shorts	31.50 @ 33.00

VEGETABLES.

Onions continue to advance gradually, as the remaining stock is moved off. Garlic is quite firm, with nothing offered below 5 cents. The principal supply of several lines is now coming from the South, and while arrivals from that quarter are quite liberal prices are generally firm. Lima beans are easier, but string beans and green peas are firmly held, and summer squash is moving at the former quotation. Most lines are unsettled, owing to offerings of rain-damaged stock, but all attractive offerings find a good demand. Good cucumbers and egg plant are higher and tomatoes are doing a little better, as the heavy surplus has been disposed of. Celery is in good demand at higher prices.

Onions—New Yellow, per ctl.	85@	90c
Garlic, per lb.		5c
Green Peas, per lb.	4@	6c
String Beans, per lb.	3@	6c
Lima Beans, per lb.	6@	8c
Turnips, per sack		75c
Summer Squash, large box	1.00 @	1.25
Tomatoes, per box	40@	75c
Cucumbers	75c@	1.25
Green Peppers, per box	40@	75c
Celery, per doz.		40c
Egg Plant, per box	50c @	1.00

POULTRY.

Chickens have been arriving rather freely, but there is a good demand for all large young stock, and several lines show some improvement in prices. Dressed turkeys, however, have been the leading feature this week. Arrivals early in the week were very moderate, and high prices were maintained, though the demand was slow in assuming its full proportions. First-class dressed stock was held at 30 cents for a time, but has fallen back to about the range quoted. The demand for live stock has been fair, with a slight advance in prices.

Broilers	$ 4.00 @	4.50
Small Broilers	3.00 @	4.00
Fryers	5.00 @	6.00
Hens, extra	7.00 @	9.00
Hens, per doz.	6.00 @	6.50
Small Hens	5.00@	5.50
Old Roosters	4.00 @	5.00
Young Roosters	6.50 @	7.00
Young Roosters, full grown	7.00 @	8.00
Pigeons		1.25
Squabs	3.50 @	4.00
Ducks	6.00 @	9.00
Geese, per pair	2.00 @	2.50
Turkeys, Gobblers, live, lb.	20@	23c
Dressed Turkeys, lb.	27@	29c

BUTTER.

Extras have been fluctuating according to varying supplies, but the price for several days past has been a little easier, with increased arrivals. The market is active, however, and the present value is strongly held. Lower grades stand as before, local storage stock being firm and other lines steady. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb.	32½c
Firsts	30½c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

Storage stock is offered freely and shows some weakness, with prices 1 cent lower. Everything else is very firm. Extras are in strong demand and supplies from all quarters are light. All the upper grades have advanced sharply, firsts and seconds being 5 cents higher, while few extras are to be had at the quotation.

California (extras), per doz.	58 c
Firsts	50 c
Seconds	35 c
Thirds	28 c
California Storage (extras)	30 c

CHEESE.

All local stock, both new and storage, is in very light supply, and while there has been no heavy movement locally values are very strongly maintained. Oregon and Eastern stock are also strongly held. The only change since last week is a slight advance in local first flats.

Fancy Calofirnia Flats, per lb.	18 c
Firsts	17 c
New Young Americas, fancy	19 c
Oregon Flats	17 c
Oregon Young Americas	18½c
N. Y., fancy	19 c
Storage, Fancy Flats	16 c
Young Americas	18½c

POTATOES.

The local demand is moderate, but supplies are not unduly darge, and all descriptions are firm, with some advance. Choice offerings of river stock find a ready market, and the best lots of Oregon and Salinas are strongly held. Sweet potatoes are also doing a little better, but the market is plentifully supplied.

Potatoes—River Whites	65c @	1.00
Salinas Burbanks	$ 1.25 @	1.45
Oregon Burbanks	90c @	1.10
Sweet Potatoes, ctl.	1.25 @	1.35

FRESH FRUITS.

There has been quite a large Thanksgiving demand, but this trade was confined mostly to fancy apples, which have been moving freely at full quotations. The lower grades of apples have also had a fair demand, resulting in better prices. Aside from this there has been little feature to the market. While cranberries have sold quite freely, supplies are excessive and prices weak. Few other berries are coming in, and raspberries are held for high prices, while strawberries are easy. Grapes are unsettled, practically all the stock being rain damaged and pressed for sale at irregular prices. There is little interest in other descriptions.

Raspberries, per chest	$10.00 @	12.00
Cranberries, per bbl.	9.00 @	10.00
Strawberries, per chest	2.50@	5.00
Huckleberries, per lb.	8@	10c
Grapes, per crate	35@	75c
Lug boxes	50@	75c
Apples—		
Fancy, per box	1.00 @	1.50
Choice	75c @	1.00
Common	50@	75c
Pears—		
Winter Nelis	1.50 @	1.75
Other varieties	50c @	1.00
Quinces, per box	50c @	1.00
Pomegranates, small box	50c@	1.50
Persimmons	75c @	1.00

CITRUS FRUITS.

Oranges are quite a feature this week, everything of attractive appearance being in demand for the Thanksgiving trade. Valencias are still the favorites, and with moderate supplies bring high prices. Navels are more plentiful and lower, only well-colored lots being wanted, while tangerines are easy and receive little attention. Fancy lemons are higher but standards are easy. Limes also show decline. Grape fruit is firm, with about the average demand.

Oranges—		
Valencias	$ 3.00 @	3.75
Tangerines, crate	1.00 @	1.50
Navels	2.00 @	2.50
Choice Lemons	2.50 @	3.00
Fancy Lemons	4.50 @	5.00
Standard	1.50 @	2.00
Limes	4.50 @	5.00
Grape Fruit	3.00 @	3.50

DRIED FRUITS.

With a strong demand from all quarters, evaporated apples are rapidly cleaning up, and prices are firm at a slight advance. Quotations on other fruits show no further change, but several descriptions are exceptionally firm. New figs have been moving well in the local trade, and the Eastern market is very strong, owing to a scarcity of imported stock. Supplies of peaches and apricots have been reduced to small proportions, and there is little movement in these lines at present. Pears are scarce and in good demand. Prunes are rapidly cleaning up, and deliveries are still being made on a large scale in some districts. There is little movement of raisins in the country, as most growers are now asking higher prices. Packers confirm the quotation of 2½ cents, but nothing higher is offered as yet. Seedless Sultanas are a little higher, and the outlook is for a good clean-up, with fair prices for the remainder of the crop.

Evaporated Apples, per lb.	8 @	8½c
Figs, black		2 c
Figs, white		4 c
Apricots	9½ @	10 c
Peaches	5 @	5½c
Prunes, 4-size basis	2½ @	2¾c
Pears	6 @	8 c
Raisins—		
Loose Muscatels, in sweatbox	2¼ @	2½c
Thompson Seedless		2 c
Seedless Sultanas		1½c
London Layers, 3 crown	85 @	95 c

NUTS.

Quotations for offerings in growers' hands are little more than nominal, as there is little movement from that quarter at present. Practically all growers are sold out of almonds, and supplies in the hands of jobbers are held at stiff prices. All the association walnuts have been sold, and it is reported that none of the outside growers now have anything to offer. With a strong demand the jobbing trade is active, with some advance in prices.

Almonds—		
Nonpareils		14 c
IXL		13 c
Ne Plus Ultra		12½c
Drakes		10 c
Languedoc		9 c
Chestnuts, California	8 @	12 c
Walnuts—Softshell, No. 1	Nominal	
Softshell, No. 2	Nominal	

HOPS.

Prices are unchanged, and there has been no heavy movement in the market for some time. The small quantity still in growers' hands is firmly held.

Hops, new crop	20 @	23 c

HONEY.

The local market remains as weak as ever, with no large demand for any description. Shipments from some of the southern districts, however, have been large of late and a fair clean up is expected. The demand has been largely for export. Local dealers quote the following prices:

Comb	10 @	15 c
Extracted, Water White	7 @	7½c
Extracted, Amber		6 c
Old Extracted	3½ @	4 c

WOOL.

Buyers have been looking over the fall clip in some of the producing districts recently, but very little has so far changed hands. There is little demand in the Eastern market for the local offerings, which buyers say are held too high. Prices are nominally as before.

Fall clip, Northern Free	12 @	15 c
Fall Lambs—Northern, per lb.	12 @	15 c
Southern	8 @	10 c
Fall Clip, Southern (defective)	7½ @	8½c

MEAT.

Prices show no further change since last week, and conditions are about as before, with an active demand for all descriptions and prices firmly maintained.

Beef: Steers, per lb.	6½ @	7½c
Cows	6 @	6½c
Heifers	6 @	6½c
Veal	7½ @	10½c
Mutton: Wethers	9 @	10 c
Ewes	8 @	8½c
Lambs	11 @	12 c
Hogs, dressed	9 @	11½c
Livestock—		
Steers: No. 1	4 @	4½c
No. 2	3¾ @	4 c
Cows and Heifers: No. 1		3½c
No. 2		3 c
Bulls and Stags	1¾ @	2 c
Calves: Light		5½c
Medium		5 c
Heavy	4 @	4½c
Sheep: Wethers	4¾ @	5 c
Ewes	4 @	4¼c
Lambs		6 c
Hogs: Grain fed, 100 to 150 lbs.		7 c
150 to 250 lbs.	7½ @	7¾c
250 to 325 lbs.		7 c
Common Hogs, lb.	4½ @	5½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., Nov. 23.—This is rather a critical time in the orange situation. The new crop of navels from northern California have been going out in quantity for some time and the Thanksgiving market has been supplied to some extent and the Eastern market has received its full quota of Florida, Louisiana and Porto Rico fruit. Besides all this, the California valencia has been in evidence, and is still the heaviest seller of any of the California varieties and it is still being shipped from this State. With all this fruit in the market and the promise of a very heavy crop from Florida, at last a normal crop from California, and with valencias likely to be in the market for Christmas time, a condition heretofore unprecedented, the buyers are acting rather shy and prices are not as strong as they have been in past for Tulare county navels. This does not seem to apply to the Orange county fruit, and it would seem as though a false price had obtained there, this fruit selling up with Tulare county stock for Christmas delivery, and not being in the same class when it comes to maturity or eating quality at Christmas time. A price of $1.75 for both Tulare and Orange county fruit is now being quoted, while Butte county stock is held up to $1.85 cash. There are not enough valencias here in the State to make a market, but they are selling in the Eastern auctions at from $3 to $6 a box, average about $3.50. The best Indian River fruit from Florida is selling at $2.50 to $3 a box and the ordinary Florida stock at from $1.85 to $2.25 delivered.

The Sicily lemons available for sale within the next thirty days are 27,000 boxes, as against 46,000 boxes at this time last year and 45,000 boxes in 1907.

The citrus fruit shipments since the opening of the new citrus season have been 153 cars of oranges and 166 cars of lemons.

THE FRUIT GROWERS' CONVENTION.

(*Continued From Page 347.*)

welcome, Dr. P. K. Watters, mayor of Watsonville; response, Hon. J. N. Gillett, Governor of California; opening address, J. W. Jeffrey, State Commissioner of Horticulture.

Afternoon Session, 1:30 p. m.—Appointment of officers and committees; "Southern Oregon Apple Growers," William M. Holmes, Medford, Ore.; "Apples on Our Menu," Mrs. Josephine Rodgers, Watsonville; "The Apple in Southern California," Frederick Maskew, Long Beach; "Must the Apple Go to the Mountain?" Prof. E. J. Wickson, Berkeley.

Evening Session, 8 p. m.—"The New Horticultural Law," J. W. Jeffrey, Sacramento; "The Examination Requirements of the New Law," O. E. Bremner, Sacramento; discussion of topics of interest to horticultural commissioners, conducted by C. H. Rodgers, Watsonville.

WEDNESDAY, December 8, 9:30 a. m.—"The Almond Commercially Considered," J. P. Dargitz, Acampo; "Citrus Culture in the North," Prof. Elmore Chase, Fairoaks; "The Berry Industry," W. I. Newcomb, Sebastapol; "The Latest Developments in Fig Culture," W. T. Swingle and G. P. Rixford.

Afternoon Session, 1:30 p. m.—"San Joaquin County Grape Growers' Associa-

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tion," Geo. W. Ashley, Stockton; report of the California Fruit Distributors, F. B. McKevitt, Sacramento; "A Growers' Marketing Agency, W. C. Walker, Sacramento; report of Fruit Growers' Committee on Freight Rates, R. D. Stephens, Sacramento.

Evening Session, 8 p. m.—Reception to delegates of convention.

THURSDAY, December 9, 9:30 a. m.—"Insect Pests and Diseases of the Apple," W. H. Volck, Watsonville; "Fighting Frost," Prof. Alex. McAdie, San Francisco; "Sulphuring Fruits," A. R. Briggs, San Francisco; "After Fruit Production, What?" John P. Irish, San Francisco.

Afternoon Session—Field Day, excursion through Pajaro valley.

Evening Session, 8 p. m.—"Insect Pests as They Relate to Rural Hygiene, with Special Reference to Control," Prof. W. B. Herms, Berkeley; "Planting Good Health on the Farm," Dr. W. T. Snow, Sacramento.

FRIDAY, December 10, 9:30 a. m.—"Precooling of Fruit," George D. Kellogg, Newcastle; "Grape Transportation and Storage," Prof. A. V. Stubenrauch, Berkeley; "The Horticultural Work at the University Farm, Its Aims and Objects," Prof. Warren T. Clarke, Berkeley.

Afternoon Session, 1:30 p. m.—"The State Road Problem," Nathaniel Ellery, Sacramento; "Eucalyptus Commercially Considered, G. L. Lull, Sacramento; report of resolutions committee; next meeting place; adjournment.

OPPORTUNITY FOR DAIRYING IN CALIFORNIA.

(Continued From Page 337.)

our herds, thereby securing a greater average production per cow and consequently a greater profit. In fact, the high price for dairy products is causing the dairymen of the State to improve the quality of their dairy stock by the introduction of improved, registered dairy bulls. In many herds the yield per cow has been increased from 25 to 50 per cent by their continued use. In addition to the increased production per cow they have increased the actual selling value per cow from 25 to 50 per cent, for the reason that whenever a dairyman increases the production of his herd, he at the same time also increases its selling value in the same proportion. Creamery men can do no better thing to uplift the dairyman, to build up and increase the dairy business and its profits, and incidently their own, by doing all in their power to encourage the use of pure bred dairy sires. No investment the dairyman can make will bring such large returns in net profits.

If any dairyman wishes to improve the production of his herd in order that he may have a greater profit year after year, he can accomplish it in two ways. He can, by keeping a record of his cows, determine his best cows, and dispose of the others, and by breeding them to a pure bred bull, of the dairy breed which he favors most, and one that comes from a long line of ancestry that has been noted for large production of milk and butterfar, he is reasonably sure to raise young cows much better than their mothers. If these young cows are used to replace the poor cows, he will secure a much greater net profit per cow and at the same time increase the selling value of the herd.

The other way is to buy cows of large producing capacity; but such cows are hard to find and are not usually for sale, and cost more than the average dairyman is willing to pay, and he will find that if he wants to secure a herd of good cows he must raise them himself, and the only way he can do this is by the continued use of a good pure bred sire. The sire, if a good one, may be much more than half the herd, when judged by the increased production and the accumulated effect of the influence for good he transmits. It is actually a fact that the sire may within a few years and at comparatively slight expense completely transform a dairy herd and actually double its net profits. The intelligent, progressive, successful dairyman by his carefully selected sires of known heavy producing ancestry goes on increasing and intensifying the improvement of his herd from generation to generation. In this way the sire becomes one-half, three-fourths, seven-eighths, fifteen-sixteenth, etc.—in a few years the sire is practically the whole thing when improvement is considered. It can readily be seen that a good pure bred sire that can add from $10 to $50 to each of his daughters in producing capacity and actual selling value becomes the most valuable animal on the farm, for the reason that he makes his owner the most money. It is neither unreasonable nor impossible for a good pure bred sire to increase the average value of his daughters $25 each, and he could easily sire fifty heifers during the year, which would make his year's work amount to $1250, and in six years to $7500, in increased producing capacity and selling value of his daughters, to say nothing of his granddaughters and great-granddaughters, which, if taken into consideration, would probably increase the value of his influence for good to twice that amount. It is impossible to estimate the value of a good pure bred sire in a dairy herd, and the improved dairy bull that can transmit the heavy producing qualities of his ancestry to his offspring affords an opportunity to increase the profits of the dairy business more than any other one thing; and creamery men, above all others, should bear this in mind and act accordingly.

The development of irrigation by storing water in immense reservoirs in the mountains, the diverting of water from streams that formerly flowed into the sea, the better understanding of sinking and developing pumping wells, the perfecting of pumping plants, the securing of successful artesian wells by going to greater depths, the more economical and scientific use of irrigation water, the cutting up of large bodies of land into subdivisions and providing, therefore, a necessary and adequate water supply, the distribution of irrigating waters over large tracts of semi-arid land suitable for the production of alfalfa, the securing of improved pure bred dairy sires, these, together with a climate that is marvelous and with the best markets in the world, provide us with unparallled opportunities for dairying in California.

PUBLISHER'S DEPARTMENT.

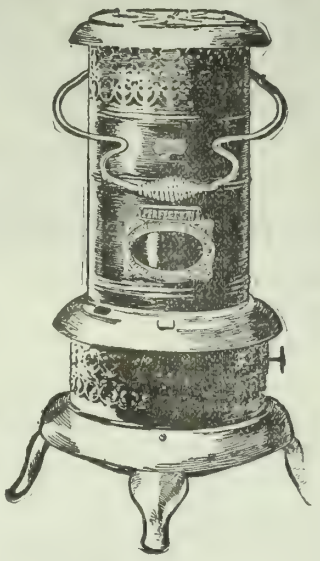
The Pacific Lime & Plaster Co., of San Francisco is advertising its Acme Spray in the PACIFIC RURAL PRESS. We would advise you to read this announcement if your orchard needs spraying.

H. F. Ahrenberg, the brooder heater manufacturer, of Petaluma, Cal., has recently moved into a new factory building, constructed of steel, and is materially increasing his stock of stoves and brooder heaters.

G. H. Brittain, of Sebastopol, Cal., has recently purchased acreage near that place, and is erecting buildings for an extensive hatchery with a capacity of 50,000 chicks. He will cater to the demand for the leading egg producing breeds.

Do not overlook the change in the advertisement of the Alfalfa Farms Co., 430 Monadnock Bldg., San Francisco. If any of our readers are seeking alfalfa lands in California, we can certainly refer them to the Alfalfa Farms Co., and believe they can furnish the properties that will yield in abundance.

From Arctic to Tropics in Ten Minutes



No oil heater has a higher efficiency or greater heating power than the

PERFECTION Oil Heater

(Equipped with Smokeless Device)

With it you can go from the cold of the Arctic to the warmth of the Tropics in 10 minutes.

The new

Automatic Smokeless Device

prevents smoking. There is no possible question about it.

This means greater heat-power, a more rapid diffusion of heat and a sure conversion of all the heat-energy in the oil.

In a cold room, light the heater and in 10 minutes you'll have a glowing heat that carries full content.

Turn the wick up as high as it will go—no smoke—no odor.

In everything that appeals to the provident and the fastidious, the Perfection Oil Heater, with its new automatic smokeless device, decisively leads. Finished in Nickel or Japan in various styles.

Every Dealer Everywhere. If Not At Yours, Write for Descriptive Circular to the Nearest Agency of the

STANDARD OIL COMPANY
(Incorporated)

The Fresno Nurseries are sending out beautiful calenders for 1910. These are of different design, and are attractive in every way. The hundreds of customers of the Fresno Nurseries would, we feel sure, be quite welcome to one of these pretty souvenirs, by requesting the same in writing, to their main office, Fresno, Cal.

H. M. Sanborn Co., nurserymen, of Oakland, have an attractive announcement in the PACIFIC RURAL PRESS. This nursery is managed by W. S. Harmon, well known among the leading seedmen of the Coast, who is building up a strong trade for the stock they advertise. The Sanborn company is making a specialty of bulbs, and very attractive ones, too.

The new and elaborate catalogue of the Geo. E. Dow Pumping Engine Co., illustrating centifugals, is just off the press, and is a feature worth having. Since the completion of the new works in Alameda, the Geo. E. Dow Co. has gone extensively into centrifugals, and their new patterns are both durable and unique. Mr. Geo. A. Dow, the manager, will be glad to mail a copy of the new catalogue to all who are interested and will apply.

A new oil burning heater for brooders, embracing a burner and a stove, of neat pattern, is being manufactured at Petaluma, Cal., by Messrs. D. W. Jamieson and George Riley, Jr., which is called The Eureka. The system creates and consumes gas from distillates, is said to be perfectly safe, and reduces expense over the ordinary very materially. Already the demand for The Eureka Burner and Brooder Heater is apparent, as several sales are recently reported.

The Western Light & Heat Co., of Oakland, Cal., managed by Mr. Boysie, is working up a splendid trade. Their heater is a success wherever introduced, and is awakening a lively interest with the people. It has been advertised through five issues of the PACIFIC RURAL PRESS, and over 25 inquiries for catalogues from this announcement have been received by the management. Manager Boysie is pushing his enterprise with a vigor that bespeaks success.

"The Kodak on the Farm," is a feature advertised in the PACIFIC RURAL PRESS today, and is promoted by the Holden Drug Co., of Stockton, Cal. Every farmer or horticulturist should peruse that announcement, as the idea that horticulturists, poultry keepers or nurserymen can use a kodak to advantage on his premises. The Holden Drug Co. is making a strong drive on this kodak feature, and is quoting prices that ought to interest every enterprising ruralist.

A note from G. A. Murphy, of Perkins, Cal., states that after the California State Fair he took a car load of his Berkshire hogs to the Salem Fair and from there went to the Portland Fair, and then to the Alaska-Yukon Exposition, at Seattle. At the latter place the number and quality exceeded all expectations, the result being the use of tents and overcrowding the swine. At the four exhibitions Mr. Murphy's hogs won 90 ribbons, gold medals and breeders' and exhibitors' diplomas for premier championship. His barrows were sold at the close of the show.

SUBSCRIPTION AGENTS WANTED.

The PACIFIC RURAL PRESS wants a young man or woman in every county in the State to solicit for subscribtions. Good commissions allowed. Write us at once and we will forward necessary papers, blanks and instructions. You can make good money with a little effort.

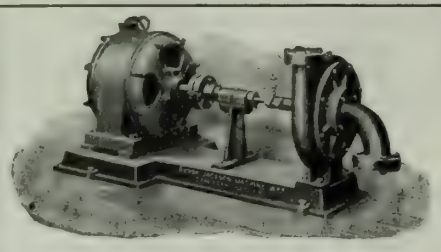
CALIFORNIA FRUITS AND HOW TO GROW THEM

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667 HOWARD STREET,
San Francisco, Cal.



A GAS ENGINE OF KNOWN QUALITY
BUILT IN CALIFORNIA RUNS EVERYWHERE
THE "STANDARD"
Stationary, Pumping, Hoisting and Marine.
Endorsed by the U. S. Government Continually.—Written Guarantee.
Send for our special literature containing much valuable information which will be of interest to you if you contemplate using power for any purpose. *It's Free.*
STANDARD GAS ENGINE CO.,
SAN FRANCISCO SALESROOM 436 MARKET STREET
OFFICE AND PLANT 23rd AVENUE, OAKLAND



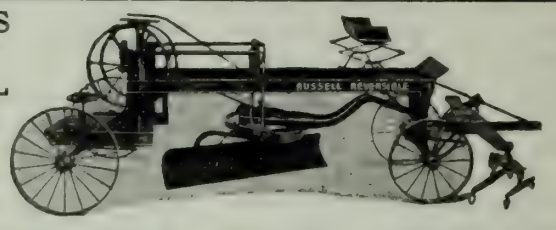
Electric-Centrifugal Pump.

Byron Jackson Iron Works
INC.
351 - 355 Market Street
SAN FRANCISCO, CAL.

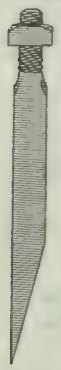


IDEAL GASOLINE ENGINES.
Water cooled—reducing to a minimum hot cylinders.
Burns gasoline or distillate.
1½ to 8 H. P.
We sell Eveready dry batteries.
LANSING WHEELBARROW COMPANY
787-9 Folsom St., San Francisco, Cal.

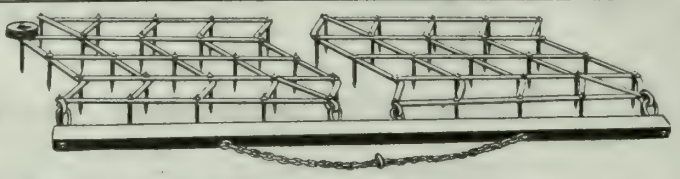
ROAD GRADERS
All Sizes
RUSSELL
Simplex, Reversible, Elevating.
SCRAPERS:
Drag Wheel Fresno



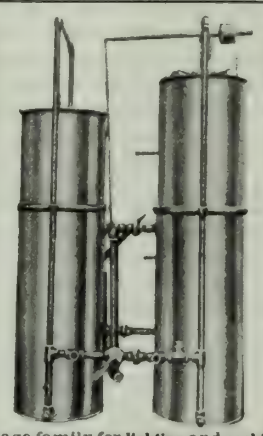
W. T. MARTIN MACHINERY CO., 1277 Howard Street, San Francisco.



See That Wheel? It is a Perfect Tree Protector.

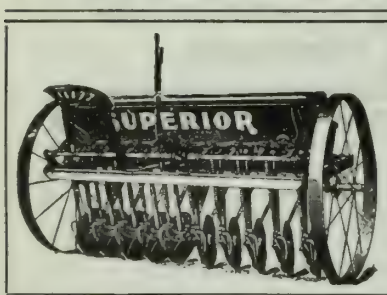


A New Steel Harrow
(Pat. March 31, 1908)
Unequalled for field or orchard harrowing. Extra strong, well made and will outlast a half-dozen of the old style harrows. It has a perfect tree protector. Made in various sizes. Satisfaction absolutely guaranteed. Write for circular and prices to
E. SWOPE, Manufacturer, Morganhill, Cal.



One of the 200 machines in California making **gas** from **gasoline** with **safety, economy** and **satisfaction** for all lighting and cooking purposes at one-quarter to one-half the cost of acetylene or electricity. The only attention required is to fill the tank with gasoline twice a year.
10 Cents Per Day
is what it costs the average family for **lighting** and **cooking**.
Write for catalogue No. 200 to the
Western Gas & Power Co.
7th and Cedar Sts., Oakland, Cal.
Agents Wanted.

TIME TO BE THINKING OF THAT WINTER TRIP EAST
Sunset Route
The comfortable way, with its luxurious equipment, high-class service, scenery and climatic conditions, offers you the leading features that go to make winter travel easy from California to New Orleans and East.
Through drawing-room sleepers. Dining, observation and tourist car service.
Over the Road of a Thousand Wonders; by the Old Missions, California Orange Groves, Palisades of the Rio Grande and Rice and Cotton Fields of Texas and Louisiana.
Ask or write our agents.
SOUTHERN PACIFIC
Ticket Offices:
Flood Building,
Market Street Ferry Depot,
Third and Townsend Sts. Depot.
13th and Franklin Sts.,
Oakland.



Superior Grain Drills
PLAIN AND FERTILIZING.
The best equipped drill offered today. Sold by us for years. Let us tell you about it or ask your dealer to order one.
The H. C. Shaw Co.,
Stockton, Cal.

PIPE—MACHINERY
Second hand, but in durable and servicable condition
AT LESS THAN HALF PRICE.
Pumps and Gasoline Engines for Farm Work. Big Bargains for all.
STANDARD TOOL AND MACHINE WORKS
1429 MISSION STREET, SAN FRANCISCO.

CAN WE INTEREST YOU IN
Equalizing Harvester Hitches,
Equalizing Plow Hitches,
—AND—
Automatic Derricks?
If not This Season, for Next?
A Postal will Bring Full Particulars.
SCHMEISER MFG. CO., Inc.
DAVIS, CAL.

WOOD PIPE
Made from California Redwood or Selected Washington Douglas Yellow Fir.

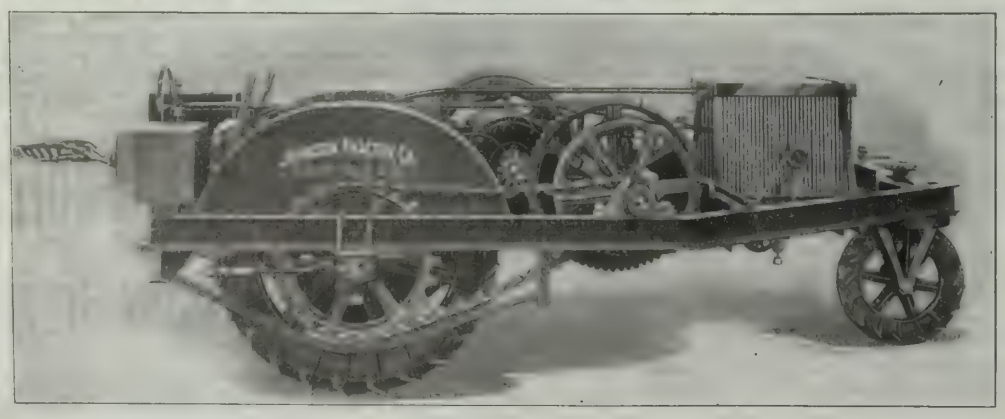
National Wood Pipe Co.
Machine Banded Stave Pipe. Continuous Stave Pipe.
SAN FRANCISCO OFFICE—318 Market St.
LOS ANGELES OFFICE—404 Equitable Bank Bldg.
PORTLAND OFFICE 210 Wells Fargo Building.
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REDWOOD TANKS
Fifty tanks from one thousand to ten thousand gallons that must be sold regardless of profit.
Fruit Boxes—Egg Cases.
Write for prices.
R. F. WILSON
Stockton, Cal.

DEEP WELL PUMPS
AND CYLINDERS
Water gates for pipe lines. Send for catalog.
POMONA MANUFACTURING CO.,
Pomona, Cal.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

THIS TRACTOR WILL PLOW YOUR ORCHARD FOR 28c. PER ACRE.



In actual tests this tractor has plowed over an acre per hour at the above cost for fuel, pulling four furrows 7 inches deep.
It is built especially for orchard plowing and cultivation and will work your land much cheaper than horses.
For further information send for catalog R.
JOHNSON TRACTOR CO.,
SUNNYVALE, CAL.

THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 23. SAN FRANCISCO, SATURDAY, DECEMBER 4, 1909. Thirty-ninth Year.

A New Large Walnut.

As the interest in walnut planting is well maintained, in fact bids fair to be even greater during the coming planting season than ever before, we take pleasure in showing portraits of tree and nut of a new candidate for planter's attention which has been named Willson's Wonder, after its originator, Mr. F. C. Willson, of the Encinal Nurseries of Sunnyvale, Santa Clara county. Mr. Willson was brought up to the nursery and fruit business in his old home in Ontario, Canada, and on coming to California nearly 25 years ago entered into California horticulture with full appreciation of the superior advantages of our local conditions. Although he has worked with nearly all deciduous fruits, his special interest was claimed by the English walnut, and for a number of years he has paid particular attention to it. He has a number of seedlings, all apparently bred alike, judging by their general resemblance, but two seedlings he has especially chosen as worthy of wide propagation. The Bijou, the French variety which is chosen for jewel cases because of its great size, seems to have had a share in the parentage of Mr. Willson's varieties. The one which he is now chiefly propagating is "Willson's Wonder," to which the engravings upon this page relate and which he has carefully tested for several years.

The original tree of Willson's Wonder is eight years old. It has borne heavily since its second year, and largely in clusters of from three to ten nuts. When grafted the trees bear right along in the nursery row as soon as it is possible to do so on its own growth of wood, maturing nuts within 18 months from insertion of graft in seedling. The tree is a strong, sturdy grower, with broad, dark-green leaves.

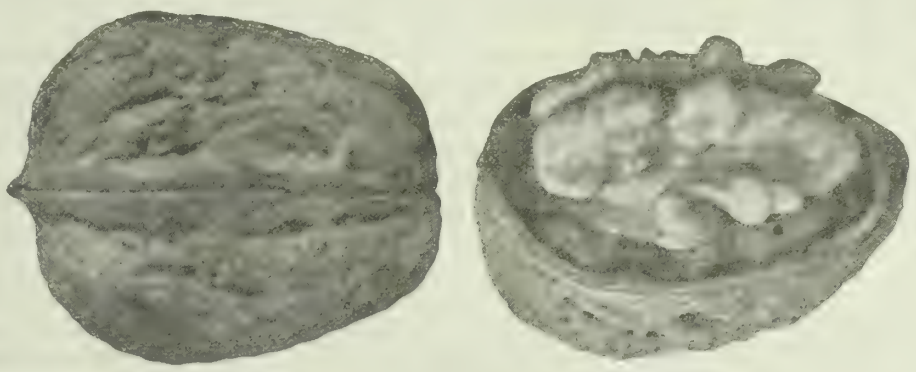
The clustering accounts for the shape being narrower at stem end, the reverse of the common walnut. It blooms and puts out foliage later than common sorts, avoiding late spring frosts. Its blooming season is about midway between the common varieties and the Franquette. The Willson's Wonder is very heavy in its male bloom, having more catkins than any of the other varieties known to its originator. Willson's Wonder is a very large walnut, specimens measuring 5½ by 6¾ inches in circumference. It has a thin shell which is very smooth for its size and well filled with a light colored, rich, sweet kernel.

One of the engravings on this page shows a tree in the nursery row, about two feet tall, with eight large nuts maturing within 18 months after insertion of graft, as already stated. Another picture shows another tree five feet tall under same conditions and of the same age, with 36 nuts matured. Still another picture shows clusters from the original tree of from four to ten nuts in a cluster. The 14 nuts side by side in row cover a three-foot rule.

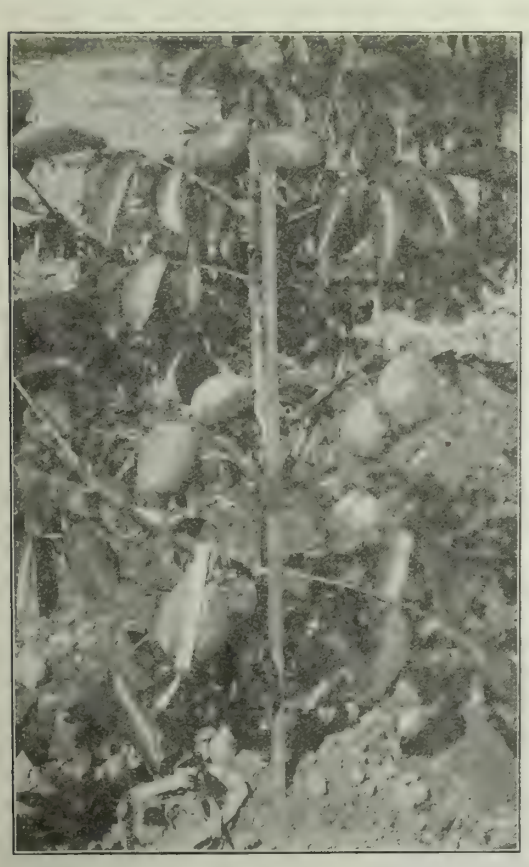
As stated, the original tree of Willson's Wonder has never failed to produce heavily every year since the second year after planting. Trees which matured nuts at 18 months have borne with increasing numbers the two succeeding seasons in nursery row, showing it to be a heavy and continuous bearer.

The quality of the kernel is exceptionally sweet and rich. Given the abnormally large size with superior quality it ought to command a very high class trade, and it appears to rightly claim the attention of planters and those who desire to graft over unsatisfactory trees.

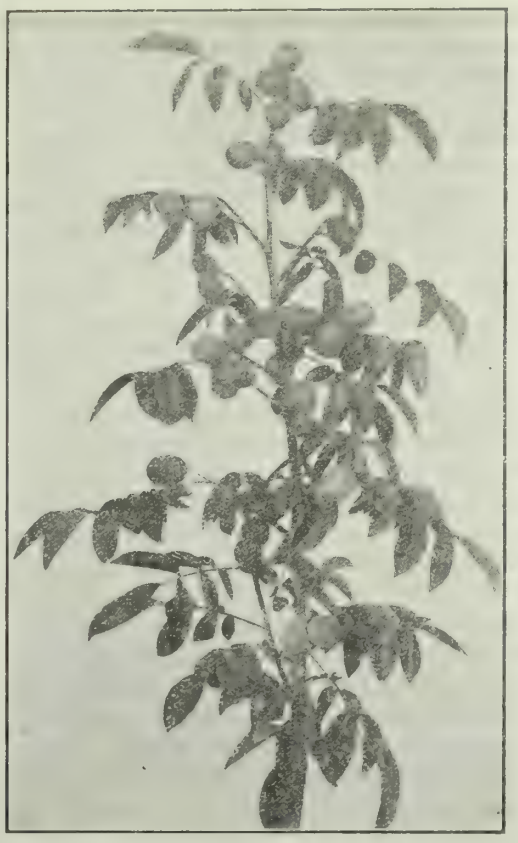
The exceedingly early and continuous heavy bearing must make it profitable to plant and to graft over other varieties to.



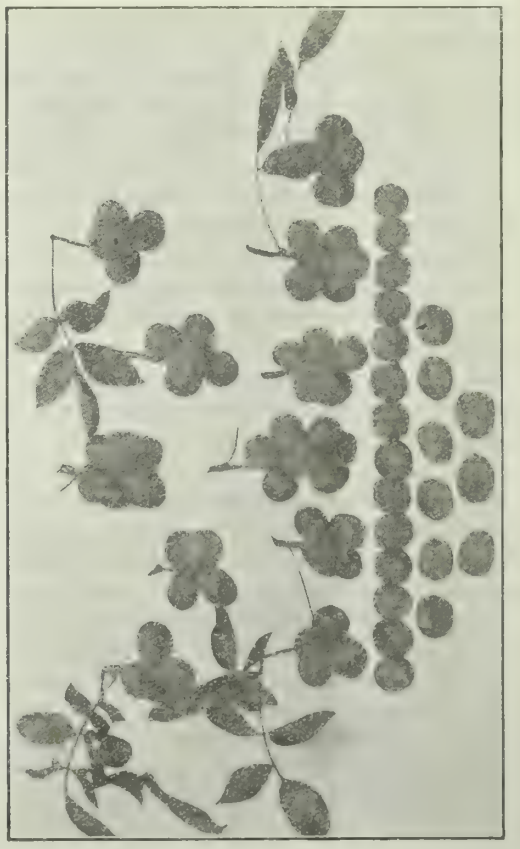
Willson's Wonder Walnut—Natural Size.



Willson's Wonder In Nursery, Less Than 2 Feet Tall, Bearing 8 Mature Nuts 18 Months From Insertion of Graft.



The Tree In Nursery Row 5 Feet Tall With 36 Mature Nuts 18 Months From Insertion of Graft.



Clusters From Original Trees at Encinal Nurseries, 8 Years Old; 4 to 10 Nuts In Cluster.

Pacific Rural Press

667 HOWARD ST., SAN FRANCISCO.

Los Angeles Office, 123 So. Los Angeles St.

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Advertising rates made known on application.

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FRANK HONEYWELL - - - - - Business Manager
GEORGE RILEY - - - - - - Advertising Manager

California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Nov. 30, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	1.26	17.37	9.64	62	36
Red Bluff	.10	3.91	5.59	66	36
Sacramento	.07	2.75	3.59	62	38
San Francisco	.31	4.45	4.06	60	43
San Jose	00	2.71	2.59	66	32
Fresno	1.22	3.49	2.02	64	36
Independence	.02	.54	1.96	68	30
San Luis Obispo	.42	2.78	3.52	72	42
Los Angeles	.84	1.82	2.31	66	46
San Diego	.94	2.40	1.35	68	42

The Week.

The autumn seems to have the making of a very good crop year, for moisture has reached advance of the normal in some cases and very widespread for both ends of the State. Still there have been no real storms yet, though apparently they are brewing. Reports from the extreme north are that not for a score or more of years has the weather been so cold. In some sections of eastern Oregon and Washington the mercury has reached the zero mark, and cattle and sheep men of eastern Oregon and Washington and some parts of Idaho have sustained some losses. In the California mountains there has been an unusually early and heavy snowfall. Although only the outer fringes of these phenomena have reached the California valleys, enough water has come to advance fall work and plain promise of enough to keep things growing. It looks as though the most advanced people might leave the weather to the Lord this year and give the rainmakers a chance to make their living by honest work.

We are especially interested in the promise of a good cereal year, because California is going to take up again the burden of wheat. While the price has been low, the farmer has wearied of effort for more wheat: "What's the use?" has been his reply; "let some one else starve growing bread for the people to eat." There is philosophy in it, but not much truth, for the wheat growers of the northern States of the coast have not starved, because they have been able to grow wheat cheaply enough to make something even at low prices. Possibly California has done better by growing barley and alfalfa and using part of the income to buy flour from the North, but that might be questioned, because California ought to grow cheaper wheat by getting more centals to the acre. It is true, however, that there was little incentive to the effort while prices were low. At present, however, it is different, and common talk in the Sacramento valley and other old wheat districts is that Tom, Dick and Harry are going to put in wheat this year to see if they can make some of the big hauls they used to get years ago. It is the high price which has spurred them to the venture; all the exhortations and demonstrations along the line of cereal improvement would move them naught if they did not catch the gleam of market gold beyond them. As it is, the old wheat regions are excited, and they cannot see and hear enough about new wheats which are more productive than the old, and already all supplies of such seed have gone into sowers' sacks. Hence a story.

There is a farmer in Yolo county who a few years ago secured a little sack of a newly introduced wheat from the University Experiment Station because he wished to see if there was a more productive wheat than he was growing. He sowed the little sample, which was only a few handfuls. He did not forget where he sowed it, and the cat did not eat it up—as happens to many whose curiosity is quickened up to the beginning point and never goes farther. He watched its growth constantly, noted its vigor, its manner of heading, its style of head, its character and weight of grain—which kept him busy at odd times all summer—and he concluded that he had something better than he had grown before. He sowed every kernel and sowed the full area they would seed the next year. The larger experiment affirmed the conclusions from the first, and again all seed was saved and a larger area sown. And so his product of this particular wheat increased from sacks to tons, and he began to sell seed to his neighbors who had discovered his secret. This year all the seed he and his neighbors could spare was sold a month or two ago for almost twice the price of ordinary wheat, and none can now be had for this year's sowing. It's all in the man and his ways. Many another man has had just the same chance and has thrown the precious seed with all its promise and potentiality where the fowls of the air have gathered it up.

But we started out to preach, not to tell stories. We are glad that this year seems now to favor a greater wheat crop for California because of the greatness of the opportunity for wheat at good prices. Just why this is true is not so easily explained as some free talkers claim. They say that the world is shy of wheat, which is probably true in a way, but not in the way they imply, because they try to give you the impression that there is really less wheat grown than formerly in this country. The facts, as cited by a writer in the Chicago Herald, seem to be in this way: "This country's largest wheat crop was produced in 1901. That was a very poor year for corn, the poorest since 1894, and in fifteen years there have been many fluctuations for both wheat and corn. We now have an estimate for the present season that would give us next to the largest corn crop in our history and the third largest wheat crop. The combination has been beaten once only, in 1906. A bumper crop of the last decade would be considered very small now." And so we are constantly growing more wheat and we are continually exporting less, which means of course that we eat more. But we are not likely to eat ourselves out of supplies for some time to come. The writer quoted above continues: "We seem to have a pretty safe margin, especially in view of the fact that the production over five-year periods is making appreciable increases. If, however, the home consumption should increase much more rapidly our own population would have the benefit of it and also have those billions of bushels of corn to fall back on."

Therefore, it appears that the outlook for good prices for wheat is on a much safer basis than the free talker assigns. If it were a question of a decline in the amount of wheat grown the issue would be very doubtful for the price would bring the crop quickly to larger amounts. But the country as a whole has been continually growing more wheat consequently has no vast vacant area to throw into wheat. The people, however, want more wheat and are able to pay for it; therefore, there will be more wheat but there cannot be an overwhelming increase in amount and the value must hold firm or advance, according to adjustments which must be worked out in experience. For this reason we claim that nothing California can do through a re-awakening in wheat can materially influence even local prices and as there is to be a good price for wheat we are glad California is to have a good year to grow it.

Writing of wheat and corn reminds us of the great granary of the United States—the central west. We are deeply touched by the accounts which come to us from that region of illimitable flatness. It seems that the sharps are among the flats—which makes queer music, we presume. The farmers are setting the town people a very bad example and following the example is breaking them all up. It is certainly not very long since other preachers than we used to scold the farmers for trying to ape city people and lighten their burdens by indulgence in a few luxuries such as city people normally enjoy. That line of preaching is apparently out of date and farmers are now besought not to flount their luxury in the face of town people. Naturally the occasion involves that pinnacle of extravagance, the automobile. A middle west banker does the talking: "It was but a few years ago when we thought the man who bought a bicycle for $150 was going in deep, but now there are hundreds of men buying automobiles who can not afford them, just because their neighbors have them. The farmer who sells enough wheat or stock to pay cash for his machine is all right, but the town clerk who mortgages his home or his savings to get a machine, and spends more than he can afford to keep it up, is taking long chances. We have refused to loan for such purposes, but, judging from the number of sales made, other lenders are not so careful." And so the farmer is ruining the town people who think they should do as well as he! Good for the farmer; let him keep it up until he gets even for all the scolding he has had. If he has the money let him blow it in! If the foolish town people who cannot keep the rural pace let them spend a little time in reflection by the way side. It will only be part payment for the jibes they have worked off on the farmer as a slow-going clod-hopper for generations past!

But there is another phase of the situation in the central west, and both sides of it probably, which is rather more serious. Farmers must not let their heads be turned by prosperity. Professor William A. McKeever, of the Kansas State Agricultural College, is preparing a set of bulletins telling the farmers how to raise better sons and daughters. He claims that farmers in the middle west are so wrapped up in the production of wheat and corn and in growing meaty steers and fat porkers that they are likely to neglect the upbringing of their children. "We have special courses in poultry raising, pig raising, and horse breeding," he said in one of these bulletins, "while parents go right on in the good old way of rearing children by guess, hearsay and superstition. As a consequence the first children in a good many families are used for experimental purposes, and though they may be well born their prospects of a useful career are often blighted forever." That certainly is too bad. Some of these refinements about bringing up children, and other related things about getting anything to bring up, are too deep for us, as a hold over from the last generation, to fully appreciate. We always wonder where the good men and women of today come from and why their "careers were not blighted forever." As for the farmers' chil-

dren of the central west who are now in such danger of being blighted we should load them all into the rural automobiles and give them the time of their lives. Of course we are aware that better things can be done for the children, but we do not like to condemn parents too much. Our observation is that most of them do the best they can and the present promising condition of our population demonstrates that the last generation was similarly actuated.

Additions to our local labor supply are being systematically sought. The other day it was reported from New Orleans that a party of 51 immigrants, the first of a series of large consignments that will be sent to California to work truck farms, passed through enroute to San Francisco, over the Southern Pacific. This is a part of a general movement that has been scheduled for California. The immigrants came from New York. Most of them were from Italy and Portugal, with a few from Spain. Railroad officials say a heavy movement of immigrants will be to California this winter.

Queries and Replies

The Isabella Regia.

To the Editor: Please give a description of the Royal Isabella grape. I find the reference in "California Fruits" is very meagre. Does this class grow in vineyards the same as the Muscat, and how does it compare with the Muscat in productiveness? What part of the State favors the growth of the Isabella? I note the Muscat seems to do best in the lower San Joaquin valley; and the Thompson Seedless in the Sacramento valley; and the Tokay between Stockton and Lodi, but I have not been able to get any information regarding the Isabella. Also let me know if the Eastern Concord grape thrives in California?—Enquirer, Alameda.

Supposing you know the old Eastern grape, the Isabella, it will be easy to recognize the Isabella regia as a glorified Isabella, similar in appearance and flavor but very much larger and sometimes rounder in shape. It does not belong to the vinifera species, as do the other grapes you mention and all others largely grown in California. It cannot be grown in vineyards planted for short pruning, as Muscats and Tokays are. It can be grown to a high stake or on a trellis, as Thompson's Seedless is. You do not hear much of the Isabella regia because it is of infinitessimal importance as compared with vinifera varieties, for it cannot be used for any of the products which we make of them. All Eastern grapes, including of course the Concord, grow well enough in California, but they are not worth growing except in a very small way for local sale or by amateurs who like them. We do not try to ship such grapes, because distant regions can grow them, while they cannot grow our leading varieties.

Treatment of Oak Spots.

To the Editor: I have a piece of land which is covered with oak trees of various kinds and which I intend to clear and plant to fruit trees. Now I have seen this done successfully and I have also seen many ugly patches where the trees have refused to thrive over a patch formerly occupied by an oak tree. What causes this difference, and is there any method of controlling it? I have heard it said that to cut down the trees at a certain season will prevent the poisoning effect but can get nothing authentic here. I shall be very glad if you can give me any information on this point. —D. E. A., Santa Clara.

There are at least two difficulties with soil which has long been occupied by oak trees. One is the fact that the plant food has been exhausted by the oak, and the other that the weight of the tree and its long settlement upon its base by the winds have compacted the soil to such an extent that it is mechanically out of condition. The cutting of the oak at one time of the year or another produces no particular effect upon the soil. Of course the decay of the roots remaining in the soil set free an acid which is destructive to the roots of many plants. The proper treatment of an oak spot then is to grub out all the roots you can afford to, and break up the soil by deep plowing and subsoiling, so as to admit rain and air as freely and deeply as possible. The application of lime at the rate of 500 pounds to the acre before plowing the land will have two effects; first to overcome the compactness, second to neutralize any acids which may form by the process of decay. It is always desirable to treat such spots liberally with stable manure, not only to increase the amount of plant food, but to increase also the humus, which makes the soil more friable and increases its moisture retaining capacity.

It seems to be quite a common observation that pit fruits, cherries, plums, etc., are more subject to injury on oak spots than are seed fruits, like apples and pears; the pears being probably more resistant than other trees.

Danger in Farm Wastes.

To the Editor: If one sinks a well to dispose of sewage, how close to that sewage well would it be absolutely safe to have a well for furnishing drinking water in case both wells happened to reach the same stratum or in case they reached different strata? How far will surface drainage carry; that is, how close to the ordinary piped well with wooden casing, say 50 or 60 feet deep, could barnyard manure be piled with safety where the soil is sandy loam?—Sanitation, Suisun.

It is impossible to say how far sewerage has to go through soil in order to have the latter act perfectly as a filter. It depends on the nature of the soil and of the underlying strata. It would not be strange if the sewerage turned into a well would contaminate wells for a very great distance, perhaps for miles, for all we know, and of course sewerage turned into underground strata is always a menace. The only rational way is to treat the sewage by means of a septic tank, so that its outflow may become innocuous. If you will send to the Hon. James Wilson, Secretary of Agriculture, Washington, D. C., and ask for Farmers' bulletin 270, entitled "Modern Farm Conveniences," you will find a discussion of this matter and a way to overcome all sewage danger.

As for movement of water from manure piles, the distance would be much less than with underground gravel strata carrying water freely, but there should be, as a rule, no manure piles. Farmyard manure should be dried out quickly by scattering in the corral during the summer, and as it is produced during the winter should be hauled out on the land which is to be winter plowed, without allowing any large accumulation, for these large accumulations not only endanger water supplies by their leakage, but the manure itself becomes less valuable because it is leached out by the rain. Manure which is broken up and dried in the sun during the summer does not lose fertility; it is only when it is piled and allowed to ferment that important constituents are lost. Therefore, for the good of the people and the good of the manure itself, accumulations should not be permitted.

No Law About Morning Glory.

To the Editor: Would you kindly let me know if there is a law by which persons are compelled to exterminate certain weeds or prevent them from spreading on others' land? The weed I am particularly referring to is commonly called "Morning Glory."—S. J., Fresno.

There are laws against certain weeds, compelling people to destroy them when they are near the borders of certain property or irrigation ditches, but morning glory is not included in any such list. So far as we know no one can be compelled to destroy it if he wishes to have his land encumbered in that way.

Tile in Irrigated Regions.

To the Editor: I am greatly interested in irrigation and desire especially to know what use is made of tile in connection therewith. Please tell me in what way they are used?—M. C., Chicago.

Various attempts have been made to use tiles for subterranean distribution of irrigation water, but though frequently tried none of these systems have come into use to any extent. Another use which is made of tiles in irrigation is to provide drainage to guard against excess of water in the subsoil. On retentive soils or tight subsoils this provision is quite as necessary when water is used in irrigation as when it comes by rainfall, to guard against soil saturation and all its attendant evils.

Cover for Gravel and Sand.

To the Editor: We have two acres of stony, gravelly land and have tried several kinds of fruit trees which have either died or lived to be a disgrace to the place. We have winter irrigation and can put the water on the place as late as the middle of May. It lies in front of the house. Is there anything in the line of a forage plant that would live on it, cover it up and make a little feed for stock?

The trouble with the piece of land of which you speak is probably its leachy and non-retentive character. You could get a good cover of sweet clover (Melilotus alba). It is a plant resembling alfalfa in general appearance, and though not readily eaten by stock is sometimes praised for that purpose by those who have animals who have acquired a taste for it. It would give you plenty of handsome verdure and will grow on sand and gravel if water enough is furnished.

Walnuts at Elevations.

To the Editor: Could you give me any information about French walnuts? In your estimation would they do well at this altitude (3400 feet)? Are they bothered by scale, etc., and do borers bother them? Would they be better if grafted on the black walnut root? Will they come true from the nut?—G. T., Eldorado.

French walnuts have been bearing well for a number of years on rather hard land near Nevada City, which is about 2500 feet elevation. We presume they would do well at your elevation, except perhaps in particularly frosty situations, for late spring frosts often knock them out of bearing. They are not so liable to scale injury as other fruit trees. The black walnut root is admirable, although the trees do come quite true from the nut, so that grafting has been less employed than with other fruits. At present, however, the advantage of the black walnut root and the desirability of varieties less subject to blight than others are inducing quite free recource to grafting.

Colors and Plant Growth.

To the Editor: I wish to ask you if a yellowish tinge in muslin would have the effect of retarding germination in seeds? We are experimenting with a view to using oiled muslin instead of glass for greenhouses, and find we shall always have a rather yellow light. Also is there any particular advantage in alternating violet and white glass in greenhouses? It is said the effect is wonderful on germination.—H. L., Los Angeles.

Oiled muslin is frequently used as a cover for propagation beds, and we have never heard of any ill effect. As a matter of fact, the yellowish color will soon disappear by bleaching and by dust accumulation, so that any effect color might have would soon disappear. We are aware that there have been many claims for different colors in propagation. As for germination, that requires no light at all. Subsequent growth may be affected by any color, but the fact that various propagators pay no attention to the matter whatever but use white light is proof that the color claims are negligible.

Horticulture.

AVOCADO AND FEIJOA.

From an address by Mr. D. W. Coolidge, of Pasadena, at the Counties' Promotion Convention at Visalia.

I call your particular attention to two new fruits that I am sure are destined to attain great commercial importance as well as to add to the sum of human enjoyment and personal well being.

The first has been growing in the southern part of the State for about 20 years, and the astonishing financial results attained from individual trees should convince the most skeptical that there is money in its culture and the wonder is that the commercial end of it has been neglected so long.

Everyone who has sojourned in Central or South America has become familiar with the Avocado, improperly called alligator pear, and I have yet to meet the person who having had access to it has not become ravenously fond of it. "It is one of the best of all tropical fruits; it is easily digested and most wholesome and nourishing. According to government statistics it contains from 13 to 20 per cent of fat, in a form that the most delicate can eat it with a relish when he cannot partake of animal fat."

It will be seen that the Avocado is not a fruit in the sense that an apple is, or the word fruit is commonly used. It is a vegetable butter and is usually served as a salad but can be used in sandwiches or as animal butter.

In contemplating any line of horticulture, the careful person satisfies himself that there is a market for his product and next that that product can be successfully grown in his vicinity. There are many valuable tropical fruits that it would be worse than useless to attempt to grow in California. There are other food products consumed with a relish in some countries that do not take hold upon the American people. Now let us see in regard to the Avocado. From Mexico and Honolulu, Avocados have been shipped to San Francisco and Los Angeles for a number of years and never sold in a retail way, at less than 35 cents to 75 cents per fruit. At these prices it is manifest that only the wealthy indulge in them, but at these prices an investigation will show that there are many consumers who have eaten only Avocados shipped from Mexico or Honolulu who do not know a real good Avocado. The California grown Avocado is much finer in flavor, perhaps due to the fact, that it can be allowed to properly mature on the tree. If it is picked too green, it is watery, and if too ripe, it is in no condition to eat by the time it reaches America from either Mexico or Honolulu.

As for market value Mr. William Chappelow, of Monrovia, reports receiving $140 for the fruit of one tree, and while Mr. Chappelow does not so state, it is known by me that a doctor in Los Angeles gets the entire product of this tree. The fact that any one will pay $140 for any single food product shows what hold it takes upon the appetite. The banner tree that has produced the record crop, in any country so far as known, is in Hollywood, a suburb of Los Angeles. From this tree last year, there were marketed 2400 fruits, that sold in a wholesale way for over $400.

If these two statements are true, and they can be easily verified, I think it proves that there is a market and a profitable one for the Avocado. The citation of these two large trees also proves that they can be successfully grown in California. We know absolutely that we can grow the Avocado in southern California, and I as firmly believe that they can be grown in any part of California where the mercury does not go below 26 degrees above zero. It is my firm conviction that the day is not far distant when the Avocado must play an important part in our daily diet.

The Avocado is a beautiful evergreen tree, growing as large as a pepper or elm tree, and is worthy a place in the finest parks or collections of trees and for this reason, if no other, should be more largely planted in regions adapted to it.

The next fruit that I wish to call your attention to, is strictly a new fruit, according to the Department of Agriculture, having been discovered in Uruguay about 1894. Feijoa Sellowiana, which for short is called Fa-e-he-a, is a fruit of the most exquisite fragrance and flavor and unlike most sub-tropical fruits, the taste for it does not have to be acquired. I have known the fruit for four years and my enthusiasm for it grows each year. In order to thoroughly test its hold on the public, I allowed some 40 people to try it. Man, woman and child, American, Mongolian, Latin and Ethiopian, and with but one exception, everyone pronouncing it the most delicious fruit they had ever tasted. The one exception, an American, said it was good but no better than many other fruits. So much for a general verdict.

Feijoa belongs to the myrtaceae family to which also belong the guavas and many other plants. The plant is a shrub attaining a height of five or six feet, quite spreading in habit. The foliage is dark green on the upper and silvery white on the under side. In its natural habitation, Uruguay, in south temperate zone, the climate is similar to that of California, which proves its adaptability to our State.

It has proven to be one of the hardiest plants we have. I am sure it will stand a temperature of 18 or 20 degrees Fahrenheit with safety, thus making it available for practically the whole State of California. The plant has also proven its almost entire immunity from insect depredation.

In analyzing the flavor of the fruit, pineapple, banana and raspberry are detected, the pineapple flavor predominating. The fruits range in size from an inch to two inches in diameter, usually oblong, of a greenish color. The flesh is white and something the texture of the apple, except the seed cells which are of a pulpy consistency. Ordinarily the fruit ripens about the middle of November.

The seeds are almost microscopic and one does not detect their presence in eating the fruit any more than in eating a banana.

The Feijoa contains enough acid to insure its cooking quality. In fact, the fruit of the Feijoa can be used for every purpose that an apple is used, and I perdict that when this fruit can be obtained at a reasonable price, it will take precedence over any fruit we now have for fresh consumption or preserving for winter use. There is no fruit known to me that emits the pleasant odor of this fruit. A small vessel of ripe fruits will fill an ordinary room with perfume.

FROST DAMAGE PREVENTED BY COVERS.

Prof. A. G. McAdie, of San Francisco, in the *Weather Review*, of the U. S. Weather Bureau.

A recent letter from Eastern Agricultural College, Wye, Kent, England, brings up the question whether it is the heat or the smoke developed by the fires and smudges of frost-fighting apparatus, which prevents the damage by frost in orchards, vineyards, etc.

The great mass of experiments made in California orchards show that direct heating of the air by open fires has not been sufficient to prevent injury at times of very low temperatures. A large amount of the heat thus produced is wasted; the efficiency of the method is low. This is illustrated by the following experience of a gentleman who is a close observer, an earnest student of the problem of frost-protection, and one in whom I have the greatest confidence. During the night of December 20-21, 1908, on a certain California ranch, the temperature for 14 hours ranged between 19° and 24°F. For 36 hours the temperature did not rise above 28°. During this night the gentleman referred to burned 15 cords of wood and about 40 tons of wet hay in his efforts to protect his orchard. The relative humidity was low, there was little movement of the air, and he reports that "the smoke rose as straight as a pine tree." At the intersection of two roads in the orchard a large fire was maintained, and 30 feet distant the temperature in an olive tree was observed. Another fire was burning within 20 feet of this tree on a second side, and on yet a third side was a third fire maintained within 25 feet of the same tree. The temperature at the tree, however, remained at about 20°F. from 3 to 8 a. m. of December 21. This was the coldest weather in this locality since 1888. It is evident that in this case a large amount of heat escaped without producing the desired warming effect, i. e., was lost, wasted. It is, of course, well known that the rate of conduction of heat through air is low.

Other evidence has led me to the conclusion that open fires of coal, oil, etc., in wire baskets, in pots, on the ground, or indeed any source of heat will not, unaided, serve to protect plants under severe conditions. The oil pot is objectionable both because of its low efficiency and because the soot from it may settle on the fruit. The briquette has similar drawbacks and also is troublesome to ignite. The small sheet-iron stove is more satisfactory and the heat radiated by it is not lost to the same degree that it is from other devices. It has the additional advantage that it warms the air near the ground whence by a step-to-step process the heat is conducted to the higher strata, i. e., those 10 to 16 feet above the ground, thus affording protection to the branches of the deciduous fruit trees also.

The ideal method of frost protection is a combination of a cover device and a heating device. The cover, properly placed, prevents the excessive loss of heat from the soil, plants, and objects beneath it, and it may be stated that the heat energy involved is much greater than that given for the same area by a number of brisk fires burning for hours. By conserving the earth's heat we employ the very cheapest heat energy that can be obtained, notwithstanding the initial expense of the cover. A proper cover is, in my opinion, the most effective means of protection against injury to plants from low temperatures. Furthermore, the locations most subject to frost are the low points, vales, hollows, and depressions. Elevated valleys shut in by hills are especially bad. We now clearly recognize that the conditions of air drainage must be studied for any given locality. Many investigations could be quoted proving the correlation of low temperatures with the low levels. Consequently a cover spread some feet above the surface where there is a particularly frosty spot would by its mechanical interference with the flow of the air, as well as by obstructing the radiation of heat, prevent injury by frost.

It is my opinion that those who claim that "heat and not smoke" is what prevents damage from frost, are not altogether correct in their statements. The pots for open coal fires are effective only in part and over quite limited areas. For low temperatures the proper method is to use a cover, and supplement this if necessary, by small stoves and shallow pans of hot water.

Fruit Preservation.

ECONOMIC ASPECTS OF FRUIT CANNING.

From an address by Mr. C. H. Bentley, of the California Fruit Canners' Association, at the Counties' Promotion Convention at Visalia.

In the beginning, it has seemed that whenever a community produced more fruit than it could consume locally or dispose of to advantage locally, the common thought seemed to be that a cannery would be the happy solution to all of their troubles, and, about this time, it not infrequently happened that some promoter of canning machinery would come along, explaining the ease with which fruits could be canned, the nominal expense at which a plant could be erected, and the large profit to be made in the enterprise. Under these conditions the growers, the local merchants, and even the bankers frequently participated in a sort of co-operative plan for establishing a cannery—only to find later on that after all the cost of the green fruit, indeed, the cost of the plant, was comparatively small item of expense, when contrasted with the very much larger items of labor, sugar, and the cans or containers. Few people seem to realize that these items of expense are actually more than the fruit which goes into the cans, and, when the goods are manufactured, and have to be carried for a considerable period of time, with interest running, it must be realized that a large investment was involved before the shareholders realized what conditions confronted them. The usual solution of this difficulty has been that some few of those interested have gotten together and have operated the plant on a thoroughly business-like basis, instead of the rather indefinite plan usually suggested by the promoter who sold the machinery. In the beginning, the idea has usually been that the grower will be able to get top prices for his fruits, the local grocer will be able to get a profit on his sugar, the local dealer in hardware would supply the nails and other things of that kind—in fact, all of the stockholders looking for some individual benefit in the enterprise, instead of endeavoring to conduct it as a strictly business proposition, on its own merits. In its final condition, the plant has profited or lost, according to its location with re-

spect to desirable canning varieties of fruits or vegetables, and with respect to the ability of the manager in charge. That is to say, where the enterprise has been run on its merits.

Special Canneries.—The business may be said to have passed through this stage at the present time, and is now in a condition where it is specializing more and more. Instead of endeavoring to pack the complete assortment at any one point, by shipping in fruits and vegetables from a greater or less distance, it is now becoming more and more necessary to pack the products where they are grown.

The competition for the highest quality required by discriminating buyers, now makes this action necessary and canneries are frequently located and operated exclusively on some one variety, such as asparagus, peas, or peaches, and the vast improvement in the quality of canned goods has largely come from this specializing and the handling of the products when they are fully matured and full flavored, and handling them so quickly that they are not injured in the short space of time which intervenes between the harvesting and the packing of the goods. The direct result of this specializing and the consequent improvement in the class and character of the goods, is that the best hotels and restaurants are using canned products every day in the year—whether the fresh fruits are in the market or not—simply because they are better and even fresher than the so-called "fresh" product, bought on the market in a dirty, withered condition, days after being picked.

Preservatives are Not Used.—Ever since the passage of the National Food and Drug Act, there has been a great deal of careless comment with regard to the use of inferior products in canning and the use of chemicals as an offset to preserve the products. It should be clearly understood, therefore, that no canner of fruits or vegetables uses a perservative or chemical of any kind, other than a little sugar or a little salt for flavoring. There is absolutely no need of going to this expense, and no need of using such things for preserving purposes. The goods are kept by cooking or sterilization, just as they are in the kitchen of the good housekeeper.

From the very nature of the case, these goods cannot contain decayed matter or fruits and vegetables containing germs. Of course, after the can is once opened, the product will deteriorate, just as any fresh fruit or vegetable would deteriorate and decay, but, if the contents are used immediately after opening, no difficulty of this kind arises. It is realized by the best physicians, as well as those in charge of the army and navy rations, that canned fruits and vegetables, are not only more nutritious, more convenient, more economical, but more wholesome than the ordinary so-called fresh fruit and vegetables.

Under these circumstances, it will be asked why the industry has not developed more rapidly. To be sure, it has already reached very large proportions, but in the last few years has not increased in any such degree as in previous years. The output in California at the present time is, approximately, 120,000,000 cans per year, and it is a curious and interesting fact that, when one considers the billions of cans, literally, which have been sold all over the world in the life of the canning industry, there never yet has been an authentic case of anyone injured or distressed, much less being poisoned, by the use of California canned fruits or vegetables.

Selling Canned Goods.—There is one other thought which may be of general interest to all of those interested in fruit growing, and that is the market conditions which prevail from year to year on all of our California fruit products. As a matter of fact, we are all of us—both in the canned and dried fruit industries—depending upon the wholesale grocery trade to distribute our products, and yet, in many seasons, we have failed to secure a proper interest and co-operation on their part, simply because we did not establish a firm and stable market. The wholesale grocers are conducting their business very differently from what they have in past time. They are now accustomed to get early, advance prices on the products, as soon as the crops can be fairly estimated, give these prices to their salesmen, and book orders for fall delivery. They begin buying as soon as these orders come in, and usually keep their buying at an equal pace with their selling. Now, of course, it stands to reason that, unless he has confidence that the market is not going to decline, he is not going to take the proper interest in the selling of his goods, and neither are his salesmen. They are more likely to turn their attention to other things which can be readily sold, where dealers generally have confidence in an advancing market. Under these circumstances, it is absolutely essential, in the beginning of the season that, whether we are offering raisins, or dried prunes, or canned fruits, the confidence of the wholesale grocery trade should be secured by putting the price low enough so that he can sell without fear of competitors who will be quoting at a lower price. Once he starts selling, his salesmen will continue to sell and a very much larger volume of business will be done than if the market is simply at a standstill, or declining. We have had a good instance of this condition in the markets of the present season. Fortunately, the canned goods prices which were put out were put out on a very low basis, as it was felt necessary to secure the interest of the wholesale grocery trade in this way. It worked out to the satisfaction of all concerned, for the simple reason that once the selling season was on, business developed and prices were gradually advanced, quickening the interest of buyers and resulting in a volume of business which has enabled the canners very generally to clear up their pack of goods.

It is obvious that the talk of reducing prices cannot reasonably be accepted by an individual grower, who should not be expected to sell his own crop early at low price, so that his neighbors can sell later at a higher price. On the other hand, it should be remembered that the man who offers the highest price at the outset of the season is not necessarily the man who is doing the best for the producers in general. The difficulty suggests at once the value of the California Promotion Committee, which has been and is, doing so much good for the producers of California, as well as the distributors, in sending reliable information throughout the world, relating to our products and natural resources, correcting false statements relating to them, and encouraging, all the time, an interest in things Californian—to the general welfare of every person concerned, as a farmer, manufacturer, merchant, taxpayer, or consumer.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

To plow deep or not to. Each has its earnest advocates, but, after all, isn't it simply a question of soil condition? The grower with a deep, loamy or sandy soil can surely go deeper than the one who has but a few inches of top soil. I was talking with a grower recently who says that his top soil is thin, and he says that he never plows at all, but uses a disk harrow instead. He says that his feeder roots are but four to six inches under ground, and that to cut them all up with a plow would be to murder his trees. He has owned the grove but two years, and while the first year he had a very light crop, the second, which was last year, and of course a year of heavy yield all round, he picked 8000 field boxes from nine acres, the trees on four acres of which were six-year-old buds and the balance larger and older. He considers this a phenomenal yield, and it means in the neighborhood of 13 cars of fruit at 400 boxes to the car.

I noticed when in Tulare county recently that very few of the growers were using cover crops. I asked several growers about this and found that there was a general indifference on the subject or a belief that the use of cover crop was of no particular value; at least that up to this time the virgin soil of that section had not begun to feel the need of this form of fertilization. In the south the need of cover crop for increasing the productiveness of the soil has long been recognized, and most of the growers believe that as a factor in the raising of citrus fruit the importance of cover crop cannot be overestimated. Not only is a cover crop believed to improve the soil condition by giving or aiding the tree to obtain its proper amount of nitrogen and adding humus and organic matter to the soil, but it gives protection to the surface soil by stopping improper evaporation, preserves plant food already in the soil and on heavy adobe land is invaluable in rendering the soil workable and prevents washing of side hill lands during heavy rains.

An authority says: "The addition of humus to the soil is most beneficial, although differing in its action on different soils, a sandy or gravelly soil being made darker in color, holding the moisture much better than a soil that is deficient in humus, while a heavy or clay soil becomes more porous and friable."

I asked a grower who is an enthusiast on cover crop how he sowed the seed for same, and he replied by telling me what not to do. He said: "Never broadcast, because such a percentage of the seed remains upon the top of the ground that practically two-thirds of the seed is lost between irrigations, and so I always drill at least three inches deep and sow in the furrows." This does not agree with the method of another authority, who says that "it is best to level the ground well and sow broadcast, furrow with a three-shovel furrower, roll and irrigate by running the water in the furrows, which should be two or three feet apart. Irrigation during the winter will not only increase the yield but benefit the orchard. It should be plowed under when about to blossom, as if permitted to grow longer it becomes woody and does not turn under well or decay rapidly."

All citrus fruit men were surely pleased at the decision rendered by Judge Morrow in the United States Circuit Court held at Los Angeles this week. The railroad men had petitioned the court to set aside the injunction granted temporarily to prevent them from collecting the increase in the lemon rate from $1 a hundred pounds to $1.15 from California to the East. The judge not only refused to dissolve the injunction, but told the attorney for the corporation that he did not believe that Congress would have increased the tariff rate on imported lemons if it had been thought that the railroads were to try to grab one-third of it. The fight against the raise is being fought by a combination of the citrus fruit growers called the Citrus Protective League, and it will be carried to the highest court in the land, no matter which side wins the preliminary skirmishes, it being predicted that it may be five years before the matter is finally settled. In the meantime the growers are obliged to put up a bond of $250,000 to cover the extra 15 cents a box in case the railroad wins, they only collecting the $1 rate in the meantime. It is understood that all lemon shippers who are not a party to the restraining injunction are protected from the extra charge, provided they join in bearing the costs, but those who are not members of the league will be obliged to put up their own bonds. Weekly reports will be made by all lemon shippers who are in the league, showing the number of pounds of lemons shipped, and they will be required to put up the extra 15 cents a hundred with the league, the sum thus collected to be deposited in the local banks throughout the citrus belt. If the railroads fail to maintain the $1.15 rate before the Interstate Commerce Commission, whither the case is to be taken as soon as possible, this money will be returned to the growers without any trouble, whereas if it had been paid direct to the railroad companies it more than likely would not have been returned without a lawsuit, for they hate to give up anything they once get into their possession.

The orange rate and also refrigerator rates will also be taken before the Interstate Commerce Commission. The growers are not asking for any specific rate in either of these cases, but are just asking for a review of conditions and that an equitable rate be applied.

One hundred and thirty citrus exchanges, associations and companies are plaintiffs in the action to be brought before the Interstate Commerce Commission, while practically every railroad in the United States and many steamship lines are made the defendants. This includes every line that joins in transcontinental freight tariffs.

Even if the growers win in their fight it has cost them much time and money. It may be years before the case is finally settled, and in the meantime the money to make good the bond is tied up and drawing no interest. If the law were to the effect that the burden of proof rested upon the railroads and they were required to show that an increase was justified instead of the shippers having to prove that it was not justified, this state of affairs could not be, as the raise could be suspended by the Interstate Commerce Commission pending inquiry into its justice.

California Vegetables in Garden and Field

By E. J. WICKSON, of the University of California.

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It may be possible to make such prescriptions in more steady-going climates but in our diverse local climates, which are either forcing or retarding, according to localities, and according to times of the year in the same locality, it is impossible to say just when a crop planted at a certain time should be hoed or cultivated, trained up or gathered, and the ground cleared up for other uses. All such acts will be omitted from our California garden calendar. Let it be understood rather that the grower must be always on the alert to do certain things without suggestion from any one, viz.:

First: Stir the ground as soon as it will take tools well after the young plants have appeared above the surface, and thin the plants in the row to allow proper space for attaining good size.

Second: Continue stirring afterwards whenever the soil works well, for weed killing if there be any; if not, stir the surface just the same.

Third: Continue stirring so long as the cultivator does not seriously injure the plant by breaking its stems and foliage, and then use the hoe carefully to prevent the ground becoming compacted near the stem in places not reached by the cultivator.

Fourth: Keep the condition of the plant constantly in sight and thought, to train or trim its growth to attain best results. Such treatment for each plant will naturally be noted in the place devoted to its special consideration later.

Fifth: Watch for the attainment of such degree of maturity as makes each plant most desirable for food purposes. The slack gardener is apt to allow his vegetables to become stale or over-ripe in the rows, and in that way miss their best estate.

Sixth: Gather promptly and dispose of each, either by eating or selling, when it reaches this condition and quickly clear away the remains of the growth for stock feed or for the compost heap. Do not allow the plants to stand for the purpose of gathering seed from the culls which are rejected at picking. Select the earliest and best specimens for seed if any seed is to be saved. It is, however, only in exceptional cases that the farm gardener should save his own seed. It is better to buy up-to-date varieties from those who make a business of selection and improvement of garden varieties. Keep the garden always clean and ready for something else. It is a mistake to let the garden lie neglected until the time for a spring revolution and upheaval, like that which Eastern gardeners are forced to content themselves with. Of course the error of stirring the soil when too wet must be carefully guarded against, but there is much beside digging involved in gardening.

Seventh: Irrigate, if necessary, and work the soil as soon as it works aright. Do not lose moisture by allowing the surface to become hard. No matter whether the ground is to be used for an immediate succession or whether it is to lie for some time, break up the surface and make it fit to receive water or retain water, as the case may be.

These timely and important acts will not appear in our calendar for the reasons first stated. They are always in order in California, and if a man has to be told more than once to do them, there are serious doubts of his ever having been called to be a vegetable grower.

CALIFORNIA CARDEN CALENDAR.

As appears in the chapter on climate, the timeliness of certain operations in California is not regarded by geography nor latitude, but by topography and environment, by moisture-conditions, either natural or acquired, and by the beginning and ending of the frost-free period. The broken country of the northwest quarter of the State, and the mountain elevations everywhere which are liable to snowfall, constitute regions which differ from the Coast valley, interior valley and foothill regions both north and south, and are, therefore, to a certain degree out of our calculation, though an effort will be made to include some recognition of their practice. The outline to be made of timely work is intended to cover the State in all parts except where wintry conditions in greater or less degree intrude.

Our seasons, shading into each other without striking division lines, make it necessary to select a somewhat arbitrary point of beginning for a garden calendar. The point midway between the closing of one rainy season and the beginning of another is, by virtue of its drought-and-heat-effects on the rainfall garden, and its heat-effects even on ground kept moist by irrigation or underflow, the time when garden growth is about at its lowest point. It is also a time when preparations are to be made for the earliest sowing. The arrangement is somewhat arbitrary, as confessed above, but it accords best with all matters involved to look upon the month of July as the beginning of the California year in vegetable growing.

JULY.

On ground moistened anew by underflow from rising rivers or by percolation from irrigation ditches on higher orchard slopes, or on land cleared of an earlier crop, irrigated and well worked, it is possible to plant vegetables in July for late fall or winter use. String beans, carrots, corn, parsnips, potatoes, salsify, squashes, turnips, etc., will all come on rapidly in the interior heat, if adequate moisture is furnished and frosts are reasonably late. Melons are also successfully thus sown and with heat enough will mature in September from July planting. Near the Coast or in the interior, with shade, cucumbers, lettuce, radishes and other salads will thrive. Cabbage and cauliflower seed sown in proper beds or boxes, soon gives plants for later setting which will mature for Christmas and on through the early winter.

AUGUST.

Corn and potatoes planted in August may still have time to reach satisfactory condition of maturity, except where frosts are expected early. Cabbage and cauliflower seed will give plants for proper winter succession; turnips on irrigated ground will also give winter crop. Onion seed may be sown for sets. August is a sort of divide in garden work. It is rather late to sow for fall use and rather soon to sow for winter use, and still August planting is practiced by many where local conditions take kindly to it.

SEPTEMBER.

Planting must still proceed upon moisture by irrigation, and planting for early winter use is still in order. Peas started with irrigation and carried until rainfall is adequate, will be ready for Christmas in regions where only light frosts occur, for peas are quite hardy. Cabbage and cauliflower should be sown in the seed-bed for succession of plants—in some places they grow slowly and can be taken out for planting until February. Beets and salsify will start for early summer use, and potatoes for the holidays. Lettuce and onions can be sown in place or plants may be grown in a seed-bed for planting out after the rains come. In strictly frostless places, string beans, egg-plant, and tomatoes are planted for very early crop.

OCTOBER.

It is still time to plant cabbage, spinach, onions, lettuce, and turnips for mid-winter and spring use. Peas of early variety will still make the Christmas table in a favorable locality. Beans, egg-plant, and tomatoes are still sown for early crop in frostless places.

NOVEMBER.

Still plant for succession. Peas, lettuce, cabbage, onions, beets, spinach, salsify, turnips. The Coast valleys are now usually moist enough to carry all these hardy vegetables without irrigation, for late winter and early spring use. Asparagus roots are in shape for planting. Potatoes, beans, egg-plant and tomatoes are planted in frostless places for early crop.

DECEMBER.

The higher lands of the interior valley are usually ready for the rainfall garden. Beets, cabbage, cauliflower, carrots, lettuce, onions, peas, radishes and turnips are hardy, though some roots sown at this time will in some places go to seed in the spring instead of enlarging. Potatoes are planted on slopes, well out of hard frosts. In northerly coast valleys the soil is often too cold and wet to make seed sowing wise. In such places the growth gets a poor start. This depends greatly, however, upon the character of the rainy season for that particular year.

JANUARY.

On warmer, drier valley lands in regions of light rainfall or on protected hillsides, plantings of beets, cabbage, carrots, peas, turnips, lettuce and onions are usually wise. In colder regions lettuce and onions and radishes are hardy, and thrive if raised out of the wet, and cabbage, cauliflower, pepper, celery, tomato seed should go into seed-beds to grow plants for later planting out. It is the first great potato planting month for regions of light rainfall or on warm, well-drained slopes in regions of heavier rains. But on low valley lands in wet regions, January is often too stormy and cold for open-air work, as has just been said of December.

(To be Continued.)

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GOVERNMENT WORK WITH FILAREE.

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Many stockmen have endeavored to introduce it upon their ranges, and in most instances their efforts have failed. The cause of this failure is now found to lie in the fact proven by tests made by the Bureau of Plant Industry that the seed sold by seed firms seldom has over 10 per cent germinative power, and that nine-tenths of the seed sowed is worthless.

The United States Forest Service has been in receipt of many requests for the planting of alfilerilla upon spring ranges within the national forests, and has decided to act upon them. Tests having proved the impossibility of securing satisfactory supplies of the seed through the ordinary channels, A. W. Sampson, plant ecologist, was detailed to the work of securing a supply that would meet all requirements.

Beginning his investigations upon the sequoia forest in California, he discovered that by setting aside suitable tracts upon which the plant was abundant and watching its growth seed with a germinative power in excess of 90 per cent could be secured in large quantities and at a cost much below the prevailing market prices. As a result of his investigations the Forest Service has arranged to set aside certain tracts in the Southwest this fall for the purpose of cultivating and collecting alfilerilla seed.

The seed thus secured will be used to reseed overgrazed and otherwise depleted ranges within national forests, and it is planned to introduce the plant upon many dry ranges to which it has hetherto been a stranger. The success of this movement means much to the stockmen using national forest ranges. In the Southwest many a stockowner has been saved from heavy loss or even absolute ruin by the alfilerilla that covered his spring ranges at a time when other early feeds were lacking, and sustained his cattle until the advance of the season produced other sources of feed supply, and it is probable that the plant will be as valuable in other portions of the country.

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GRAPE POMACE AS A FERTILIZER FOR RHUBARB.

Written for the PACIFIC RURAL PRESS.

What everybody says can't be done seems to induce many thoughtful, and in some cases heroic, minds to attempt. It is this characteristic that is daily moving the world, is evolving development, prompting the desire to know the reason why the impossibility exists, and remove the cause. The experience of Mr. J. B. Wagner, the well known nurseryman and rhubarb specialist of Pasadena, Cal., with grape pomace as a fertilizing quality on rhubarb demonstrates a genius for successful results, even at the alleged danger of ruining his whole crop, and deteriorating his land for several successive seasons. Mr. Wagner has an extensive investment on about twenty acres of nursery land, including the acreage of crimson rhubarb, that for a year has been well advanced, and for which at almost the incipiency of his start with the rhubarb he refused $5000 for the crop, as it stood, several years ago. The problem that Mr. Wagner, as all other nurserymen, has to confront is that of a system of fertilization that will bring out the full vitality and strength of his product. Prior to the experiment recently undertaken with grape pomace he had tried several fertilizers and had really fallen back on horse and cow manure as the most effective and available in promoting the full life giving qualities to the crimson rhubarb. The relative values of these manures favored, by a large percentage, cow over horse manure, and some effective results were attained with these, but yet the difference was so perceptible that Mr. Wagner saw the real benefit, as far as it went, lay in the merits of cow manure. The percentage, however, compared to possibilities, with the cow manure did not satisfy in its completeness, and he entered upon a series of experiments that suggested to him the effectiveness of grape pomace. His immediate friends in the same business, the nursery owners, as well as the proprietors of wineries whose opinions were sought, had warned him against an attempt to utilize grape pomace—"it would destroy his crop and unfit his soil for year to come." Everybody said so, everybody's opinion was unanimous. However, none of them had tried it—but they knew it would.

Situated a short distance from the Wagner nursery in East Pasadena is a winery that is in regular operation, and here grape pomace was strewn about the property, an unused refuse. Mr. Wagner noted that wherever this pomace was piled in large heaps around the winery, vegetation was to a large extent stifled. The ground was almost barren and non-productive. The winemaker pointed to this feature, and repeated a warning that its application would destroy the usefulness of the soil and destroy his crops. Still skeptical as to these warnings, Mr. Wagner experimented the more. He examined the slope of ground on the south side of the winery, and noted that in the course of a little stream that during the moist season trickled through this pile of pomace and sought its level at the bottom of the slope, vegetation and foliage had a streak of strength and fullness along the bed or channel of this little stream that carried off the moisture from this bed of grape pomace. This discovery practically clinched the Wagner theory as to the beneficial features of grape pomace as a fertilizer. He resolved to experiment at any cost. Several loads of this old grape pomace was hauled from the winery to the nursery. It was applied to vacant ground side by side with land fertilized with the same amount in weight of cow and horse manure; it was all given the same care and attention afterward and put in fine shape for planting, and all planted at the same time.

With this experiment very young seedlings were planted. The proportion of land covered by each of the three fertilizers is about the same, and equal attention has been given in each experiment. The difference all around so far this season is about 33 1-3 per cent. Grape pomace as a fertilizer reaches the higher ratio of perfection with cow manure a second and horse manure a third; pomace about 1½ times the value of cow manure, about 2½ times the value of fresh horse and 3 times the value of well rotted horse manure. In every detail of development the plant shows this ratio, including strength, size of stalk, texture and color of leaf, and the full crimson color that the grower must attain to the stalk to bring out the full virtue of the strain or variety. Results have more than justified Mr. Wagner in this case and he really begins to feel that he sees the day ahead for 100 per cent perfection in his product. In this experiment, however, Mr. Wagner was apparently baffled in one instance for a time when it seemed as though he would sustain heavy damage to a large bed of crimson rhubarb where the application of the fresh grape pomace fertilizer had been made to a well advanced crop. The same care was accorded as to the bed of seedlings mentioned above. In this case quick death and discoloration fell to the lot of the product, beautiful stalks over an inch in thickness quickly died and fell away. The aspect was for a fort night or more appalling to all except Mr. Wagner, who expected relief from this condition from the root of the plant. His expectancy proved well founded, for in each hill or plant a new and larger stalk, blushing crimson from root to surface, is rapidly coming up. It is an interesting feature, in the fact that Mr. Wagner apprehended this annihilation and the subsequent appearance of a more healthful and vigorous crop as a substitute. Careful study had prompted this expectation, and disappointment did not follow. The annihilation of this bed of rhubarb, had it not been superseded by a better and stronger crop, would have cost several thousand dollars. The reason for the wilting and ruin to the crop of stems then ready to gather was due to the alcohol fumes rising from the fresh pomace applied directly from the press at the winery. The fact that to apply it fresh will, like sulphur fumes from our fruit dryers, kill every green thing above ground that it touches, seems to be the only reason why so many claim it fatal to crops and ruinous to soils if applied thereon in quantity, and experience demonstrates that for a herbaceous growth old pomacé can be applied on the crop at any time, and fresh at a time when injury to young growth is non-essential or when no crop is on the ground to be injured, and either is, from a fertilization standpoint, vastly superior to the best barnyard manure obtainable.

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of Berkeley, sent Mr. Wagner October 23, it will be seen that he has placed value on fresh pomace of $4.34 per ton, old pomace $8.05 per ton, mixed barnyard manure $2.97 per ton, which seems to coincide with Mr. Wagner's experience, and leads to the question, why in the name of reason do we permit so valuable a fertilizer go to waste. Again, it is worthy of note in this application of several tons of old pomace there was not a hundred seeds grew and no weeding of any consequence necessary, while where manure was applied it required constant work and watching to keep out weeds and Bermuda grass that was carried in with manure. No small item indeed. Whether seed from fresh pomace will grow or not, Mr. Wagner says he does not know, but thinks not, due to the fact that it is fermented before pressing. If one can get the fresh pomace from the winery for the hauling (as is usually the case, due its becoming a nuisance around the winery) it will pay to put on a pile until the alcohol is evaporated, in case ground where it is desired to use as fertilizer is covered with a growing crop that would be injured if applied immediately. The day has arrived in California as well as other sections of the United States that it is the height of folly to permit any sort of fertilizer to go to waste.

As Mr. Wagner is chiefly interested in the growing of rhubarb, and has experimented only with it as fertilizer for rhubarb, he does not know how beneficial it will be on other crops, but says that judging from the report of the agricultural station he believes it the cheapest and best fertilizer one can apply to any herbaceous or vegetable crop.

The theory of grape pomace as a superior fertilizer has in this case, it seems, been demonstrated. Mr. Wagner has received from the University of California a statement of the merits of grape pomace as a fertilizing quality in general, of which a copy is herewith appended, and expects to utilize this information with a review of his own experiments in his forthcoming catalogue. From the letter referred to we take the following excerpts:

"Your favor of the 30th inst. addressed to the Agricultural Experiment Station has been referred to me for reply. I note your attempts to figure the value of the various materials which you mention: pomace, barnyard manure, etc. In connection therewith, I beg to say that the tabulated analyses and calculations are based upon old prices which prevailed at the time this report was sent out. Since then the values of nitrogen, phosphoric acid and potash have somewhat changed, and I have accordingly recalculated the values according to present market prices for fertilizer ingredients. These calculations give a value for fresh grape pomace of $4.30, old grape pomace $8.05, mixed barnyard manure $2.97. These values must not be taken too literally. They simply mean that at present prices these would be the prices you would have to pay if you bought a mixed fertilezer containing the same amounts of fertilizing ingredients as are contained in these various materials. In all probability, however, if you obtained these substances in the form of commercial fertilizer they would be of a little higher availability.

"Probably the most important thing these calculations indicate is that the plant foods contained in the fresh grape pomace are of about 1½ times the value of those contained in the barnyard manure and the value of the ingredients contained in the old grape pomace about 2½ times the value of barnyard manure. This seems to be in accordance with your experiments that the old grape pomace gave better results than mixed barnyard manure.

"I note that you are in the habit of using ten tons of each of these various fertilizers, that is to say, at the price which you pay for them of 50 cents a ton for fresh pomace, the cost of the fresh pomace that you apply would be $5 per acre. In the same way the cost of the old pomace would be same, as it costs nothing except hauling, and the cost of manure would be $22.50 per acre. These are the materials which you have gotten good results with in practice with comparatively low cost, and I should say that it would pay you to continue using them rather than buy commercial fertilizers."

The analyses referred to above are as follows:

GRAPE POMACE (FRESH).

	Per cent.
Water	55.00
	Lbs. per ton.
Potash	16.60
Phosphoric acid	5.00
Nitrogen	17.50
Valuation per ton	$4.34

GRAPE POMACE (OLD).

	Per cent.
Water	21.00
	Lbs. per ton.
Potash	21.40
Phosphoric acid	17.90
Nitrogen	33.60
Valuation per ton	$8.05

MIXED BARNYARD MANURE.

	Per cent.
Water	75.00
	Lbs. per ton.
Potash	11.40
Phosphoric acid	6.00
Nitrogen	11.40
Valuation per ton	$2.97

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AGRICULTURAL REVIEW.

Horticultural Notes.

C. F. Summy is adding to his walnut grove in District 70, near Meridan, Sutter county, by planting out 10 acres of Franquette walnuts.

The Louisiana orange crop is now moving to market and will be all shipped by January 1st. The total number of crop for the State is estimated at 175,000 boxes.

A. L. Atkinson, an oil man from Philadelphia, last week purchased a section of citrus land near Porterville and will develop, water and plant the entire acreage to orange trees.

The 40 acre orange grove located at La Verne, Los Angeles county, known as the Hart ranch, was sold last week by W. E. Shepherd to Jacob Maetchlen, of Covina, for $60,000.

Under the direction of the State Commission of Horticulture 150 fruit trees were burned at Ukiah recently. The trees had been imported from Ohio, and were badly infested.

The apple crop from the Manton section, Tehama county, was a little lighter than usual this year, but the quality is good. About 100 tons of the total crop harvested are yet unsold.

In the Rogue River valley, Oregon, land values are going up steadily. Orchards are being sold at comparatively very high prices, and a large increase will be made in the deciduous fruit acreage this year.

Several hundred hands are now employed in harvesting the olive crop in the districts around Oroville, and the fruit is being shipped to that place, where about 12,000 gallons will be pickled and a large amount made into oil.

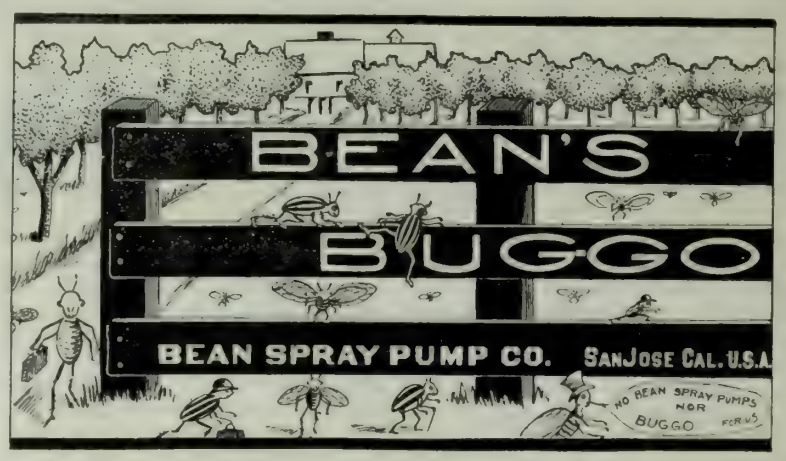
From the Porterville Enterprise we learn that over 1300 acres of orange groves, including 75 individual growers, have signed up the agreement pledging themselves as members of the new protective league to help maintain the orange belt in Tulare county free from scale and other orchard pests.

The shipping season for deciduous fruits by the California Fruit Distributors has come to its end. Up to November 30 there had been sent from California the past season 15,260 cars, as against 12,918 to same date last year. During the past week the Eastern markets paid a better price for grapes, so that practically all cars made a good profit to the growers.

It is stated that owing to lack of transportation facilities apples are going to waste by the ton in Surprise valley, Modoc county. The fruit evaporator ran to its full capacity during the drying season, and the local trade was supplied with all the fruit it could use, but the lack of proper shipping facilities has caused the surplus raised to be wasted.

In order to safeguard the reputation of Cape Colony, South Africa, fruit abroad and put a stop to the losing policy of the growers and exporters who, in spite of repeated warning, have been sending inferior fruit to foreign markets, the Cape government has introduced a bill to make it compulsory for all Cape fruit exported oversea for sale to be submitted to government inspection. No fruit, after the passage of this bill, which does not satisfy the inspector and receive the government brand will be permitted to leave the colonly for a destination outside British South Africa.

Howard Elliott, president of the Northern Pacific Railway Company, in an address before the National Apple Show at Spokane recently, stated that Washington leads the northwestern States in apple tree acreage. There were now planted and growing about nine million trees. Montana comes second with four million, Oregon has three million five hundred thousand, and Idaho not less than three million. Mr. Elliott estimates that when these trees are all in bearing in 1915, that the northwestern States will produce



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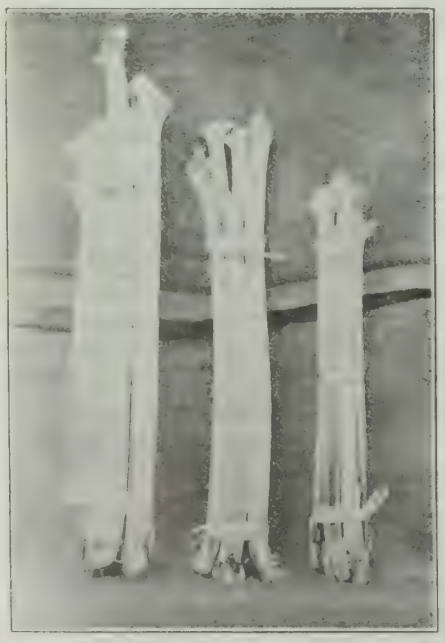
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J. B. Wagner.

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about 97,000 carloads of apples annually, and predicts that this amount will be none too much for the people in the United States by that time.

General Agriculture.

J. M. and S. D. Hicks have leased the big hop ranch of John H. Durst at Wheatland and will go into the business of raising hops and farming next season.

Father Quetu, who recently purchased several hundred acres of land near Capistrano, in Orange county, on which he is building houses for colonists, last week received 17 horses, imported direct from France.

The report comes from New South Wales that the biggest wheat crop ever grown in that or any other State in the history of Australia will soon be harvested. The crop is expected to reach the amazing figure of thirty million bushels.

Heavy shipments of celery will commence this week from Orange county. The cool weather has helped the growers and prices have gone up from 18 to 22½ cents per dozen. The prospects are that the celery people will have a prosperous season.

From Corning, Tehama county, about 100,000 pounds of dressed turkeys were shipped for the holiday trade, bringing the growers about $25,000. In the first two days of shipping for the Thanksgiving trade last week, 36,000 pounds were sent to market.

The Sutter County Farmer says that the broomcorn growers near Kirksville and Cranmore disposed of their crop at a good price this year, the quotations being $130 per ton. Besides the broom sold they still have seed from the same, which will bring a good price.

On the Rancho del Valle, near Pleasanton, 40 acres of peas have been planted, which will be plowed under some time during the winter for a green fertilizer, and the land will be planted to beets next spring. This green pea fertilizer is an experiment in that section, and if it proves successful, will be followed extensively by other beet growers.

The Stanislaus News states that during the last planting season between 12,000 and 15,000 arces were seeded to alfalfa in the Modesto-Turlock Irrigation district, and that to all appearances this record will be more than equaled the coming season. In some places owners of young grape vines are pulling them out and putting the land to alfalfa.

G. H. Hecke recently purchased the Byron Jackson farm and orchard property near Woodland. The entire 160 acres is in full bearing orchard and vineyard, and the crops that are taken from it are remarkable. Mr. Hecke has been the lessee of this property for many years and has brought the property up to its high state of cultivation.

Miscellaneous.

The Yolo winery, at Woodland, has received an order for 80,000 gallons of wine, which is to be shipped to Winehaven, the blending cellar of the California Wine Association.

H. F. H. Schneider asks the Chamber of Commerce of Anaheim to furnish him with a site near the railroad upon which to build a flour mill. He expects to erect a mill to furnish 200 bbls. per day, which will cost $40,000.

From the Reedley Exponent we learn that the Byron Jackson Iron Works, of San Francisco, is putting in an electric pumping plant for the Orangevale Water Co., and one for Mrs. Merrit, at Clarks valley. Besides these two, four other pumping plants are to be installed in Clarks valley within the year.

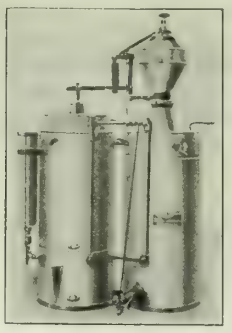
The directors of the Turlock irrigation district are planning to utilize the water in the main canal to furnish power, which in turn will run pumps to drain the irrigated lands of any surplus water. Near Hickman there is a drop of 18 feet which can be utilized to furnish electricity to the amount of 1000 horse power.

A dispatch from Sanger states that the project to build a million dollar concrete dam at Pine Flat, 20 miles east of that town, will be undertaken in the near future. One thousand acres of fertile land, now supporting a few hundred cattle, will be placed under irrigation and vineyards and orchards planted.

The announcement made recently that the California Farmers' Union, with headquarters at Fresno, would go out of the business of handling raisins as soon as the Central California Raisin Corporation was ready to take up the work, is now said to have been premature. A conference was held between the two companies last week and it was decided that as both companies were in the interest of the growers, that no move would be made toward consolidation until the new Central California Raisin Company was actually in the business of handling raisins.

At Fresno last Saturday the incorporation papers of the Central California Raisin Company was filed. The capital stock is placed at one million dollars and divided into shares at $10 each. This corporation is the outcome of the plan to control the raisin product for the next five years, and many growers have already signed up to have their crop handled by this company during that time. On the same day the Union Raisin Seed Company was incorporated with a capital stock of $50,000. The subscribers are Verrinia Aghannan, S. Solomon, and Rosa Arakelion.

A meeting of raisin growers, called by the Chamber of Commerce of Fresno, was held at that place last Saturday and attended by about 500 growers representing about 5000 tons of Muscatel raisins. As a result of the meeting a pool is to be formed combining all the unsold raisins, and if 80% of the unsold crop can be secured for the pool, it is stated that L. F. Griffin & Co. will give three cents a pound for the lot. In the event of this pool proving a success the question of selling this years' crop will have been solved, and the growers will receive a better price than was thought possible a few weeks ago.



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1,000	Resinifera (Red Mahogany)
700	Robusta (Swamp Mahogany)
32,000	Rostrata (Red Gum)
13,100	Rudis
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By PAUL P. PARKER.

OBSERVATIONS OF DAIRIES IN CALIFORNIA.

By Mr. C. L. MITCHELL, U. S. Dairy Inspector of California, at the California Creamery Operators' Association at Porterville.

The topic assigned to me is "Observations." Under this heading I intend to speak briefly of the renting system and its relation to progress, the growth of cow testing, the influence of the creamery over its patrons and the condition of the local creameries as a class.

The worst kind of a renter is the one without much capital, without much brains and wholly without education. He is the one who pays the highest rent and who is always ready to take the places away from more competent, more responsible parties. He lives on next to nothing, everybody in the family works, a shanty suffices for a dwelling, and hard, poorly directed labor tries to make up for intelligence. And we have lots of short-sighted, grasping landlords, unwilling for their places to support a family on the American standard.

Yet this policy works to the loss of the landlord in the long run, as I have seen it in my travels over the State. Such renters do not clear land in timbered sections, do not reclaim marshes, and do not improve the live stock. They permit the buildings and fences to fall into decay and let the pastures run out. One of the greatest troubles in starting or in maintaining co-operative creameries, co-operative cow testing associations or any other movement which is started for the future good of the industry, is these irresponsible, makeshift renters.

Had such dairymen always been in charge of the dairy herds the cows now would give little more milk than enough to support their calves. Dairymen should have long leases, so that they will have a feeling of permanence. They should purchase the live stock, the tools and the hay, so that they will have a feeling of responsibility. Lastly, they should not be expected to pay higher rents than will permit them to keep up the places, to live in a decent way and still to make a fair profit. Such renters have in Humboldt county cleared up ranches, drained marshes, built co-operative creameries, and now they support cow testing associations. Yet they have both kinds of renters and landlords in Humboldt as well as elsewhere.

Cow testing in this State began in a very primitive way. The problem of the early dairyman was rather to clear and seed more land and to secure enough cows to eat the grass than it was to improve the live stock. When the pan-system of skimming the milk was in use dairymen would occasionally set some particular cow's milk in a pan by itself in order to see how much cream would rise. Later, graduated glass cylinders were filled with a certain quantity of each cow's milk in order to judge the comparative richness. These methods were of course very crude, but were better than nothing. Still later the Babcock test was introduced and the keeping of accurate and systematic records became possible. Creameries would test occasional samples for the dairymen as they do yet, but such a small amount of testing is insufficient. Hand testers were introduced upon the farms, and dairymen tried to keep records of their herds and incidentally of the creamery. Generally the creamery received more attention that the boarder cows, long de linquent.

In the spring of 1908, Mr. Peter Philipsen of Loleta, Humboldt county returned from a visit to Denmark, where cow testing associations have been so successful. Putting into practice some of his observances while abroad, Mr. Philipsen got some of the leading dairymen about Loleta to contract with him to test their cows and keep a record of them for the season of 1908. Mr. Philipsen tested about 1000 cows that season. He did the weighing and sampling at the larger places, while the smaller dairymen did this work for themselves. This method must have given very good satisfaction, for this year Mr. Philipsen is testing for 2000 cows. Last spring the Ferndale Cow Testing Association was organized at Ferndale with about fifty members. This association is governed by a board of directors. Two agricultural students, formerly from the University of Wisconsin, do the testing and keep the records right on the farm. This method also appears to be giving general satisfaction. This spring also Z. N. Russ & Sons engaged a tester to keep records of about 1100 of their cows out on Bear River ridge, also in Humboldt county. So there were this past season about 5000 cows under monthly test in Humboldt county.

Last week I spent a couple of days with Mr. Philipsen at Loleta, working over his records. Owing to the fact that the season of 1909 was not so favorable for pastures as the season of 1908, no positive results can be shown. However, general satisfaction was expressed at the results of the work.

This fall the North Star Cow Testing Association was organized at Smith River, Del Norte county, Cal. This association will begin active work next spring. It would not be difficult to start similar organizations in nearly every large dairy district in this State. All that is wanting is some one with a little enthusiasm to do the organizing.

A vast difference is noted in visiting the creameries, in the condition of the raw material received. At a few creameries located in the San Joaquin valley the cream is delivered daily in the warmer part of the year and arrives sweet. At most other creameries in that section the cream is received sour, two or sometimes three days old. In some other places where I have visited cream is received sometimes a week old and in miserable condition.

Some dairy sections are blessed with a naturally clean set of dairymen. These may be located close to the creamery, so that it requires little time for them to deliver the cream. In some sections blind cut-throat competition operates against quality. In still other places the attitude and example of the creamery operators tends to improve quality.

I know of one creamery which a couple of years ago did not know what bad cream and poor butter was. The old buttermaker died and another buttermaker, equally clean but lacking tact, took his place. Patrons became slack, but nothing was said. Cream began to arrive a week old, and the buttermaker could not really tell that the cream was bad. Patrons drove in five or six miles through the sun without blankets over the cream. Things kept getting worse until the butter was selling for 3 cents below extras in San Francisco. This simply shows what tact or the lack of it will do. A new buttermaker with the necessary tact has been employed and conditions are slowly improving, though it takes an injury of that kind a long time to overcome.

Many creameries could receive better cream than they do if they would use this necessary tact. It is not necessary to insult a dairyman in order to explain that something is wrong with his milk or cream. Get his confidence and friendship; then he will be willing to listen to you. But if necessary, reject an occasional can of real bad cream. A dairyman with any intelligence will respect you more for rejecting it than he will if you accept it.

Then do not fail to acknowledge an improvement in the cream when it comes in better at your request. Let the dairyman know that you appreciate his efforts. One very energetic creamery manager who is generally successful sent word to three dairymen who were sending very bad cream to improve it. The cream immediately improved, but the patrons quit at the first of the month. Now, I believe that if the manager had first visited them personally and had later thanked them for the improved quality that the three dairymen would not have quit.

The very example of many creameries is enough to discourage the patrons in the care of their cream. Through lack of screens and owing to the bad conditions of drains and buttermilk cans, swarms of flies infest the building. You cannot say much to a patron about flies in his cream when you are operating the creamery under such conditions. You cannot say much to him about properly cooling his cream when you have no cover over the cans on the cream wagon to protect them from the dust and the hot sun. Some people handling cream do not have proper respect for it. One hot summer day I was sweltering at a little station down in the San Joaquin valley, and two trucks of cream were ready to be shipped. One truck load was covered with heavy jackets and a canvas and the other had no protection. I asked the operator of the station why he exposed his cream that way. He replied: "That jacketed cream is for the sweet cream trade. Those other cans are only for churning." I have, in traveling, found many other persons who had as little regard for churning cream. And this disregard, amounting nearly to con tempt in some quarters, has its influence upon the dairymen with whom they deal. Our dairy press, our dairy schools, our State Dairy Bureau with its splendid corps of inspectors, are all doing a grand work for quality in dairy products, but all these factors can avail little unless we have the right co-operation from creamery managers, buttermakers and station oper ators.

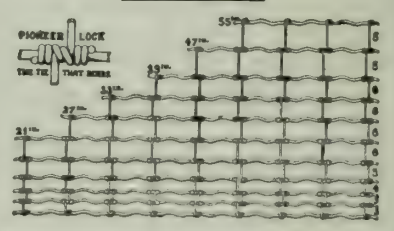
Now, as to conditions of the local cream eries through out our State. No hard and fast line can be drawn between local and centralized creameries. By local cream eries we generally mean those which are located near the source of supply in dis tinction to those which receive the bulk of their cream by rail or boat from a considerable distance. Such centralized cream eries in California are mostly located around the bay, in Sacramento, in Stock ton and in Los Angeles.

I believe that the condition of the local creameries in this State has improved somewhat during the past year. Most of the local creameries I find are securing the proper overrun, which shows that they are making economical use of the milk and cream entrusted to their care.

Perhaps a few local creameries have been bought over this past year by centralized creameries, yet it cannot be deducted that the local creamery system has lost. For instance, the Western Creameries Co. purchased the Colusa creamery and Sutter county creamery. It is still running the Colusa creamery as a local plant. There were not enough cows about the Sutter county creamery to justify two creameries, and the Meridian creamery, still left in that territory, was at least not injured by the change. The Tulare Co-operative creamery purchased the Corcoran and Visalia creameries, yet this was no loss to the local creameries, but rather a gain. The three creameries continue as local creameries, but their cream routes do not criss-cross as much as formerly. One concern in the Sacramento valley has as many as five creameries, yet no attempt has been made to centralize, as the company in question realizes that it can secure many of the advantages of the centralizer without lowering quality or losing

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local support by shipping the cream far away from the farm. Furthermore, several local creameries have been built this past year or are in process of building. Several of these are co-operative and are organized on the association plan so that the shares will always be held by the producers.

The average equipment of the local creameries throughout the State is at least as good as that of the centralizers. The methods of handling the cream and making the butter are generally as good. The main respect in which the local creameries, especially some of the co-operative ones, are lacking is in an alert, aggressive management. The manager of the co-operative creamery must always be on the lookout for new patrons and must keep the patrons satisfied. I visited one creamery lately which was burning $5 worth of wood where $1.50 worth of oil would have done the same work. One creamery was found to be buying testing acid from a local drug store at 20 cents per pound when the same acid could have been purchased at 5 cents per pound in carboy lots. Such illustrations are not common, but serve to show how difficult it is for some of the managers of our local creameries to get their heads into the work.

We must maintain our local creameries. There is a place in this State for both kinds of creameries. The special field of the centralized creamery is new and scattered territory, where there are not enough cows for the local creamery. Then a certain amount of competition from central creameries spurs the local creameries on to greater efforts, provided that the local creameries are not crippled through not getting enough patronage.

We have in this State both kinds of creameries. In some things their interests clash, as do sometimes the interests of two centralizers or of two local creameries. There are, however, many things for which both kinds of creameries must work. The centralizers need better cream as much as do the locals. Let every central creamery and every local creamery in this State enthusiastically support our dairy schools, our dairy press, our State Dairy Bureau and our California Creamery Operators' Association.

HINTS TO HORSE RAISERS.

Horses need a change of climate in the summer just like human beings, especially in malaria infected districts. A prominent horse raiser of Hanford always sends his horses to the mountains for a couple of months to rest and romp over the hills, and the horses always come back looking better and full of life, so that they bring a much higher price in the fall market than they would had they remained in the valley the whole time.

Keep flat-footed horses on dry pastures and horses with small narrow feet on moist ground.

Horses troubled with the heaves should never be watered just before going to work. They should be watered at least an hour before being put to work.

When a horse avoids whole grain, look at his teeth, as they probably need filing. Horses with long teeth can keep fat on green food, as it is much easier chewed, but when put on dry food they soon show it.

FENCING OUT COYOTES.

We hear from the Forestry Service at Washington that a successful barrier against the inroads of the coyote in the sheep flocks of the West has been found, it is believed, in the coyote-proof fence, experiments with which have been carried on during the last year by a special agent for the Forest Service at Billy Meadows, on the Wallowa National forest reserve in Oregon, according to a bulletin made public by the Forest Service.

LIVE STOCK NOTES.

There are several cases of black leg around Tulare. Mr. Sherman of that town lost six of his valuable dairy cows from this disease.

The Northern California Dairy Company has leased the Raub ranch near Meridian and has stocked it with dairy cows to supply milk for their creamery in that district.

On account of abundance of hay in the upper end of Scott valley, Siskiyou county, many of the ranchers have imported beef cattle to feed during the winter months. Some 3000 head have been brought in; one of these bunches came from Oregon and were bought for 7 cents a pound, and the seller has contracted to buy them back at 9 cents in February.

The Yuba Dairy Company has incorporated at Yuba City, Sutter county. The board of directors are R. Pozzi, Charles Brown and C. F. Aaron.

George Scott of Upper Lake, Lake county, recently shipped several carloads of porkers to San Francisco.

The last load of Arizona cattle was shipped over to Santa Rosa island to fatten. Vail and Vickers, the owners of the island, have had great success fattening cattle from the Southwest on this island.

T. F. Williams of Dinuba recently lost a very valuable colt from chewing on the ends of palm leaves. The post-mortem examination of the colt showed that the palm leaves had formed a solid ball in the stomach. People who own colts should take warning and not permit their colts to nibble at palm leaves.

Isaac Bird of Merced is in Arizona buying cattle.

The David Jacks' corporation of Monterey, recently received from Harris, Missouri, eight registered Hereford bulls and heifers.

The Imperial Creamery Company produces about 2250 pounds of butter per day and will pay to the dairymen of Imperial county over $160,000 this year. Six wagons make the rounds of the hundred patrons every day gathering the cream.

The cattle in Cochise county, Arizona, are in fine condition this year, due to the timely rains during the past summer. The number of calves is unusually large and buyers from all over the United States are stocking up.

Albert Pico has stocked his Casa Loma Rancho, near San Jacinto, with seven carloads of Arizona cattle.

Twenty-five hundred head of cattle fed in the Jefferson national forest reserve in Montana recently sold for $34 apiece, a higher price than has been paid for this class of stock in ten years. Also 18,000 head of lambs from the high summer range of this district brought $3.25 per head.

Henry Fritzer is being tried at Salinas for stealing cattle from Miller & Lux.

The sheep crop around New Mexico will be about half as large as last year. This is due to the drouth in the spring, which killed off many lambs. The sheepmen will make money, however, as the price of mutton and wool is high.

The sheep-shearing machine concerns are having a hard time introducing their machines in New Mexico, as the Mexicans are prejudiced against them, claiming they will put all the hand shearers out of business.

The Navajo Indians are to have a tribal brand to protect their stock from the rustlers. At present they have no brand and the rustlers have been stealing their stock and taking them into some other State or Territory and putting on their own brand, so that they cannot be recovered.

The stockmen of Ventura have organized a live stock and protective association to prevent cattle stealing. Two hundred dollars reward will be given for the

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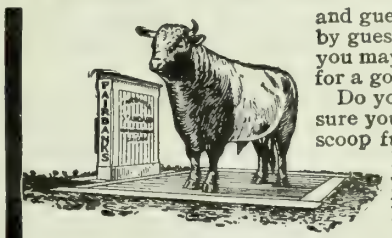
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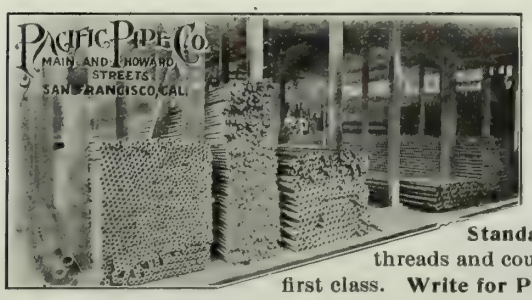
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arrest and conviction of any one stealing cattle or horses, while $50 will be given for the conviction of any one stealing hogs or sheep. R. P. Strathearn of Simi was elected president; Charles Donlon of Oxnard, vice-president; J. J. Streets of Ventura, secretary; M. Erburu, treasurer.

Many of the sheep in the mountains near Pendleton, Ore., are snowed in and cannot get out.

The Friday Morning club of Los Angeles are trying to get the supervisors to pass an ordinance that will force the milkmen to give purer and cleaner milk.

The Boston wool buyers are not having much success buying wool from the sheepmen around Red Bluff, as the prices they offer are too low.

The jury disagreed in the C. W. Long case for stealing five head of cattle from J. N. Walker of Madera. The Cattlemen's Protective Association backed the prosecution in the case.

Ed Biggs of Gridley sent out a fine bunch of cattle to San Francisco last week.

The cattle shipments from northern Arizona are larger this year than ever before in the history of the section.

Hundreds of cattle are being held up at Nacozari, near Douglas, Arizona, because the railroad cannot supply cars. The shortage is due to the fact that thousands of cattle are being sent out of the grazing sections of Chihuahua, Mexico, through El Paso into the United States, 39 cars of Mexican cattle having passed through El Paso last week. One shipment of 35 cars was imported by J. F. Cameron of California.

The general exodus of horses from Truckee has begun because of the heavy snowfall. Only the draft horses and delivery horses which are absolutely essential to carry on business are kept over the winter.

B. H. Noonan of Santa Rosa has returned from Nevada with a large bunch of feeders.

The Texas Cattle Raisers' Association will remove its headquarters from Fort Worth to either Dallas or San Antonio.

The National Mohair Growers' Association, which met in San Antonio recently, decided to have a central warehouse in one of the Eastern States where it could market its own products. El Paso is to be the next meeting place of this association.

Cattle rustlers are terrifying northern New Mexico and southern Colorado. The cattle are killed and the carcasses skinned and the body is then put in another hide and shipped to Denver. Mr. Hugh Wallace of Abuqui, N. M., has lost over 1000 by this method in the last two years, and many other ranchers have lost just as heavily.

All cows reacting under the tubercular test in Chicago will be branded upon the right ear with a "T." That city has recently passed some very stringent laws, so that it will be almost impossible to sell the milk from cows suffering from tuberculosis.

Many Holsteins are being shipped by water into Mexico. Mr. Martinez, who runs a dairy near Guaymas, has bought over forty black and whites for his place. He obtained a fine bull from the S. K. Herzog Company at San Anselmo.

The Pacheco Cattle Company of San Benito county has added 20 thoroughbred Short-Horns to its herd. They were obtained from the Paicines Ranch Company of the same county.

California did not get the majority of the Arizona live stock this year, as it has in former years. Eastern buyers obtained the most of it by paying a little higher price than was offered by the California stockmen.

Stevenson's Percheron Horse Association held its colt show in Turlock recently. The first prize was divided between J. N. Bower and R. H. Todd.

A. H. McInnis of Red Bluff bought 3400 sheep from the sheep raisers in that vicinity.

The Gridley creamery is furnishing its patrons with dairy cows. They have been tested, and are excellent dairy cows.

J. B. Agnew of Visalia has purchased in Canada sixteen thoroughbred Shire mares. They range from one to four years and were expected to arrive about December 1.

The Imperial Land and Stock Company was recently organized. The company starts with 6000 sheep and 640 acres of land. The company is composed of San Bernardino stockmen.

The Nuevo Land Company of San Jacinto bought a carload of hogs at Imperial to eat up the waste grain about the big plow camps this winter.

The Marysville Wool Scouring Company won the first medal at the Yukon fair held in Seattle.

Frank Durnin of Colfax will soon start a model dairy. Only the latest scientific dairy methods and appliances will be used.

A case was recently decided in New Mexico which will be of interest to the Pacific coast stockmen. The Santa Fe Railroad Company failed to supply the Littlefield Cattle Company with cars on the time agreed, so that the cattle suffered a great shrinkage and suit was brought which gave the cattle company $11,200.

The Arizona Cattle Growers' Association held a very successful meeting recently. All the big cattle raisers of the State attended.

The sheep shearers on Santa Cruz island, in the Santa Barbara channel, struck recently because they were forced to work on Sundays.

The Hawaiian shipments of cattle still continue, and there is an opening for raisers of blooded stock to make some sales to these islands. On every trip of the steamers for Hawaii there is always a few mules or cattle taken over. Last week the steamer Enterprise sailed for Hilo with 54 head of blooded stock.

About 500 head of cattle were recently taken from Chico in one shipment. They were consigned to the Western Meat Company of San Francisco.

DAIRY NOTES.

R. W. Rhea, manager of the Danish creamery at Fresno, finds he gets better results from his young calves by allowing them to suck while the cow is being milked. Calves sucking in this way from six to eight weeks are always in better condition and bring a better price than calves fed on skimmed milk for a much longer time. Butchers will always take calves fed in this way in preference to those fed on skimmed milk. Several dairymen have tried this method, but it has not been a success, because they milked either before or after the calves had sucked, and the cow would not let her milk down the second time.

One of the creameries near Ferndale, Humboldt county, turns out 5600 pounds of butter per day, and the farthest patron from the creamery is only four miles away.

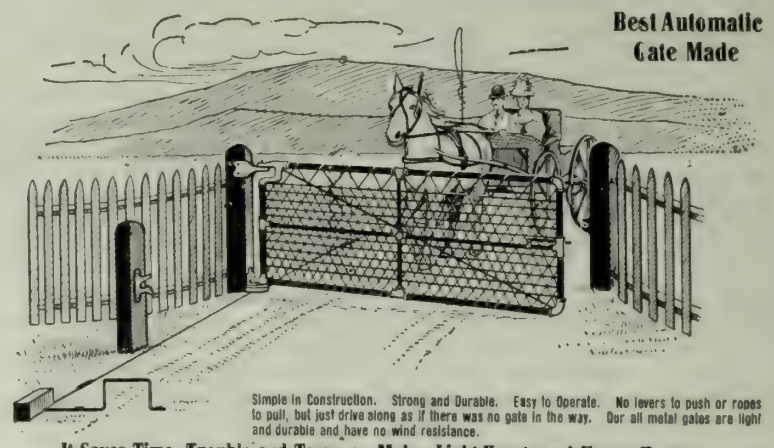
RAISINS FOR HOGS.

With raisins selling at 2½ cents per pound they are much cheaper food for hogs than corn or barley. Raisins give the hog a hard sweet meat and are much sought after by the butchers. Care must, however, be exercised in feeding raisins to hogs, as they are full of sugar, and consequently too rich when fed alone. They heat the animal up so that the hogs lose flesh and will kill the little pigs of a farrowing sow. For fall and winter feeding, pumpkins, citrons and alfalfa are the best feed to give the hogs in conjunction with the raisins, but in the spring a change is found very beneficial.

Many people feeding raisins to hogs are not having the success they should because they overfeed their porkers. A pound of raisins a day is ample to start in with. After the system of the hog has become accustomed to the raisins the amount can be increased so that the last three weeks each hog should get about four pounds of raisins a day. The last ten days, when the finishing touches are being put on, the hogs should be allowed all they can eat.

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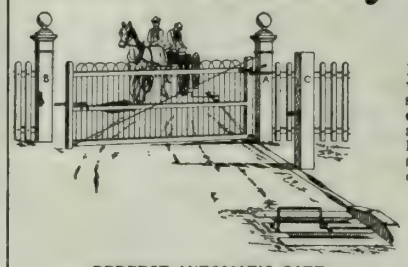


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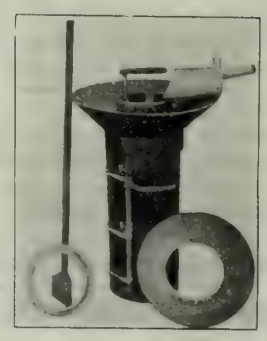
SHEEP.

R. H. CRANE, Santa Rosa, Cal. Breeder and Importer of South Down Sheep.

Chicken, Fruit And Berry Farms
For Sale.

From one acre up. Improved or un-improved, $100 acre up. One-fifth or less down, balance long time On the electric line. Rural mail, School, near town. See my ad in Sunday's Examiner. Send stamp for list. Write to Sebastopol. Office: Hessel Station, Between Petalum and Sebastopol.
CHARLES GLOECKNER.

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Cement Block Machinery all sizes.
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TOOLS FOR IRRIGATION PIPE.

Write for Circular.

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SWINE

C. A. STOWE Stockton. Berkshire and Poland-China Hogs, Shropshire Sheep.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

GEO. C. ROEDING, Fresno, California. Breeder of Thoroughbred Berkshire Boars and Sows.

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GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

G. A. MURPHY, Perkins, Cal. Breeder of Champion Herd of Berkshires also Shorthorns.

The Poultry Yard.

THE OAKLAND POULTRY AND PIGEON SHOW.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

By a happy combination of the Alamada County Poultry Association and the California Pigeon Club, the annual exhibition of these two organizations at Piedmont pavilion last week was quite the finest thing of the kind ever held in Oakland. The arrangement and conduct of the show throughout were highly satisfactory. Superintendent Wheeler received the unqualified praise of all—and deserved it. The attendance was large and plainly evinced the growing interest in the poultry industry.

In this show the feathered tribes occupied the whole stage with no rivals for the attention of the visitors. Some 1500 birds were on parade, 400 of which were pigeons; also a number of the different varieties of pheasants and a peacock.

Orpington Row among the fowls was a fluff of golden buff, pearl white and glistening black, and represented the grande dames of the show. An added interest was added to the row by the exhibit of W. H. Ingram. This consisted of 27 birds imported direct from England, the original home of the Orpington, and some of these are said to be of finer type than even Miss Peggy.

One passes out of Orpington Row with the opinion pretty well grounded that it holds the "best ever" in feathers; but is not so sure of it when he finds himself among the Wyandottes, and is all at sea when he gets in Plymouth Rock Row. The farther he goes the more uncertain he is where to anchor his preference until he leaves behind him those solid grand birds of the Asiatic, American and English classes, which seem to stand for everything that is admirable in chicken flesh and feathers. In the next row he sees an entirely different type of fowl. Sprightly and graceful, flirting their plumage of snowy white, shining black, dappled brown, steel blue, and golden buff, always on the move, eager and alert, these birds of the Mediterranean class seem the very spirit of our hustling age. By the time one has completed the inspection of the various classes of birds, and has been told of the virtues peculiar to each, he gives it up and decides there is no "best" breed. This is why the novice wants to get as many breeds as possible. He just can't confine himself to one breed when there are so many virtues and beauties to pick from.

There was an unusually large exhibit in the English class outside of the Orpingtons. A pen of the Red Caps, shown by Mrs. Swaysgood, attracted much attention, not only by their unfamiliarity, but likewise by their peculiar mixture of colors and markings. This is an old English breed that is credited with many useful qualities. There was the largest display of Black Minorcas we have seen since some 15 years back when that breed together with the Brown Leghorns, Buff Cochins, and Light Brahmas held the boards. It was a real pleasure to see this grand bird out in numbers again. The brilliant contrast of sparkling black plumage, pearl white earlobes and bright red combs and wattles is a treat to the eye that delights in colors, and these displayed upon a bird of commanding and graceful carriage produces a truly grand bird. But beauty is not the Black Minorcas' only excuse for being. Its egg stands at the head in both size and color and next to the head in numbers. The birds in this exhibit were fine specimens of this breed and brought down the blue ribbons all along the line. The Houdans were out in numbers, and they had a youthful "speeler" who hardly stopped short of a 300-egg average as their yearly output. There was an unusually fine display in ornamental breeds in which the White Crested Polish takes the beauty prize. John A. Evans' string of Buff Cochin Bantams captured the ribbons in their class, and Mrs. Helen Jacque carried off the blue with her Black Cochin Bantams. There was also a fine display in game birds. In fact every class was well represented, there being 150 varieties of fowl and each of a high grade of excellence.

Show Notes.

AN OLD MEMBER OF THE RURAL PRESS FAMILY.—We were pleased to meet William A. French, of Stockton, who has taken the PACIFIC RURAL PRESS for the past 25 years, and his father, W. B. French, began with the first issue some 15 years earlier. So that the former grew up with the PACIFIC RURAL PRESS and has staid with it ever since. "And," he added decidedly, "we shall never part company as long as I live." That speaks well for the PACIFIC RURAL PRESS—and for our valued subscriber. Such subscribers are what make a reliable publication possible in this age of flashy journalism and fake advertisements.

Mr. French is a large stock and grain farmer with poultry as a side issue. "No farmer, orchardist or stockman," he declared, "can afford to be without one or two hundred head of pure-bred poultry. Not only do they add to the health and economy of his bill of fare, but they come in mighty handy as cash assets. The case of eggs or the crate of fowls which he takes along each time he goes to town are always salable and always bring spot cash or its equivalent in trade. The farmer can have eggs when the poultryman cannot, because there are always stacks of grain and barns where the fowls may scratch and dig out rich kernels, bugs and worms."

Mr. French had a fine display of Dark Brahmas, Black Minorcas and of Rouen ducks. On his Dark Brahmas he won, Pen 1, Cock 1, Hen 1; second prize on 9½ pound Black Minorca cockerel. On ducks he won first on both an old pen and a young pen, and second on another pen. The peacock exhibit was also his. This handsome fowl adds beauty to a fine lawn. Mr. French sells the young birds in pairs at about eight months of age.

THE SULLIVAN BUFFS TO THE FRONT AGAIN.—The following expression in regard to the status of the poultry interests at this time is significant, coming as it does from a man who has been actively engaged in commercial poultry for the past ten years on this coast. Mr. Sullivan said:

"We have found at this exhibition an increasing interest in poultry over that of previous years, which we think means for the good of California, when we consider the millions of dollars annually sent out of the State for eggs and poultry meat. I have sold at this show nearly $250 worth of eggs for hatching, and the show has yet another day to run. Most of these also are eggs from our best pens at $1 per."

At the Oaklond show the Sullivan birds won: 1, 2, 3 on pens, cocks, hens and pullets; 1, 3, 5 on cockerels; 20 out of a possible 25 awards, and 10 club specials; also gold special and silver cup for best display.

A NOTABLE ACQUISITION TO THE FANCY ON THIS COAST.—W. H. Ingram, importer and breeder of Europe's finest strains of White, Black and Buff Orpingtons, has located at Fruitvale. Mr. Ingram is a native of the Middle West, but he has traveled extensively in Europe and is an expert in his line. In speaking of the line of business he intends taking up, he said:

"I contemplate breeding very high-class Orpingtons for the fancy for shows. I also intend taking up utility poultry farming. I have imported a strain of White Orpingtons that are second to none in the world. This variety is a grand winter layer; as a table fowl there are none better. The White Orpington is a beautiful and useful breed, easy to raise and very hardy and rapid growers, making fine broilers. During the last three years this breed has made rapid strides to the front rank in poultrydom. As to the fancy, the White Orpington has sold for more money than any breed on earth."

BETTER THAN MEDICINE.—Mrs. Robertson of San Jose, the breeder of the Beautiful White Plymouth Rocks and White Crested Polish fowls that have taken nearly all the blue ribbons in their class up and down the coast, in speaking of the advantage of poultry culture for women, said: "The interest and the regular outdoor exercise of my work have done more for my health than all the doctors and medicine. Before I undertook fine poultry breeding I was constantly under the doctors' care and spent a good deal of time in the sanitariums; since then I have been able to dispense with all that and no longer touch medicine even."

Mrs. Robertson feels an interest in helping other women as she has been helped, by awakening their interest in such work that tends to both health and profit. For this cause she is much more reasonable in her prices, considering the high grade of her stock, than other fanciers—she does not wish to place her birds beyond the means of that class of people. For an all-purpose fowl, the Plymouth Rocks cannot be excelled, and as for beauty, Mrs. Robertson's birds are second to none in the show.

A NOTABLE WOMAN.—When a woman, and a little one at that, supports herself and family, unaided, by farming and poultry raising and rears ten children to be good citizens, she certainly deserves well of the commonwealth and commands the respect and admiration of all. Twenty-eight years ago Mrs. Swaysgood of Healdsburg, by the sudden death of her husband, found herself alone with the care of ten children on the bleak uplands of Dakota, with winter coming on and almost no means. She realized that she must get to a more kindly climate, and set her face toward California, where her invincible determination finally landed her on a little ranch. There she worked and managed bravely and educated her children and held up the overhanging mortgage meantime. The children are settled in life now, none of them "went wrong," as many of those of city homes do. Mrs. Swaysgood, for all the long years of privation and toil, is still young in physical and mental vigor. She is the correspondent of several poultry journals, and she brought down a string of birds to the Oakland show and carried back an assortment of ribbons and other trophies. Her case proves that it is not work nor even privation for an unselfish purpose which breaks the mental and physical fibre of a woman, but self-concentration and a life frittered away in non-essentials.

CHINESE PHEASANTS OF IDAHO.

A carload of Chinese pheasants, probably the largest number ever raised in captivity by one grower in this country, will be shipped within the next few days by R. F. Simpson, Lebanon, Ore., to the game warden of Idaho, where the game birds will be turned loose and used to stock the State for hunters.

The pheasant was imported from China to Oregon many years ago and has thrived here until the State is well filled with them. During the open season in the fall hunters enjoy fine sport in shooting this wily game bird.—Spokane Spokesman-Review.

A WOMAN LEADS.—The highest authority in England on poultry is said to be Miss N. Edwards of Gloucestershire. She has won over 1000 prizes and exported poultry into every country. Beginning in a small way with only twenty fowls, her poultry farm is now one of the largest in England.

WILLIAM MATHER, of Sebastopol, Cal., is exploiting his Giant Crimson Rhubarb in the RURAL PRESS. Mr. Mather's advertisement shows that he has the direct indorsement of Luther Burbank as to his crop of the real plant. A glimpse at his growing stock is quite enough to satisfy the skeptical. He has in the stock he is offering for sale a large acreage, enough, it would seem, to stock the gardens of California for an unlimited period, yet so great is the demand, as is evidenced by the correspondence he is receiving, to insure its complete sale within two months. Read Mr. Mather's ad.

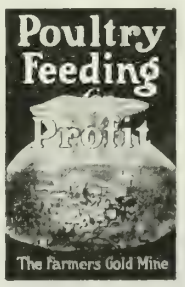
A hen can't lay a large number of eggs unless she is fed foods from which she can make them. Grains alone do not suffice. Nor haphazard feeding. She must have a full, rightly balanced ration. You can make your own balanced egg-producing food as good as any one can make by merely mixing

EGG = MORE

with good ground grain products. And this is the thing to do if you can get grain cheaper than to ship it in. EGG MORE is not one of those strong tonics, not advisable to be fed regularly, but it is a FOOD, to balance the ration properly, and you can't buy such balancing materials better nor cheaper than in EGG-MORE. Just a little daily does it. Send for Biddy Booklet with many testimonials. Ask others; the number using it is constantly growing. 25 lbs., $1.90; 50 lbs., $3.60; 100 lbs., $7.

If not sold by your dealer we will prepay the freight within 300 miles. Order a sack of sufficient size to give it a good trial, according to the number of fowls you have. Then if not satisfied, you get your money back.

West Coast Mill Co.
Cor. Griffin & Alhambra, LOS ANGELES, CAL.



Free Book
on application to
COULSON POULTRY & STOCK FOOD CO.
Petaluma, Cal.

Do you want a Chicken Ranch where Chicken Ranches Pay?
IF SO, WRITE
C. R. WINFIELD,
32 Washington St., Argus Block, Petaluma, Cal.



The ARENBERG BROODER HEATER and STOVE
Perfectly simple, safe and cheap. Burns distillate furnishes steady, free flame, and easy to manage as brooder heater or stove. Write for details.
H. F. ARENBERG, Petaluma, Cal.

POULTRY.

BUFF ORPINGTONS—Sullivan's Commonwealth Strain are the heaviest layers of large eggs on the Coast. Winners at State Fair, Alaska Yukon show, Seattle, and all big shows for the past 10 years. Some fine Cockerels now for $5 each. Eggs $3 and $5 per sitting. Send for Prize Record. **W. SULLIVAN,** Agnew, Santa Clara County, California.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley's "Little Red Book No. 51." Free. Send postal
GEORGE H. CROLEY, 637 Brannan St., San Francisco. **POULTRY SUPPLIES.**

The Home Circle.

Only in Dreams.

I count this thing to be grandly true:
That a noble deed is a step toward God,
Lifting the soul from the common clod
To a purer air and a broader view.

We rise by things that are under our feet,
By what we have mastered of good and gain,
By the pride deposed and passion slain,
By the vanquished ills we hourly meet.

We hope, we resolve, we aspire, we trust,
When the morning calls us to life and light;
But our hearts grow weary, and ere the night
Our lives are trailing the sordid dust.

We hope, we resolve, we aspire, we pray,
And we think we mount the air on wings,
Beyond the recall of sensual things;
While our feet still cling to the heavy clay.

Wings for the angels, but feet for men!
We may borrow the wings to find the way;
We may hope and resolve, aspire and pray;
But our feet must rise, or we fall again.

Only in dreams is a ladder thrown
From the weary earth to the sapphire walls;
But the dreams depart and the vision falls,
And the sleeper wakes on his pillow of stone.

Heaven is not reached at a single bound,
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to the summit round by round.

—Joseph Gilbert Holland.

A Mother's Duty to Her Son.

Mothers, as a rule, are blamed for many of the shortcoming of their grown-up children, and sometimes justly so. Often this is because they are ignorant of the true need of the moment, and the consequent importance of such need.

The young daughter is taught many things in regard to neatness and sanitation in the home, while often the son's education in this respect is totally neglected.

For instance, the young daughter is taught, upon leaving her room in the morning, to turn the bed clothes over a chair, leaving the windows wide open, that the bedding may become thoroughly aired. The boy's bed is also put to airing, but is he taught to do this? No; as a rule he is not even aware that it needs airing. This necessitates an extra trip to the room by the hurried mother, who uncomplaining hangs up his clothes, which are usually left strewn over a chair, picks us his neckties, and tidies up the room in general, patiently imagining this to be among the necessary trials of bringing up boys. And with what result? The boy must soon leave home; and should he board, as many must, the careless or overworked landlady may not reach his room until near noon, and may then hurriedly make the bed without airing, the boy's health suffering in consequence.

And should he marry, his less patient wife will invariably tell him that his mother has not brought him up properly, that he has been humored and waited upon until he is spoiled.

So when mothers bring up their sons to be considerate and thoughtful, they are providing for their own and the future daughter-in-law's comfort in later years. Does it not pay?

Poultices.

The application of heat is often extremely useful in the relief of pain and of inflammation, or in hastening the maturing of a boil or felon. The most usual means of making such an application is by means of poultices. These retain the heat much longer than hot cloths, and have an advantage over a hot-water bag when moist heat is required.

The making of poultices is an art which can be learned only by practice, and, unfortunately for many poor sufferers, few persons ever master the art.

A good poultice should be perfectly smooth, moist, but not dripping, as light as possible, and as hot as it can be made without burning the patient.

A poultice of flaxseed is perhaps the most common, but they can be made of ground slippery elm, cornmeal, bread, starch, or any other material that will make a smooth paste with hot water and will not dry too rapidly and become caked and hard.

In making a flaxseed poultice the flaxseed meal, the bowl and the spoon for stirring should be previously warmed, and everything should be ready to the hand before a start is made. Boiling water is poured into the bowl, and then the meal is added gradually with constant stirring. This is better than adding the water to the meal, for then it is very difficult to prevent lumping.

As soon as the paste is of the proper consistency—two parts of meal to five of water being about the right proportion—it should be spread an inch or so thick upon a piece of muslin, leaving an uncovered margin of two inches. Then on the face of the poultice is placed a piece of flannel of the same size as the muslin. The edges are now quickly turned over and fastened with safety pins or basted, and the poultice is ready.

The flannel side goes against the skin, a layer of cotton is placed over the poultice, and the whole is covered with rubber tissue or oiled silk.

The advantage of having the flannel next to the skin is that the poultice may be applied very hot without burning.

If it is necessary to repeat the poultices often it is well to make bags of the right size, sewed on three sides and with two-inch flaps on the end, which can be rapidly pinned after the bag is filled.

A poultice to be of any use should be changed as soon as it grows cool, which is usually by the end of two hours.

If applied to a commencing boil, it should be only a little larger than the inflamed part.

Generally it makes little difference what material is used, the virtue being in the heat and moisture; but sometimes flaxseed irritates a very tender skin, and then starch or bread should be substituted.

Of Course She Knew.

A delightful little family group was gathered in the library the other evening at the home of a prominent Philadelphia banker who is noted for his domestic tastes and whose greatest delight is the personal supervision of the education of his children, two robust boys and a charming little maid of six years, who is a veritable pocket edition of a walking encyclopedia.

During the course of the reading aloud of an editorial the father turned to his little daughter and quizzically asked her: "And, my dear, can you tell me the meaning of the word 'average'?"

Promptly the tiny Minerva answered: "Yes, indeed, papa; 'average' is a sort of nest or mat that a hen lays eggs on."

The father was utterly perplexed to understand the course of childish reasoning which had led her to that definition of the word, but, knowing that the youngster had generally a good reason for any stand she took, asked the child to explain.

"Well, papa," she said, "I was reading last week that a hen laid four eggs a week on an average, so I thought an 'average' must be something like a nest."—Philadelphia Times.

Ten Uses for Common Salt.

1. A strong solution of salt and water applied to bandages is an excellent remedy for sprains and bruises.

2. A poultice made of salt, mixed with the white of an egg, will stop the growth of a felon, if applied as soon as it makes an appearance.

3. To cure neuralgia add a pint of salt to one quart of boiling water and apply constantly as warm as can be borne.

4. Sore eyes may be cured by using three times a day a wash made by dissolving one-half a teaspoonful of salt in one-quarter teacupful of water.

5. There is nothing better for a burn than an application of damp salt.

6. A teaspoonful of salt in one-half a cupful of water will cure colic if taken at once.

7. To make a lamp burn very brightly add some salt to the oil.

8. When scraping new potatoes have some salt in the water, this will prevent staining the fingers.

9. Before sweeping a carpet sprinkle salt over it; this takes up the dust and also brightens the colors.

10. A small pinch of salt will prevent milk from turning sour in hot weather.—Boston Post.

The Flower Garden.

Flower gardens in December, except in favored frostless localities, have very little or nothing to offer in the way of color. The southern end of the State has the brilliant poinsettia, which will before long be in its glory and many other flowers that bloom all the winter long, but in a goodly portion of the State, it is too cool for tender plants to blossom so our gardening efforts now will have to be in this line of keeping the lawns well cut and in the planting of hardy shrubs.

Now is the time for the pruning of rose bushes. Cut back all weak growths on bush roses and thin out the centers, if the bush is crowded, to admit the light and air. The climbers, too, may need some shoots removed and all of them need mulching.

Now is the time to send for catalogues from the nurseries and seed houses that you may decide early what you will have for next season's flowers.

It Was the Tide.

"It was a mistake," said Mayor Stoy of Atlantic City, discussing a recent governmental difficulty. "These people failed to understand the difficulty, just as a man from Okoboji, in Iowa, failed last week to understand the tides.

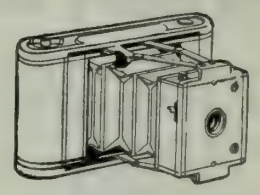
"This man sat on the beach, close to the water, munching a bag of peanuts. A fat lady, one of the end-of-the-season bathers, gamboled in the waves near him. She shrieked, hopped up and down, and flapped about with arms and legs, and meanwhile the waves crept nearer and nearer the Okoboji peanut eater.

"He regarded the advancing water sternly. All of a sudden a stronger wave than usual swept up the beach, and—splash!—the man was dashed with spray!

"'Hi!' he shouted, scowling blackly at the happy bather, 'hi, Fatty! stop that there bobbin' about before ye drown a feller, will ye?'"

A Dressing for Burns.

A mixture of castor oil with the white of eggs allays the pain of a burn more quickly and causes the wound to heal more rapidly than any other application.



A Christmas That Will Last A Lifetime

It's a Kodak Christmas. No pleasure so lasting, none so full of profit and pleasant memories. Let us send you a book telling all about it. Free for the asking.

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Largest Photo Supply House in Central California.

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Earn $65 to $100 a month.

Public school graduates can prepare for teaching in about twelve to fifteen months; high school graduates, in about six months. Let us tell you how it can be done.

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Humphreys, Peart & Bessac, Proprietors.

Country Boy Preferred

"Send us one of your graduates that you can recommend. We prefer a boy from the country—one who has a bright mind and a strong body, and who is capable of advancement. Good pay from the start, and excellent opportunities to advance."

We receive messages like the above daily from San Francisco's leading business houses. They call on us because they know we have the right kind of young men in our school, and because they know we are giving the right kind of training. If you are interested in the opportunities offered by the new San Francisco write us for particulars.

San Francisco Business College
733 Fillmore St., San Francisco, Cal.

WHO IS PERKINS?

The man who makes a purely vegetable compound for the cure of Constipation, Stomach Trouble, Liver and Kidney Disorders, Sick Headache, Skin Disease and Rheumatism. If not cured or benefited money refunded. All ailments arising from impure blood. Reliable agents wanted to introduce Perkins National Herbs famous guaranteed family medicine. 50 cents and $1 boxes sent postpaid on receipt of price. Free sample, address

532 Monadnock Bdg., San Francisco, Cal.

Rupture Cured

Without the Knife or Loss of Time:

No pay until cured.
Call or write for testimonials.

FIDELITY RUPTURE CURE
1122 Market St., Opp. 7th, San Francisco.
Rooms 7 and 8. Hours 10 to 5

Blake, Moffitt & Towne

Dealers in PAPER
1400 FOURTH ST., SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake McFall & Co., Portland, Oregon

The egg whites are placed in a bowl and the castor oil gradually and slowly poured in while the mixture is beaten. Enough oil is added to make a thick creamy paste, which is applied to the burn with a feather. The applications are repeated often enough to prevent their becoming dry or sticky. It is best to leave the surface uncovered.

Cooking Recipes.

In the minds of many housewives the apple takes the lead among fruits. It is very wholesome eaten raw and there are limitless ways of serving it cooked.

APPLE CUP CUSTARD.—Pare and core four good sized apples, steam until tender, pass through a colander; add, while hot, a teaspoonful of butter, yolks of four eggs, four tablespoonsfuls of sugar and one cup of milk. Turn this into baking cups, bake for 20 minutes. Beat the whites of the eggs until stiff, add sugar, heap over the top of the cups, dust thickly with powdered sugar and brown a moment in the oven before serving.

APPLE AND RICE COMPOTE.—Make a syrup of a cupful of sugar and half a cup of water. Drop into this medium tart apples, pared and cut into quarters. Lift out when they are tender but unbroken, then add to the syrup a little stick cinnamon or orange peel and cook until thick and rich. Have a mould or baking dish lined with steamed rice, into this place the apples and strained syrup. Cover with the beaten white of egg and sugar and brown slightly.

APPLE BUTTER.—Boil fresh cider down to one-third. To every gallon add three quarts of apples, not too sour, pared and quartered, one teaspoonful ground cinnamon, a quarter of a teaspoonful of ground mace and three cupfuls of sugar. Stew carefully so that it does not burn and stir often. When very thick and smooth remove from fire and when cool place in stone jars.

APPLES EN SURPRISE.—Take large baking apples and cut off a slice from the blossom end. Scoop out part of the inside and fill the apple shells with a mixture of sliced bananas, seeded raisins, chopped nuts, a little grated lemon or orange peel and sugar to taste. Replace the slice cut from the top and bake slowly in a granite pan containing a little water.

APPLE SHORTCAKE.—Stew some good cooking apples in as little water as possible and press through a colander while warm. Add to a pint of this, half a cupful of sugar, one teaspoonful of butter, nutmeg and cinnamon to taste and a little grated lemon peel. Have ready a good shortcake, made in two layers and buttered; spread with the apple, lay the other piece on and serve with cream and sugar.

APPLE FRITTERS.—One cup milk, one full cup peeled chopped apples, one heaping cup flour, two eggs, pinch of salt, one teaspoon baking powder. Mix all ingredients together and drop by spoonsful into hot fat and fry like doughnuts. Serve hot with powdered sugar dusted over them or with any liquid pudding sauce.

No Need for Talk.

"Does the baby talk yet?" asked a friend of the family.

"No," replied the baby's disgusted little brother; "the baby doesn't need to talk."

"Doesn't need to talk?"

"No. All the baby has to do is to yell, and it gets anything there is in the house that's worth having."

Boarding Mistress—Is there anything wrong with that egg, Mr. Fourper? I see you according it a very critical examination.

Mr. Fourper—Oh, not anything wrong with the egg, Mrs. Skimpem. I was just looking for the wishbone, that's all.—Tit-Bits.

What the Fireless Cooker Will Do.

The fireless cooker will not cook without fire, but it is called "fireless" because once food has been started to boiling it will retain the heat and continue the process of cooking.

It cooks soups, meats, cereals, vegetables, boiled puddings and many other articles of food more perfectly than it is possible to do on an ordinary coal or flame stove.

It will roast meat and bake bread, cakes, etc., in the same length of time as an ordinary stove. This is made possible by the roasting attachmant. which consists of two heavy metal radiators. They are heated and placed one beneath the pail and the other on the rack above the food.

By retaining all the juices, it renders cheap cuts of meats nutritious and palatable, insures digestion, and, on account of the many delightful boiled and steamed dishes to which it is so well adapted, it has a tendency to create an appetite for wholesome food.

As a fuel-saver, it is an economy which the woman in moderate circumstances cannot afford to ignore.

It saves the time, patience and strength of the housekeeper, thereby promoting the welfare of the entire family.

It reduces the work of "washing up" after meals to the minimum, since there are no smoked nor burned utensils to clean.

It enables the housekeeper to have a clean, cool kitchen, without the muss and confusion incident to cooking on a hot stove.

By its use one can always have hot water for sickness or emergencies.

Where members of a family cannot all come to their meals at the same time it is invaluable, since food may be kept warm without drying out or getting overdone.

His Little Scheme.

He was cutting an item from a newspaper. "It tells how a house was robbed, and I want to show it to my wife," he explained.

"What good will that do?" a friend inquired.

"A whole lot," was the reply. "You see, this house was robbed while a man was at church with his wife."

"Say," exclaimed the friend, excitedly, "you haven't got a duplicate copy of that paper, have you? I want to show it to my wife."—Chicago Post.

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The following list of books are kept in stock and are for sale at the Pacific Rural Press officce:

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Animal Breeding, by Shaw	1.50
New Onion Culture, by Greiner	.50
Home Pork Making, by Fulton	.50
Profitable Dairying, by Peck	.75
The Potato, by Fraser	.75
Asparagus Growing, by Hexamer	.50
Chemistry of the Farm, by Warrington	1.00
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American Cattle Doctor, by Dodd	1.00
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PACIFIC RURAL PRESS,
667 Howard St., San Francisco.

THE MARKETS.

San Francisco, Dec. 1, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The tendency in all coast markets is still upward, with a steady demand in all quarters, and liberal shipments are coming in from the North. Local descriptions are in strong demand, with considerably higher prices asked for club. Sonora is very closely held, with little offered at quotations. The high prices tend to curtail the export movement.

California Club	$1.90	@1.95
Sonora	1.97½	@2.05
White Australian	2.00	@2.07½
Northern Club	1.85	@1.95
Northen Bluestem	1.97½	@2.05
Russian Red	1.80	@1.85

BARLEY.

The local market shows no particular feature at present, trading being of small proportions in both feed and brewing. The shipping business is about as before. Prices show an easier tendency, especially on feed, but conditions have not changed materially.

Brewing		$1.47½
Shipping	$1.47½	@1.50
Good to Choice Feed, per ctl.		1.45
Common Feed	1.40	@1.42½

OATS.

Northern holders have been sending oats to this market in large quantities, but there appears to be no great pressure to sell. There is not much demand at present, though seed oats are moving to some extent, but all prices ar strongly maintained, reds being a little firmer.

Red, feed	$1.60	@1.75
Seed	2.00	@2.15
Black	2.60	@2.90
Gray	Nominal	
White	1.67½	@1.70

CORN.

All descriptions of local and Western corn are quoted higher, as the available supply is small. The Western grades, in fact, are practically nominal. Everything is dull, with little demand, Egyptian being still easy.

California Small Yellow		$1.75
California Large Yellow	$1.75	@1.80
Western State Yellow, bulk		1.63
Mixed, in bulk		1.61
White, in bulk		1.70
Egyptian—White	1.60	@1.65
Brown		1.55

RYE.

The last quotation on choice rye is still nominally held, but there is not much offered, and there has been no movement for some time. Some off lots are offered lower, but find little demand.

Rye, per ctl.	$2.00	@2.10

BEANS.

The arrivals in the market for the past month were greater than for the same period for several years past, and it is reported that most of the crop has been shipped from the producing districts. The shipments from this point to consuming markets has also been very large, but supplies on hand have increased materially. Prices in some lines have again been marked up, and the entire market stands exceptionally high. Buyers are beginning to hold off, and there is some expectation of a weakening in the near future.

Bayos, per ctl.	$4.75	@5.25
Blackeyes	4.00	@4.25
Cranberry Beans	4.25	@4.75
Garvanos	2.50	@3.00
Horse Beans	1.75	@2.00
Small Whites	4.50	@4.85
Large Whites	3.40	@3.60
Limas	4.15	@4.30
Pea	4.25	@4.50
Pink	3.70	@3.80
Red	6.00	@7.00
Red Kidneys	4.75	@5.25

SEEDS.

Alfalfa seed is now moving freely, with liveral supplies and a strong demand, but former prices still prevail. Values in other lines are about as before, with a good inquiry for nearly everything. Local dealers ask the following prices:

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb		4 c
Canary		4½c
Flaxseed		4 c
Hemp	3¾	@4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

Flour is very firm at the advance noted last week, and a further rise is looked for at any time, owing to the steady advance in wheat. Buyers accordingly are actively in the market for their season's requirements, and the local movement is quite active, though there is little export business.

Cal. Family Extras	$6.00	@6.50
Bakers' Extras	5.60	@6.00
Superfine	5.00	@5.30
Oregon and Washington	5.50	@5.70

HAY.

Arrivals of hay continue extremely heavy for this time of year, as the car shortage has been relieved, and there is a general pressure on the part of holders to place their stocks in the market. The demand has shown little improvement, and a general reduction has accordingly been made in prices, quotations on the upper grades being considerably lower. Prices are now about the same as two years ago, with larger stocks held locally. Similar conditions prevail in neighboring towns, where liberal concessions are made to effect sales. Opinions differ widely as to the outlook, some dealers counting on a demand from the country and from other States, while others believe there will be little outlet for the surplus.

Choice Wheat, per ton	$17.00	@19.00
Other Grade Wheat	13.00	@16.50
Wheat and Oats	13.00	@16.50
Tame Oat	13.00	@16.00
Barley	10.00	@13.50
Wild Oat	10.00	@13.00
Alfalfa	9.00	@12.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50	@ 75c

MILLSTUFFS.

No further changes in price are noted, the leading descriptions being held fairly steady at the quotations. The demand is very moderate, however, and arrivals move off slowly. General lines of feedstuffs are steady at former values.

ton	$22.00	@24.00
Bran, ton—		
White	29.00	@30.00
Red	28.00	@29.00
Broom Corn Feed, per ctl.	Nominal	
Cocoanut Cake or Meal at Mills	25.00	@26.00
Corn Meal	37.00	@38.00
Cracked Corn	38.00	@39.00
Middlings	35.00	@36.00
Mixed Feeds	28.00	@33.00
Oil Cake, per ton	37.00	@40.00
Rolled Barley	31.00	@32.00
Shorts	31.50	@33.00

VEGETABLES.

There is no great demand for onions at present, but as comparatively little local stock remains on hand, prices show a further advance, with higher prices in prospect. So far, however, no outside stock has appeared on the market. Bad weather has about put an end to the season for miscellaneous vegetables from nearby districts, and nearly everything is coming from the south. Tomatoes are still plentiful, but choice stock is scarce and brings a sharp advance. Celery is quiet and low, and while all southern vegetables, such as peas and egg plant, are higher, the arrivals are larger than immediate demands.

Onions—New Yellow, per ctl.	$1.00	@ 1.10
Garlic, per lb		5c
Green Peas, per lb	6	@ 7c
String Beans, per lb	5	@ 7c
Lima Beans, per lb	8	@ 10c
Turnips, per sack		75c
Summer Squash, large box	1.00	@ 1.25
Tomatoes, per box	1.00	@ 1.50
Green Peppers, per lb	6	@ 7c
Celery, per doz	20	@ 30c
Egg Plant, per lb	6	@ 7c

POULTRY.

While arrivals were unusually heavy, the Thanksgiving turkey market cleaned up well, 30 cents being the prevailing figure for fancy dressed stock. Offerings for this week are very light, and bring 25 cents without difficulty. Local poultry is in small supply, and while Eastern stock is plentiful, hens show some improvement in value, with a fair demand. Geese are higher, squabs and ducks remaining firm.

Broilers	$ 4.00	@ 4.50
Small Broilers	3.00	@ 4.00
Fryers	5.00	@ 6.00
Hens, extra	7.00	@10.00
Hens, per doz	6.50	@ 7.00
Small Hens	5.50	@ 6.00
Old Roosters	4.00	@ 5.00
Young Roosters	6.50	@ 7.00
Young Roosters, full grown	7.00	@ 8.00
Pigeons		1.25
Squabs	3.50	@ 4.00
Ducks	6.00	@ 9.00
Geese, per pair	2.50	@ 3.00
Dressed Turkeys, lb		25c

BUTTER.

With shipments interrupted from the Humboldt district, and only moderate arrivals from other quarters, the market has been poorly supplied with fresh stock, and extras have advanced sharply to the present figure. Firsts are also a little higher, and both fresh and storage stock are in good demand. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	36½c
Firsts	31 c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

Extras have shown some sharp changes during the past week, a decline being followed by a marked advance, apparently due to manipulation. The present extreme quotation is firmly held at the moment, most local dealers reporting very scant supplies. The demand has been turned largely to cheaper grades, and firsts are also higher.

California (extras), per doz	61 c
Firsts	55 c
Seconds	35 c
Thirds	28 c
California Storage (extras)	30 c

CHEESE.

Nothing new has developed in this market, supplies of all local grades remaining light, though the local movement is now rather quiet. Prices show no change on any description.

Fancy Calofirnia Flats, per lb.	18 c
Firsts	17 c
New Young Americas, fancy	19 c
Oregon Flats	17 c
Oregon Young Americas	18½c
N. Y., fancy	19 c
Storage, Fancy Flats	16 c
Young Americas	18½c

POTATOES.

Shipments from both local and Northern points have been liberal of late, and with little demand from other markets stock is accumulating here. Trading is quiet and prices tend to weakness, choice river stock being about the only line which has not declined.

Potatoes—River Whites	60c	@ 1.00
Salinas Burbanks	$ 1.15	@ 1.30
Oregon Burbanks	75c	@ 1.00
Sweet Potatoes, ctl.	1.00	@ 1.25

FRESH FRUITS.

The extra demand for fancy apples has brought a slight advance, Newtown Pippins bringing the highest figures. Ordinary lots are weak and there is not much demand for anything at the moment. Christmas apples are moving at the price quoted. Pomegranates and persimmons are lower, and all miscellaneous fruits are very quiet this week. Grapes are still plentiful, but good lots bring satisfactory prices. Few strawberries are coming in, most of them being in poor condition, and are offered at low prices. Huckleberries are about cleaned up. Large lots of cranberries were held over, and are pressed for sale at reduced prices.

Cranberries, per bbl	8.00	@ 9.00
Strawberries, per chest	3.00	@ 6.00
Huckleberries, per lb	8	@ 10c

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Grapes, per crate	35	@ 75c
Lug boxes	50c	@ 1.00
Apples—		
Fancy, per box	1.10	@ 1.60
Choice	75c	@ 1.00
Common	60	@ 65c
Christmas Apples		2.00
Pears—		
Winter Nelis	1.50	@ 1.75
Other varieties	50c	@ 1.00
Quinces, per box	50c	@ 1.00
Pomegranates, small box	50	@ 75c
Persimmons	85c	@ 1.00

CITRUS FRUITS.

The weather has not favored large buying and the market shows little life. Valencias are easier and navels show a wide range, all well colored lots being held for full values. Some especially fancy offerings are held above quotations. Tangerines are offering more freely at lower prices. Grape fruit, lemons and limes are also lower.

Oranges—		
Valencias	$ 3.00	@ 3.50
Tangerines, box	1.75	@ 2.00
Navels	1.75	@ 2.50
Choice Lemons	2.50	@ 3.00
Fancy Lemons	4.25	@ 4.75
Standard	1.00	@ 1.50
Limes	4.00	@ 4.50
Grape Fruit	2.50	@ 3.00

DRIED FRUITS.

Values on all lines of fruits are well established and have shown no marked change for some time. There is no longer much movement from grower to packer, as there is little left in growers' hands. Packers show less anxiety to but at the moment, as their immediate requirements in most lines have been filled. The Eastern trade has for the most part completed its holiday buying, and the movement has been quieting down, though a renewed demand is expected after the first of the year. A heavy consuming demand is reported, however, in all parts of the country, and the trade has little surplus on hand. Peaches and figs are closely cleaned up, as are the large sizes of prunes. The remaining stocks of prunes are moving off rapidly, with a steady demand in both foreign and domestic markets. Raisins are again unsettled, Eastern buyers being alarmed by reports of price-cutting on the part of packers. Packers generally are unwilling to pay over 2¼ cents, but hardly anything is offered at that figure, most growers asking 2½ cents or more.

Evaporated Apples, per lb	8	@ 8½c
Figs, black		2 c
Figs, white		4 c
Apricots	9½	@10 c
Peaches	5	@ 5½c
Prunes, 4-size basis	2½	@ 2¾c
Pears	6	@ 8 c
Raisins—		
Loose Muscatels, in sweatbox	2¼	@ 2½c
Thompson Seedless		2 c
Seedless Sultanas		1½c
London Layers, 3 crown	85	@95 c

NUTS.

Practically nothing is now to be had from growers, either in almonds or walnuts, and quotations are only nominal. Nonpareils bring up to 15 cents in a jobbing way, and the outlook is for a very early clean up of all stock held by packers. All dealers expect a decided shortage before the next crop is available.

Almonds—		
Nonpareils		14 c
IXL		13 c
Ne Plus Ultra		12½c
Drakes		10 c
Languedoc		9 c
Chestnuts, California	8	@12 c
Walnuts—Softshell, No. 1	Nominal	
Softshell, No. 2	Nominal	

HONEY.

Considerable honey is still held by producers in various parts of the State, and the local market is very slow. Prices are maintained at about the former figures but buying is limited to imemdiate needs, and it is hard to effect sales without making concessions. Local dealers ask the following prices:

Comb	8	@15 c
Exracted, Water White	7	@ 7½c
Extracted, Amber	5½	@ 6 c
Old Extracted	4	@ 4½c

HOPS.

Values are steadily maintained at the former level, but there is no large movement at present. Little of the last crop remains in growers' hands.

Hops, new crop	20	@23 c

WOOL.

Buying has been on a very smal scale, and prices are little more than nominal, the market being inclined to weakness. Local buyers report a lack of interest in California wool in the Eastern markets.

Fall Clip, Northern Free	11	@13 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@ 8½c

MEAT.

The demand for dressed meat is rather quiet, but everything is very firm, with some slight changes in the direction of higher prices. Several descriptions of live stock are also higher, with small offerings. Hogs are coming in slowly, and with a fair demand both live and dressed stock is higher.

Beef: Steers, per lb	6½	@ 7½c
Cows	6	@ 7 c
Heifers	6	@ 7 c
Veal	7	@10½c
Mutton: Wethers	8½	@10 c
Ewes	8	@ 8½c
Lambs	11½	@12 c
Livestock—		
Steers: No. 1	4	@ 4½c
No. 2	3¾	@ 4 c
Cows and Heifers: No. 1		3½c
No. 2		3 c
Bulls and Stags	2	@ 2½c
Hogs, dressed	9	@12 c
Calves: Light		5½c
Medium		5 c
Heavy	4	@ 4½c
Sheep: Wethers	3	@ 3½c
Ewes	4¼	@ 4½c
Lambs		6 c
Hogs: Grain fed, 100 to 150 lbs.		7¼c
150 to 250 lbs	7½	@ 7¾c
250 to 325 lbs		7 c
Common Hogs, lb	4½	@ 5½c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., Nov. 30.—The market for California oranges is rather dull just at present, as the East is heavily stocked with very good Florida oranges that are being laid down at from 1.50 to $2.25 a box, averaging about $1.90. This is 60 to 75 cents a box less than the lowest quotations for California navels, and with the stock in a rather immature condition as yet there seemingly need be no cause for surprise that the jobbers are not buying heavier at this end. A certain amount of the northern navels will be forced out regardless of orders, as there is a feeling among the growers of Tulare county that they must get their fruit to the Christmas market or lose out, and so the jobbers will have a chance to pick up some very good bargains on delivered fruit. The lowest asking prices at this end are $1.60 to $1.70 a box cash California, while some sales have been made at $2.50 delivered.

Orange county navels are improving as regards color and eating quality and the volume of shipments is increasing every day. Asking prices here are $1.50 a packed box, but the packer who sells at this price is making such a small margin of profit that with any great demand he would be sure to raise his price at least 10 cents a box. Anxious buyers who wanted their pick of the early fruit forced the price to the grower up to $1.10 a box on the tree.

Lemons are in great demand, and the supply being light the prices are away up. The auction sales are the highest if the year, and over $5 a box was paid this week, the average being about $4. There are available for sale within the next 30 days 29,000 boxes of Sicily lemons, as against 48,000 at this time last year and 41,000 in 1907.

Citrus fruit shipments to date have been 185 cars oranges and 224 cars of lemons. To same time last season 88 oranges and 272 lemons.

Up to and including the 26th inst. there had been shipped from Tulare county 795 cars of oranges and 28 cars of lemons. From Butte county 115 cars of oranges.

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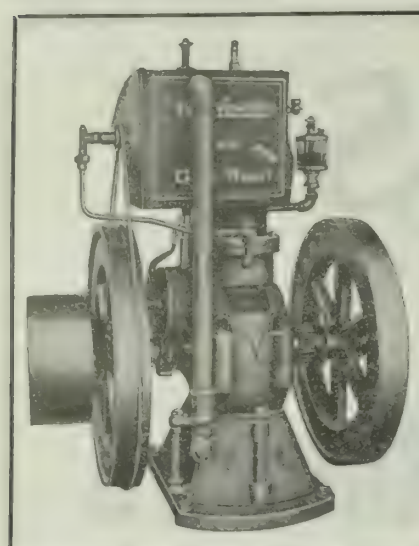
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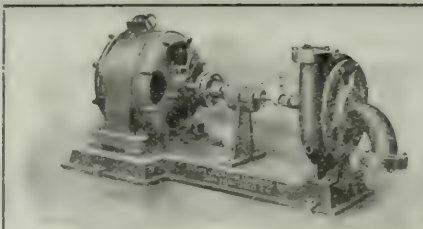
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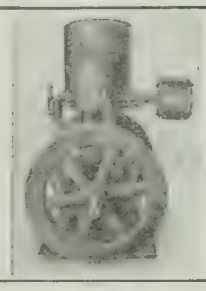
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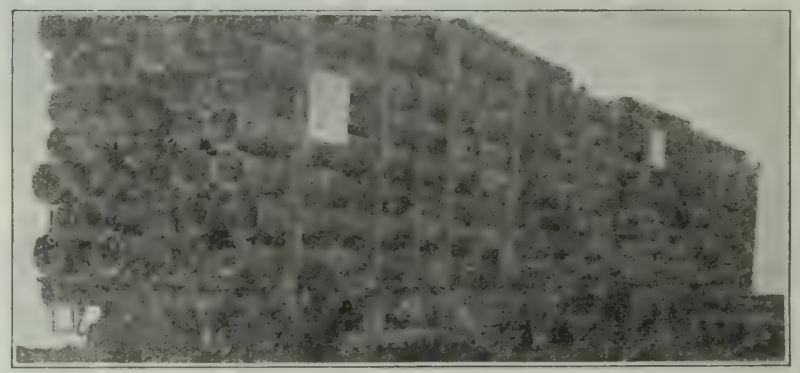
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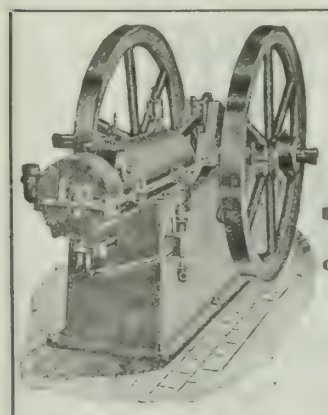
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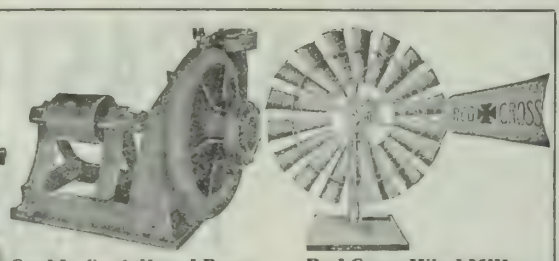
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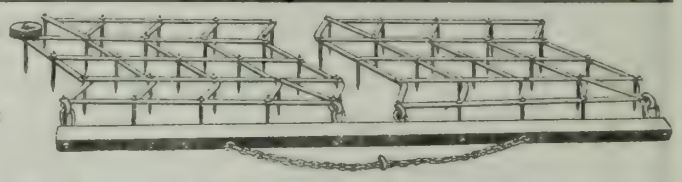
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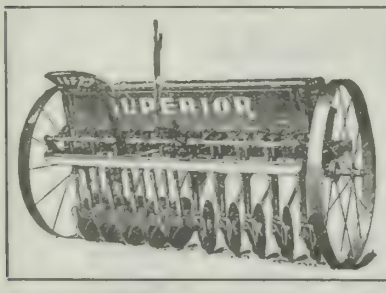


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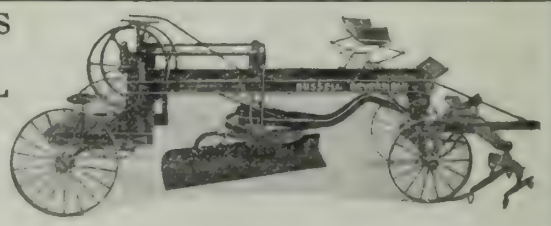
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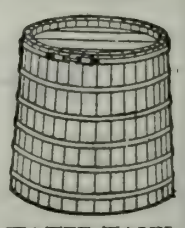
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THE
PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 24. SAN FRANCISCO, SATURDAY, DECEMBER 11, 1909. Thirty-ninth Year.

CLEAR COMMENTS ON THE PRUNE SITUATION.

Written for the PACIFIC RURAL PRESS
By MR. FRED K. SMYTH, of Napa.

Is it not time to question our whole system of handling and marketing prunes? For the past eight years the prune situation has been very unsatisfactory to the growers, and both packers and wholesalers are now finding it equally so to them. The fact that Americans consume an average of less than two pounds per capita a year, proves the failure of the present method.

Some features of the business might be simplified, and others done away with altogether. Our system of grading is too complicated. Apples, oranges, walnuts, and almost all our other farm products are put on the market in two grades. The consumers easily understand this system, and readily adopt themselves to it. But prunes are offered in seven different grades. What is the sense of continuing to force upon the buyer such a complex and confusing method? Our grader screens should be changed so that 30s and 40s would be invited in on grade called "Fancies;" our 50s and 60s into another called "Grade A;" our 70s and 80s into a third, called "Grade B," and not a pound of our 90s and smaller sizes should ever be allowed to leave the State. They should be run through a crusher and pressed into cakes for fattening hogs. For the past ten years neither the grower, packer, nor wholesaler has made any money on them. The only parties benefitted, are the transportation companies (who charge as much for carrying a car of 90s as one of 30s), the dishonest Eastern retailer, and the mean boarding house keeper. In actual food value, they are dearer than 60s, except for hogs—which eat the pits. They also act as a club on the prices of the larger sizes.

Processing prunes should be done away with altogether. The packers claim that the operation is hygienic, and also pleases the eye. Canned fruit is thoroughly cooked and hermetically sealed; and the better keeping qualities of the fruit justify the operation. Processed prunes are only partially cooked, and not hermetically sealed; and in the warm, humid climate of the Middle West, will not keep as long as unprocessed ones from the same bin. When Eastern consumers learn how many tons of California water they are paying 15 cents a pound for, they will prefer unprocessed prunes.

A properly cured prune has no more need of processing than a raisin. Oranges and apples are largely eaten raw; but the bulk of the prune crop—like the potato—comes to us from the cook stove. Efforts and expense to please the eye, in the former case is justifiable. Neat and attractive packing of oranges and apples helps sell the fruit; but when the box of processed prunes is displayed in the grocer's show-window, it looks sticky at the start, is speedily covered with dust, and attracts all the flies in the block. Unprocessed prunes sugar, and are not attractive as displayed in the grocery store; but as most of them are ordered by telephone, or through the delivery boy, the thrifty housekeeper would soon discover that when rinsed off they look cleaner and more appetizing than the processed ones, and when cooked, are as dark and uniform in appearance. The two real but unspoken arguments for processing are, that off-colored and imperfect prunes are disguised, and that processing takes the business of marketing the fruit out of the hands of the grower. The first argument would hardly appeal to the consumer; the second certainly not to the grower.



General View of Napa County Prune Orchard in Bloom.

Prune growers should organize a co-operative association to handle prunes and nothing else. This should consist of district associations, a board of directors chosen from these, in proportion to the prune acreage of their membership, and a general manager, appointed by this board. Each district should pool its prunes and have them graded and sacked. The board of directors should have entire control of the sale, distribution, and advertising of these prunes. Any organization that allows its members the option to sell through, or outside of itself, will prove a rope of sand. From such an association as I have indicated, simply the grading, abolish processing, feed thesmall prunes to the hogs and in two years a hundred pound sack of good unprocessed prunes can be sold in the East for every 25 pound box of processed prunes sold today.

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Dec. 7, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	——	——	11.29	—	—
Red Bluff	2.74	6.65	6.51	54	30
Sacramento	.98	3.73	4.25	54	30
San Francisco	2.45	6.46	4.87	58	38
San Jose	1.71	4.32	3.19	64	32
Fresno	1.20	5.41	2.32	62	32
Independence	2.82	3.36	2.24	54	8
San Luis Obispo	2.44	5.22	3.89	64	32
Los Angeles	.42	2.24	2.72	66	38
San Diego	.92	3.32	1.58	62	40

The Week.

We take it the weather need not be worried about this year. The weather table above shows that the downfall is ample and all parts of the State are wet. We wonder what has become of the prophets who showed so conclusively that we would have to get along with less than the normal rainfall. It looks to us as though we would have to get along with considerably more than the normal and make the greatest crops we can out of it. We do not recall any year which was so free and frequent in its opening which did not keep up the gait to the close. It is the years which begin with a plunge and then stand around and dry off for weeks and weeks which try men's courage and usually fail him in the end. For a good old-fashioned year with early grass and glorious weeds and flowers from river bottom to snow line, and crops of all kinds pushing the record, the present looks like a good beginning. For such a year we must have winds and frosts and occasional outdoor discomforts, because when we get a big storm some one else is almost always getting a worse phase of it, and it seems to need such manifestations of force to make a great aerial disturbance. Never mind then if the barn door swings loos from its moorings and you get wet going to town for a new pair of stronger hinges. It simply means that there will be all the more grain or hay or other truck to go into the barn this year.

We are attending the Fruit Growers' Convention in Watsonville this week, and it occurs to us that a few notes about the assembly itself may be of interest to the thousands of newer Californians who are now in our parish of readers as introductory, in a sense, to the most interesting features of the proceedings which will be found in our horticultural columns from week to week as space is available for them. The coming together at Watsonville is the "Fruit Growers' Convention." During the uprising of our fruit interests we have really had thousands of important meetings which have assumed the dignity of conventions, and yet the "Fruit Growers' Conventions" constitute a distinctive series clearly and generally recognized as such. They began about 1880 with a meeting at the State capital and have continued without a break since that time. Sometimes more than one is held in a year, which explains how the serial number has run ahead of the calendar. From the beginning the meetings have had a distinctive character. The first assembly was called to enable the growers of tree fruits to declare their need of State aid in the form of laws and appropriations to protect fruits from their enemies and to assist growers in opening avenues for distant trade, which was even then clearly seen to be an achievement essential to the extension of the industry. This was manifestly an undertaking for the promotion of the whole State in wealth and population, and the State should assume its share of the burden of the effort. The State had previously taken such an attitude toward the grape vine and its products and had created a State Board of Viticultural Commissioners which was active for a decade or so in its special line. The first "Fruit Growers' Convention" was called by these commissioners so that the tree-fruit growers could secure for themselves State work which their funds for the grape would not cover. It was the day of the first great onset of the San Jose scale and the codlin moth. These two great adversaries, one from the Eastern States and the other from Asia, met in California and formed a trust to push the fruit growers out of business. Individual resistance was seen to be hopeless, and the growers' combine was formed, which, with the aid of State laws and money, quickly demonstrated ways to subjugate the invading insects. Other problems arose: quarantine against introduction of more pests, adequate means to fight those which were already here: problems in fruit growing, fruit handling, fruit transportation in infinite variety, all of which have been measurably regulated by association of growers pooling the strength and wisdom of all individuals and constituting a moving power in California fruit growing. We cannot give the details: it would constitute a close history of the development of out fruit industry, for scarcely an enterprise or effective thing has been done in the promotion of this greatest of our industries which has not either originated or received strong impulses for advancement through the discussions and declarations of these conventions.

In connection with these distinguished services it is interesting to note some unique features of this co-operative combination of all connected with out fruit industries. There is no qualified membership, no constitution or by-laws, no dues or obligations, no list of honoraries or officials. It is probably the most disorganized organization which has ever lived three decades anywhere. The California Fruit Growers' Convention is merely a coming together in one place of those with mutual or conflicting interests in fruit lines. It has shown wonderful force in regulating things, for even great corporations have bowed to its behests, but its only organized agencies are committees, and its only weapons are facts and arguments logically constructed upon them in the ears of all men. There is no doubt that this freedom from burdens which have wrecked other organizations has perpetuated this one. It has no opportunity to become stereotyped or priest-ridden. It meets anywhere except in the places where it has recently assembled. It has always a connecting link with its own past by its system of committees, newly appointed at one convention to report at the next, but aside from this it is almost free from the domination even of standing committees which strangle so many associations under the guise of maintaining their character and dignity. There are a few both talking and silent gentlemen and ladies who are always present, for the love they bear their own voices or their own property interests, but they are so few in number as compared with the hundreds of fresh members from the localities visited, who are so eager to hear and to speak of fresh topics that the few cranks and oslers of hobbies have little chance for their favorite exercise. It is probable that these conventions live quite as much by the permanent membership they lose, as by the spontaneous membership which they gain, by peregrination. There is always a contingent of public spirited fruit growers who attend nearly all the meetings wherever held and contribute much to their success.

There is, however one phase of permanence, or one element of continuance, in the conventions which makes for long life, and that is the relation which the assemblies bear to the government of the State which has already been mentioned as involved in their inception. At first they were merely planned to exert a hortatory influence upon the legislature. Later they were accepted by the State as a sort of consulting branch of the administration, without official recognition, however, except that the State Commissioner is authorized to pay some of the cost of holding and reporting the meetings and publishing the transactions. The State Commissioners of Horticulture have always recognized the meetings as a horticultural forum representing the fruit industries and have regularly reported to it transcations and recommendations and have honored its suggestions and requests. Thus the growers have continually co-operated with each other and with the State administration in influencing legislation and in providing for all kinds of protective work. This relation is manifested in two ways by the regular presiding of the Horticultural Commissioner and by the frequent participation of governors of the State in the proceedings. At the same time there is no domination by State officers. During the last 30 years the conventions have seriously disagreed with official policies and have secured their modifications by plain talking.

In conformance with established custom, State Commissioner Jeffrey presided at the Watsonville convention, and Governor Gillett delivered an opening address which the convention greatly enjoyed. The governor's visit was, in fact, very satisfactory, and old timers noted with pleasure that the present governor spent the whole day in the convention—a thing which no governor in the past has found time or inclination to do. In his address Governor Gillett expressed his commendation of the fact that the fruit growers of California should get together to discuss their industry and its problems. He declared the belief that California is but just commencing in the growing of fruits, and the growers will have to fight pests and to solve many problems connected with the industry, and the way to deal with these questions is to co-operate in securing better marketing methods, in securing better transportation facilities and to combat the pests that infest the fruit. The growers should realize the great principle of business included in united action, and in realizing this they would but be following out a policy that has been adopted by the lumbermen, miners, railroads and others. He believed that the growers should insist on better transportation facilities and fairer rates from the railroads in this State, and said it was his opinion that the Panama canal would do very much toward forcing the railroads to give better service. Governor Gillett also spoke briefly upon good roads. He believed the growers should have the best roads possible, and getting good roads would insure better quality of fruit when it reached its shipping point.

Lieutenant-Governor W. R. Porter, a resident of Watsonville, made a few remarks appreciative of

the occasion which brought so many visitors to the apple region and told them of the good work of County Entomologist W. H. Volck, whom he said "has done as much as any man in California to combat the fruit pests." Lieutenant-Governor Porter also passed most of the day in the convention.

The opening address by State Commissioner Jeffrey gave new emphasis to several important efforts for the good of California which he has been systematically making for several weeks past, as our readers already know. One of these is the organization of growers for standardizing their product so that it may have in the markets recognized and trustworthy grades and then be pushed to wider sale by capable co-operative effort. As bearing upon the subject which occupies our first page this week, we quote this sentence from Mr. Jeffrey's address: "The apple growers, the grape growers, the growers and shippers of the different deciduous tree fruits, the prune, the raisin and the dried fruit interest, should each have a league or a protective committee of some kind authorized and supported for the purpose of handling every proposition that has a general bearing upon the prospertiy of the business and to whom all could look in times of danger or in the promotion of any measure of benefit to the whole industry." This was intended to include not only marketing arrangements when needed, but protection through legislation or executive action. It is certainly one of the important things which should be secured as soon as possible for the welfare of all groups of producers.

Mr. Jeffrey had in his address a very strong protest against using the name of California horticulture to cover land transactions which wrest from unsuspecting purchasers a maximum of investment with a minimum chance of return in any form. This is a strong arraignment of those who attempt to make conscienceless money in such ways: "Suppose one could segregate the acreage of orchards and vineyards now being hopelessly and indifferently farmed and tally it all on one sheet. It would be a vast community of alleged growers who had been induced to go into the business through roseate promise and extravagant claims, largely the victims of their own inadvertence and disinterested promotion of the land seller. Hundreds of promoters are engaged in sugar-coating poor land with grapes, and oiling inferior soils with eucalyptus to make them swallowed easily by the investor. This insidious practice is permeating many of our fruit industries and makes honest and efficient fruit growing realize that there is something wrong with it, but as yet it seems to have failed to locate the obscure point of infection. * * * And yet these half-fraudulent and almost always ill-considered ventures are profitable to the promoters, however much they hammer down the reputation of the State as a good place for investment and congest the fruit markets with an added burden of inferior products."

Thus the convention gave its first day to an expression of confidence in the fruit industries through a general effort for commercial and moral elevation. It is a good avenue toward permanent success and we are sure that the thousands of our readers who could not personally participate in the work of the convention will be glad to take the suggestion from our mention of it that the ultimate success of the effort depends upon its popularization and crystallization in potent public opinion, which is the only ruling sovereign this country knows. The realization of such an end depends upon individual conviction and effort everywhere in the State.

Queries and Replies

Is It Arrested Development?

To the Editor: I have some Seedless Sultanas that grow well and bear well until about time for them to begin getting ripe, and then the bunches seem to wilt away. Sometimes it is only part of a bunch that becomes that way, and sometimes all of the bunch, and sometimes all the bunches on the vine. They do not seem to have any sugar at all in them. I can see no fault with the vine or the soil in any way. Can you tell the cause and can you prescribe a remedy?—Grower, Fresno.

We can only guess at it without having a chance to look for other symptoms of trouble. It looks like a case of malnutrition, which in the case of a plant means an arrest of full sap flow. This may affect a whole vine through lack of moisture in the soil during the latter part of the growing season; it may affect a part of a vine or a part of a cluster because other parts may be better fitted to take what there is furnished with a diminished sap pressure. The remedy indicated would be forcing the vine through fertilizers or irrigation or both; or by stopping the cane growth beyond the fruit, so that the sap pressure may be greater upon the clusters. This conjecture is based upon the absence of mildew or any other parasite which may locally affect the clusters.

A Good Local Apple.

To the Editor: I am sending under separate cover apples for identification. The tree was planted about 20 years ago by the father of the present owner, Mr. Porch, who does not know the name. It is on the plains south of Portersville, on black land, and gets water from wind mill. The apples are very choice for cooking during the summer months, and ripen in October and November, keeping all winter, and are of fine quality. The sample was taken from the tree November 16, and as the crop was light this year, the sample was all that was left, and are below the average. I, and others, will plant trees of this variety for home use if you can tell the name of it.—J. M. W., Portersville.

We do not recognize the variety as it does not seem to be common. The way to get your trees is not to take any chances on names but buy any good apple tree from the nursery and top graft with scions from this tree this winter, being careful not to let branches start below the graft. Plenty of trees for home use can be easily made in this way.

Peach Root Borers.

To the Editor: In an orchard troubled with peach root borers is there any combination of wash, paint, or any mixture to paint roots of trees with after the borers have dug out, that will be beneficial in keeping later borers out? Could a mixture of lime, sulphur and bluestone be used to advantage, if so, what proportions could be used?—Subscriber, Santa Clara county.

The insecticides you mention were tried for this purpose and found useless years ago. Coating the base of the tree and the root crown with a wash made of fresh whitewash in which one pint of coal tar has been added for each five pounds of lime while it is slaking, has been widely used. The latest suggestion was given in our issue of November 13, page 308, which was the use of asphaltum known as "Grade D," which you should read and experiment with. Tree tanglefoot has also been used.

Spraying for the Peach Worm.

To the Editor: Please tell me how to proceed with the peach worm or twig-borer. Three years ago I planted a few acres of peaches and last summer these borers ate into the young shoots as fast as they appeared. It set the tree back considerably and in all crotches, big and small, there is considerable black gum appearing. The trees made a vigorous growth in spite of the borers, but they would have been still much better without them. Is it any use to spray at the time with Rex lime and sulphur, or would it be better to wait till the buds begin to swell? Any information you can give me will be very much appreciated.—R. E. W., Solano county.

The peach worm must be killed by spraying with the lime and sulphur mixture just before the blooms open; that is, when you begin to see the color of the bloom in the swelling bud. At this time, the worm emerges from burrows in the crotches, not only below, but in the crotches in the forks of the limbs in the upper part of the tree, and by spraying at that time, it can be practically destroyed. Even if some of the blossoms are opened and are killed by the spray, it usually will not matter with such a free bloomer as the peach. It is useless to spray for this insect at this time of the year, because it is sealed up in its burrow beyond the reach of the insecticide.

Walnuts on Oaks.

To the Editor: I read this statement in one of the daily papers: "A genius who grows walnuts on oak trees has been found in Calaveras county in the person of E. M. Price. Mr. Price has grafted walnut branches on the oak trees throughout the hills on his place and has met with remarkable success, as all the grafts have grown wonderfully. Mr. Price has been experimenting with walnut trees for years, and the walnuts he has grown on ordinary trees are three times the size of those sold in the market." Regarding these statements, are they true, or rather, can it be done?—Subscriber, Vallejo.

We do not know whether these current statements, as printed, are vouched for by the people whose names are used in connection with them or not. We do know that walnut scions put into oak trees have lived for years and have made considerable growth for we have seen them. We have never seen such a grafted branch bear any nuts and we know of several which have died without bearing. If Mr. Price will say over his own signature that such growth has borne nuts for him, we would believe it. What the item says about Mr. Price growing walnuts so much larger than the ordinary is very likely: he may have the Bijou or some other very large variety. But that fact has no relation to the alleged performance on an oak tree except by the artful implication which the news writer gives it.

No Winter Killing Here.

To the Editor: How much frost will European varieties of grape stand without winter killing? What protection is given such vines in a California winter? How far north in California are such vines profitable?—M. S. D.

The success of the vinifera varieties is not a question of north and south; it is partly a question of temperature after the sap starts in the vine. These grapes are grown far north of California, that is, in suitable places in Oregon, Washington, and Idaho. In California there is no winter-killing of vines which are dormant. They are successfully grown on a small scale at elevations where the temperature has sometimes touched 10° Fahr., which means a pretty high mountain in California. No protection, whatever, against winter freezing is given in California. Of course, our great vineyards are in the valleys and foothills where the thermometer never falls as low as in the mountains.

Bean Growing.

To the Editor: Kindly refer me to advice on bean growing. What care is usually taken in getting good seed? What planting, irrigating and cultural methods are most generally adopted in California?—A Subscriber, Salt Lake City.

These facts will be covered in our book on "California Vegetables in Garden and Field," now appearing in the PACIFIC RURAL PRESS, as soon as we get to the bean chapter.

Horticulture.

THE ALMOND COMMERCIALLY CONSIDERED.

By Mr. J. P. Dargitz, Acampo, at the State Fruit Growers' Convention at Watsonville, Cal.

"Take of the best fruits in the land: balm, spices, myrrh and almonds."—Gen., 43:11.

"Moreover the word of the Lord came unto me, saying, Jeremiah, what seest thou? And I said, I see a rod of an almond tree. Then said the Lord unto me, Thou hast well seen."—Jer., 1:11.

The almond is by no means a new nut, and perhaps justifies the old saying, "there is nothing new under the sun." More than 4000 years ago Jacob made use of it in his efforts to achieve commercial success, though in a different way from that which we have in mind today. Later in his life the same Jacob, chastened by his experiences, classed the almond as among the choicest fruits in the land. We are not told whether it was a hardshell or a papershell, a Nonpareil or a Texas Prolific.

It was from an almond tree that Moses cut the rod which became a serpent when he cast it down. May we get a lesson from this to the effect that we should not look with indifference on this nut-bearing tree whose beautiful blossoms furnished the Divine pattern for the bowls of the candlestick in the Jewish tabernacle? The prophet Jeremiah was also commended by the Lord of heaven and earth for seeing a rod of an almond tree.

The bringing of almond trees from Europe to California as early as 1853 had about as much religious significance as anything else brought here in that early day. It was soon discovered that even "Sunny California" would not produce almonds in every nook and corner. This, like most of our horticultural successes, came about by lessons of bitter experience, whenever we have proceeded without due consideration. However, we have learned, little by little, until the almond crop of this State now aggregates over half a million dollars annually, and there is no good reason in the world why it should not equal $3,000,000 as the people of the United States consume that quantity now. That the consumption of this excellent nut is increasing in the United States is shown by the fact that while in 1907 the consumption was 7900 tons, in 1908 it was 11,200 tons, a clear gain of over 40% in one year. When it is understood that over 75% of this consumption is imported from Europe, and that the area for the home production of this nut is practically limited to California, and a very small portion of the State at that, we will hardly need to think of overproduction for a lifetime at least. In fact, I doubt if we will ever be able to keep up with the growing consumption. Therefore, in view of the viticultural situation and the great influx of population and development of our resources, is it not worth while to look seriously into the commercial possibilities of the almond?

The almond is such an early bloomer, such a shy bearer in some varieties and locations, and such a "sensitive plant" with regard to bearing, that I would emphatically advise all who anticipate starting almond production to gain all possible information from the experience of the past, and especially as to the behaviour of the various varieties in the locality which you have under consideration. If there has been no proving in such locality, then get all your information and begin slowly and prove the varieties for yourself. Of course, if you plant an almond orchard and it does not prove a success, your effort has not been entirely lost, for you can profitably work your trees over to other varieties of fruits. You can change varieties of the almond by grafting or budding, or you can work plums and prunes on them very profitably. The writer's brand of sugar and giant prunes, which has won high standing among the trade in the East, has been achieved with fruit grown on almond trees worked over to prunes after they were 15 years old. In this connection I would especially advise the reading of E. J. Wickson's book, "California Fruits and How to Grow Them." In this you will find very much that is helpful in getting your starting points.

Climate.—In the matter of climate you must consider both frosts and a tendency to continued wet weather at blooming time. I am satisfied that crops are as often lost by wet weather during blooming time as by frost. It takes sunny weather in blooming time to ripen pollen. Note the odor of honey and perfume in the orchard when the trees are in bloom, if it is sunny, as against the lack of such evidence on a cloudy or rainy day. Moderate frosts in winter while trees are dormant, or even when they begin blooming, does not always presage damage. But there should be no late spring frosts. Bear in mind that the almond is the earliest bloomer of all our fruits.

Location.—A sheltered location where there is a ravine, or some lower ground close by, which may draw off the cold air after night, in a usually frostless situation would be ideal. The crop does well even in low altitudes (our orchards being only 75 feet above sea level), while there are some young orchards on Paradise Ridge, in Butte county, at an elevation of 1700 feet which are doing well. They have a deep ravine on either side of the ridge which draws off the cold air so that ripe strawberries may be picked from the field at Christmas time. Portions of Butte, Colusa, Lake, Yolo, Solano, San Joaquin, Contra Costa and Sutter counties have been proven for almond growing.

Soils.—The almond likes a deep, rich, sandy loam soil. It should be deep and well drained because this tree will not endure wet feet much better than the peach. The soil should be rich, for the tree is a ravenous feeder. It must have plenty of soil-moisture as it is the earliest to begin work in the spring and the last to take its annual vacation in the autumn; and to make good, strong fruit buds for the succeeding year the tree should hold its leaves well into November. It cannot do this without good moisture conditions continuously throughout the season.

Varieties.—Perhaps there is no point in the whole preceding wherein greater care is necessary than in the proper selection of varieties. Everything else may be very good, but if you have the wrong variety you will likely wait in vain for your commercial success. It is utterly impossible to give the one best variety for all sections, because it is not at all likely that any one variety will do equally well in all locations. If you are greatly in doubt get some budding sticks of the variety you are considering and bud them on one of the proper trees in your neighborhood. In two years, certainly in three years, you will have the beginning of your proof. However, no one should emphasize the qualities of any nut or fruit by one or two years proving. It should require ten or a dozen years proving before speaking out with authority. If this plan were generally followed we should not have so many disappointed orchardists. Usually when a man finds a new fruit which has extraordinary quality he forthwith begins to herald it and people begin to plant, yet it might be such a shy bearer or poor keeper as to prove a commercial failure, no matter how excellent the fruit might be.

The original almond was no doubt a hardshell. In fact we know of nothing like the papershell nut until in recent years, and I doubt if one in five of the population of the United States even now have ever seen a papershell almond. Whenever any animal or vegetable product is bred very highly for quality, it is apt to be lacking in quantity when it comes to reproduction or propagation. So with the almond. The papershell is largely deficient in pollen. So sure am I of this that I would not think of planting a block with all papershells no matter how much the varieties might be mixed. It has been customary to plant an occasional seedling or bitter almond in the orchard so as to furnish the necessary pollen; but we now have varieties of the sweet softshell which answer the requirement and are profitable.

My first and great reliance is on the Texas Prolific. I am planting it solid and am also alternating it with other varieties, for the benefit of the other varieties, however. It blooms later by two weeks than any other variety that I know of, tree grows well and bears every year. Trees now 20 years old have borne 17 consecutive crops. I would also plant Nonpareil and Drake's Seedling, alternating either variety with Texas Prolific every two rows. It is easier harvesting if two rows of a kind are planted together. The Nonpareil ripens early and can be gathered before the other varieties are ready. Then comes the Drake's Seedling about three weeks later. The Texas Prolific comes along about two weeks later than the Drakes, all of which is a great advantage if you have a large acreage. These are the three proven successful commercial varieties in our locality. Whether they will do so in your locality, I can't say, but on general principals they should, and are worthy a trial. In Yolo county the Peerless is a great favorite. In some localities the I. X. L. is said to be a good bearer. If so, it is a good nut to plant there, because it is a good nut and will not meet with much competition from other localities.

Planting.—Secure the best trees you can get. It is poor policy to plant an inferior tree because it is cheap. There is great opportunity for some one to become a benefactor of mankind by developing superior strains of the best varieties of nuts as well as other kinds of fruits. It is a fact that there are some trees in every orchard, no matter what the parentage, which grow better and bear better than others growing by their side, and of the same parentage. I am sure that this will be found to be true in fruit trees as it is in the animal kingdom, yet how utterly indifferent we have all been on this great point which means so much on the commercial side of our work! In good soils where the growth of the tree will be vigorous, 25x25 feet is plenty close to plant. When the trees are 20 years old their branches will touch and they will need room for 20 or 30 years more.

Pruning.—The first three years you will need to shape your tree. After that you will only need to remove water sprouts and an occasional cross limb, until your trees get very large, when you will need to cut out some of the big wood and open up the trees. Mr. Adams, my neighbor, says, "Prune so a bird can fly through the tree," and he is about right. The tree requires much less pruning than a peach tree. With the peach tree we prune to lessen the pieces of fruit but with the almond tree we want to increase the pieces in number. I never knew of anyone having to thin a crop of almonds although in 1908 we did have some limbs as large as my arm break with their load of fruit.

Spraying.—You will need to spray your almond trees sooner or later. You may have to fight the fungus growths. If so, then you will find a friend in some form of lime, sulphur or bluestone. You may have to fight red spider; then sulphur is a good remedy. It may be you will have to fight the peach moth larvae; then some form of the arsenicals. In the writer's judgment you can just as well use your materials dry as wet. I have used the dry or dust spray exclusively for three years and am quite well satisfied with results. The great difference is on the commercial side of the expense account. The method we use is as follows: In December we spray with lime, sulphur and powdered bluestone (sal bordeaux). We use 40 pounds of lime (Vigorite brand), five pounds of sulphur (Anchor brand), and two pounds of Sal Bordeaux. This makes a very good treatment for two acres. When the trees are in full bloom we spray again with the same mixture and add to it two pounds of paris green or two pounds of arsenite of lime. If there is evidence of the peach moth larvae in the buds later, we spray again the last of May so as to catch the second brood, using the same formula as in the previous spraying, though the sal bordeaux may be cut down one-half or omitted entirely if there is no evidence of fungus about the trees. If red spider makes its appearance, then a treatment of the sulphur alone will settle Mr. Spider and turn the foliage from yellow to green in three days' time if you do not wait too long before spraying. In applying this dust spray we use a power machine which is quite inexpensive, mounted on a wagon and driven by a two-horse power engine, the whole outfit weighing only about 1000 pounds, drawn by two horses and operated by two men, which readily treat 40 acres per day. The amount of material seems small to be effective, but being applied as a mixture instead of a chemical solution, as in the wet spray, it is every bit active. The principal thing, however, is to spray if needed and if you don't want to use your application dry, use it wet, but be sure and use it.

Cultivation.—None of our orchard trees yield quicker or more decisively to good cultivation than the almond and the principle involved seems to be to maintain a sufficient degree of moisture. We are trying an experiment on a block of 50 acres of old almond trees, having seeded it to alfalfa last April. We shall water

this as often as necessary, but cut no hay, allowing it to grow and fall on the ground as a mulch. If the trees do not bear with this treatment I will have added to the soil anyway. When our orchard trees get to be over 15 years old they will require irrigation where they got along very well before with good cultivation. Of course, I am speaking of conditions in our locality where the soil is deep and retentive of moisture under good cultivation, but without any sub-irrigation or summer rains.

Harvesting.—Presuming that we have secured a crop and that it is time to gather it, we now come to the matter of harvesting which is no small item in a commercial proposition. I am told that about 15 years ago a company in our neighborhood who had about 100 tons of a crop to harvest and having no machinery, advertised in the San Francisco papers for 500 hands to help harvest their crop. About 300 came a week ahead of time and then it became necessary to bring out a squad of policemen from the city. We would not think of requiring over 50 people to handle such a crop now.

When the hulls on the nuts are loose from the shell, as will be indicated by their bursting open, it is time to begin gathering if you wish to hull them. If they get too dry you will have to wet them before hulling or you will break the shells. If you wish to shell them then, the drier the better. It will not pay to begin until the nuts about the crotches of the trees are ready and they will be the last to ripen. That is, it will not pay to go over the ground twice. When they are all ready you can get all at one gathering. Have some sheets made of heavy unbleached sheeting or light duck or sail cloth. Mine for large trees are 15x30 feet. Two men to a sheet and two sheets to a tree. Spread the sheets under the tree, one on each side, lapping the edges where they join. Then the men take willow or bamboo poles and by jarring the limbs cause the nuts to fall on the sheets. Always strike the limb sideways, for if you strike a glancing blow down the limb, you will bring your chances of next year's crop with you. The object is to get the nuts and disturb the foliage as little as possible. Of course, you will get some nuts and twigs with the leaves anyway. When the nuts are all off the tree, the men toss their poles to the next tree and then gather up the sheets, one man at each end of each sheet and, lifting them, carry them to the next tree where the process is repeated. That is what they should do, but if you are not watching, they will drag sheets. If the time saved is worth more than the extra wear and tear on the sheets, then by all means drag them. When enough nuts are in the sheets to fill several lug boxes, the boxes are placed on the ground side by side and the sheets are emptied of their burden. These boxes are then stacked up so as to be easily seen, and the teamster gathers them up and hauls them in to the shed where they are run through the huller and then placed in the hoppers ready for the hand sorting. After sorting they are placed on trays or board platforms in the dry-yard to cure. They should be cured until the kernel will break without bending. Then they are ready for bleaching; but be sure they are thoroughly cured before bleaching or the kernel will absorb the sulphur and be spoiled. When properly cured, any means may be employed which will thoroughly dampen the shell but not penetrate to the kernel and then be subjected to the fumes of burning sulphur for a period of 30 minutes to one or two hours owing to the variety and condition of the nut. A yellowish white color of the shell is demanded by the trade. Do not over-sulphur. When sufficiently bleached they are removed and placed in the sun for a few hours to dry, and then sacked up ready for market. My present plan of bleaching is as follows: When cured we place them on fruit trays about one inch thick and run them into a bin of the sulphur house which has been connected with a steam boiler (five horse-power), and low-pressure steam (20 pounds), is turned into the house for a half or three-quarters of an hour. Then they are removed and quickly run in another bin which has a sulphur charge ready fired and bleached from 40 minutes to an hour, when they are removed and immediately sacked. The same help will bleach twice as many in a day with steam as without it. Be careful not to use high-pressure steam or you will cook the nuts. For this valuable method I am indebted to Mr. Reed, of Suisun. Only standard almond sacks should be used, and while they seem expensive, they are a commercial success, because they weigh two and a half pounds and no tare is taken by the trade if you use these sacks.

The almonds may also be shelled instead of hulled, as there are machines for shelling which do very good work. The present year our crop was light and we shelled our entire crop of about 12 tons of clean kernels. We figured better prices this way. Nearly all the imported nuts are shelled before importing. If you shell they are not to be bleached and you have all of the shells to work back into the soil as material for humus, which is no small item. For a commercial proposition, if you can get the same money for your product shelled, saving thereby half the hauling and return half the tonnage to your soil which you would ship off if the product were hulled, better do it.

(To be Continued.)

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

To the layman, the scientific names applied to trees, plants and fruits seem superfluous and their use by writers on horticultural subjects is oftentimes regarded by the reader as an affected display of a knowledge that had no use in particular save to show how educated the writer was. Farmers are a practical people, they believe in an intelligent cultivation of the soil but can see no sense in the use of scientific names for our common trees and plants that are well known to all the readers by their common names.

I believe that the use of the scientific names without the accompanying common name is snobbish and an insult to the average reader, but that the scientific names are useful, and in fact, indispensible cannot be denied. Not many of us would know what was meant if, when the roll was being called, the name "Aurantium foetiferum" was heard, even the Washington navel itself would not be likely to answer, "here." And to call the lemon "Citrus medica limonum" would suggest the medicine chest or a new kind of oilcloth.

The scientist, like the farmer, believes in the intelligent cultivation of the soil, though they sometimes disagree on what constitutes intelligent cultivation. I am inclined to take the side of the scientist on the question of the use of the scientific names, particularly since I have had the pleasure of a talk with Professor H. H. Snowden, of Los Angeles. A mild mannered gentleman he is and one thoroughly in love with his profession, which is that of agricultural chemist, and his occupation at present is that of passing upon soil qualities from samples sent him by the growers, that they may intelligently fertilize their lands toward the end that they may harvest big crops of fine grained and thin skinned fruit.

In explaining why the use of Latin names are imperative, the professor remarked that the world was large and that even our own county of Los Angeles was large enough to prove the value of classified names. Too often the common name of one locality is not the same as in another. Socrates was poisoned by a draught of hemlock but who believes that it was the hemlock that we use to decorate our churches at Christmas time, and as a matter of fact was an entirely different plant that caused the death of the philosopher and known to science under the name of "Conium masulatum." One might argue that we all know the names of plants in this county by their common names and that is true, but the farmer from back East may not know the plant by the same name.

Continuing, the professor said: "In case one of our farmers should move to a foreign country and wish to get some burr clover I rather think that he would have a hard time getting it under that name, for it is not a clover at all. However, go where you will and ask for "Medicago denticulata" and you will get what you are seeking. These scientific names are a sort of a social cement that help bind the whole world together.

"While talking along this line I wish to say a word for the work of the experiment stations and agricultural colleges. The practical farmer is too often skeptical regarding the work done by these institutions because they do not always get immediate results from them. I think that in general the plain farmer, the horticulturist and the agriculturist are all coming to see more fully the value of the work done by them, more particularly in California. It is stated, on good authority, that one county alone in the State of Washington profits to the amount of over $100,000 annually from the work done by their experiment station and no doubt California can make at least as good a showing.

"The Dominion of Canada realizes the enormous amount of $10,000,000 a year as a direct result of the increased production of the wheat crop, due wholly to improvement of the seed by selection and cross-fertilization—the work of colleges and experiment stations.

"The scientific experimenter is so devoted to his work that he practically never sleeps, or at least he is thinking many times when the rest of the country is wrapped in slumber and when asleep he is dreaming of his work.

"The work of the scientists and the practical demonstration of the farmer have proven beyond a doubt that the foundation of all agriculture is fertilization, and we can now say in truth, that the man who does not in some form use commercial fertilizers is a back number, and you can mark my word for it, he will either be obliged to change his methods or go out of business."

I believe that the professor had the right of all his arguments and fully endorse all he says, and particularly what he says about the usefulness of the colleges and the experiment stations. Mr. G. Harold Powell has pretty nearly been canonized by the citrus growers of California for his work done under the direction of the Government looking to the betterment of the keeping and carrying quality of the fruit. He proved beyond a doubt that an orange or a lemon that had not been injured in any way was practically immune from decay, that it would dry and wither away to a hard ball, but with no sign of rot even if kept for years. The institute at Whittier is doing good work under the direction of Professor Ralph Smith, and I hope in the very near future to visit this institution and report on some of the practical work that has been accomplished. I have a very kind invitation to call at any time and will surely enjoy so doing.

A reader of the PACIFIC RURAL PRESS asks me for information regarding the setting out of young citrus trees. He tells me that he has had some correspondence with one of our large nurseries at San Dimas, and that the nurseryman wrote him that the best time to set the trees out was when they were dormant. Our friend remarked that he was no better off than before, for he had no idea when they were dormant, that they bore fruit the year round, and that while the winter time would be considered the dormant period for any kind of a deciduous tree, yet that was just the time the orange tree produced its fruit.

I have consulted authority in the matter and the man who knows it all says that the orange, being evergreen, can be planted at any time of the year when conditions are favorable and this is determined by the condition of the tree and the season. The orange tree makes several growths during the year, varying in number and season with different varieties and different seasons. But there are periods when all orange trees are dormant, and others when nearly all are active. In transplanting, the trees should be taken at their dormant stage, as the shock of removal will not then be so severe, and the tree will probably recover very quickly. These dormant periods occur usually about four times a year; from the middle of March to the middle of April, in June, in September, and from the middle of November to the middle of December. The warmer season is the best for planting and trees transplanted during the cold season will remain until spring without growing. It is, therefore, better to plant when the ground is warm. The nearer an orange tree is to starting new growth the greater its strength and root power. This is the best time for planting—after they have made their first growth, and before starting the second time in the spring. Trees designed for transplanting should be pruned a week or ten days before they are removed from the nursery. This enables them to recover from the shock of pruning before being subject to the shock of removal.

California Vegetables in Garden and Field

By E. J. WICKSON, of the University of California.

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FEBRUARY.

February is the great planting month, for everything but the very tender plants, like beans, corn, tomatoes, peppers, the squash family, etc., can now proceed with assurance of adequate heat and moisture. It is the month for the dilatory man who has missed his earliest opportunities to fill the ground with seed, and it is the time when plantings in small frosty and rainy valleys, which have been deferred because the ground was too cold and wet to start seeds and plants well, may be confidently made. Successions and rotations are in order, as the fall-planted vegetables are cleared away. Early small plantings of string-beans, melons and cucumbers will often carry through or can be easily replanted if the frost catches them. Potatoes are widely planted and will seldom be killed, though they may be cut back, except on low ground, which should be planted later. Chicory is sown, and sowing of sugar beets as a field crop for the factory, begins in February, on the warmer, drier lands.

MARCH.

Later plantings of all sorts of hardy vegetables for succession is pursued. The venturesome on higher, warmer lands try corn, melons, squashes, tomatoes, and continue planting beans. Sugar beets are largely sown for factory use. Sweet potatoes should go into the hot-bed for slipping.

APRIL.

April is another month for succession planting of hardy vegetables, but it is getting late except where moisture is ample and late showers quite certain. Tender plants are out of serious danger except in especially frosty places. Beans can be confidently planted. Peppers, tomatoes, eggplant, sweet potatoes, and other growths can be brought to the open ground. Corn, melons and squashes can be safely planted as field crops. The season's race is well along in its last quarter, the heat and drought have already made hay and are ripening the grain.

MAY.

Everything for which there can be assured ample moisture can still be planted in the moderate heat of the Coast regions, but it is late for shallow-rooting plants to take hold in the interior heat, even with irrigation. Heat-loving plants, like watermelons, corn, sweet potatoes, etc., will grow grandly with moisture enough. On the Coast, Lima beans, sugar beets for late crop, corn and roots for fall use will do well if well cultivated. All planting now which is well taken care of will carry its verdure and its crop to refresh the grower in the midst of the dry season It is a time to seek and use moist land or to count on soon employing the fullest irrigation facilities the place affords.

JUNE.

June completes the garden year. It is the last chance to plant, and it is useless to plant at all except on land moist naturally or by irrigation. It is the last chance to get a second crop on land which has given produce. In the garden clear up all that has matured of the winter plantings, irrigate well, plow and quickly fine the surface and put in beans, beets, cabbage plants, corn, melons, potatoes, squash, tomato plants, and a succession of small truck, and be sure that they do not lack moisture, or their courses will be short and unprofitable.

TABULAR SHOWINGS OF TIMES OF PLANTING.

To afford the reader a condensed view of the facts noted in the foregoing suggestions for the months, tabular showings are prepared. These are not made from theoretical generalizations, but are prepared from records of actual practice which the writer has been collecting for the last 30 years. It would be easy to add more data to the tables as inferences from what is laid down, but readers can do that for themselves. It is beyond question, for instance, that a vegetable planted in May and July could also be planted in June, and is no doubt planted in June in actual practice. But to present tables which are actual and not inferential, only affirmative and specific cases are given place. The work of several hundred growers is condensed into these tables.

Separate showings are made for southern California and for the valley and foothill portions of the upper part of the State. It will be seen that they strikingly agree. There are practically frostless regions near the coast in southern California which are not found elsewhere in the State, although it is only with the tenderest growths that the difference becomes apparent. Other vegetables take about the same courses in early regions, both north and south. Still it is wel to reduce the fact to a set of records such as these tables embody.

TIMES FOR PLANTING CERTAIN VEGETABLES IN VALLEY AND FOOTHILL REGIONS OF SOUTHERN CALIFORNIA.

	July[1]	Aug.[1]	Sept.[1]	Oct.[1]	Nov.[1]	Dec.	Jan.	Feb.	March	April	May[1]	June[1]
Beans	■	..	*[2]	*[2]	*[2]	..	..	*[3]	*[3]	■	■	*
Beets	..	..	■	■	■	■	■	*	*	*	■	■
Cabbage	■	*	■	*	■	*	*	*	*	■	■	..
Carrots	*	..	*	..	..	*	*	*	*	*	■	..
Cauliflower	..	..	..	..	..	*	■	■	*	■	■	..
Celery	..	..	..	..	..	..	..	..	■	*	*	..
Corn	*	*	..	..	..	..	..	*[3]	*[3]	*	*	*
Cucumbers	..	..	..	..	..	..	..	*[3]	■	*	..	..
Eggplant	..	..	*[2]	*[2]	*[2]	..	..	..	■	■	■	..
Lettuce	■	*	■	■	■	■	*	*	■	■	■	*
Melons	■	..	..	..	..	..	..	*[3]	*[3]	■	■	■
Onions	..	..	■	*	*	■	■	*	■	■	■	..
Peas	..	..	■	■	■	■	■	*	■	■	*	..
Potatoes	..	..	■	*[2]	*[2]	..	■	■	*	■	■	*
Potatoes, sweet	..	..	..	..	..	..	..	..	..	*	■	■
Radishes	■	■	*	■	*	■	*	■	■	*	■	■
Salsify	..	..	*	*	*	..	..	■	*	■	■	*
Spinach	*	*	■	*	■	*	*	*	*	■	■	■
Squash	*	..	..	..	..	..	..	..	*[3]	■	■	■
Tomatoes	..	..	*[2]	*[2]	*[2]	..	*[2]	*[2]	*[3]	*	■	■
Turnips	..	..	■	■	■	*	*	■	*	■	■	■

[1]On irrigated land.
[2]Frostless situations near southern coast.
[3]Taking the chances of occasional frost and replanting in some places.

TIMES FOR PLANTING CERTAIN VEGETABLES IN VALLEY AND FOOTHILL REGIONS OF CENTRAL AND NORTHERN CALIFORNIA.

	July[1]	Aug.[1]	Sept.[1]	Oct.[1]	Nov.	Dec.	Jan.	Feb.	March	April	May[1]	June[1]
Beans	*	..	..	..	..	..	..	..	*	*	*	*
Beets	*	..	..	..	..	..	*	*	*	*	*	*
Cabbage	*	*	*	*	*	..	*	*	*	*	*	..
Carrots	*	..	..	..	..	..	*	*	*	*	*	*
Cauliflower	*	..	..	..	..	..	*	*	*	*	*	*
Celery	..	..	..	..	..	..	..	..	*	*	*	..
Corn	*	..	..	..	..	..	..	..	..	..	*	*
Cucumbers	*	..	..	..	..	..	..	..	..	*	*	*
Eggplant	..	..	..	..	..	..	..	..	..	..	..	..
Lettuce	*	*	*	*	*	*	*	*	*	*	*	*
Melons	*	..	..	..	..	..	..	..	..	*	*	*
Onions	..	..	*	*	*	*	*	*	*	*	*	..
Peas	..	..	*	*	*	*	*	*	*	*	*	..
Potatoes	*	..	..	..	*	*	*	*	*	*	*	..
Potatoes, sweet	..	..	..	..	..	..	..	..	*	*	*	*
Radishes	*	*	*	*	*	*	*	*	*	*	*	*
Salsify	*	..	..	..	..	..	..	*	*	*	..	..
Spinach	..	..	*	*	*	..	..	..	..	..	..	..
Squash	*	..	..	..	..	..	..	..	..	*	*	*
Tomatoes	..	..	..	..	..	..	..	..	..	*	*	*
Turnips	*	*	..	*	*	..	*	*	*	*	*	*

[1]On irrigated or naturally moist low land.

THE FROST FACTOR.

The intrusion of the frost period is a local limitation of the planting season. Each vegetable grower should keep records of frost occurrence for his own guidance in future operations and for the public benefit, for the government weather service is very anxious to get local observations on this point.

During the last decade the San Francisco office of the U. S. Weather Bureau has given particular attention to frost phenomena, including conditions of occurrence and prevention, and the publication by the local officer in charge, Prof. Alexander G. McAdie, comprise the best knowledge on the subject.

The discussion in the chapter on California Climate as Related to Vegetable Growing shows that weather conditions are everywhere dependent to a degree on local topography and environment, even though there are regional characters which must be understood. In this place it is fitting to emphasize especially the dates at which killing frosts have occurred in a large number of localities, because such dates are seldom accurately remembered even in the localities concerned. The table which we have compiled and arranged in our own way, according to districts, from data kindly furnished by Prof. McAdie, should be studied with the following points in view:

First. The dates represent the first and last dates of killing frosts in each place during a decade. In most cases probably the dates are not in the same year. We wish to show the "worst ever" at each place.

Second. Obviously, then, frosts at such dates are not to be often expected, and planters may usually take the risk of planting somewhat earlier and having tender plants

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mature somewhat later, as will be discussed in the next chapter. At the same time large plantings for a main or standard crop should be generally held back for the local frost-free period which the dates in the tables supply for each place.

Third. Always remember, however, that there may be situations adjacent to the place where the record is made in which frost may be earlier or later, or both, according to the variations in local topography, exposure, etc., as explained in the chapter on Climate. There are also a few widely separated situations which may be considered almost, if not quite, frostless.

Fourth. The tables give the elevation in feet above sea level in each case. This factor does influence frost occurrence in a large way, but local frost phenomena are often determined by the relative elevation of situations in the same vicinity and by other conditions of topography affecting the movement of cold air and counter currents, perhaps, of warm air.

Fifth. Thus it should appear that after all the writer can do to help the reader determine what his planting practice should be with refenece to frost occurrence, it still remains with the latter to do all that he can to understand his immedate spot of land through the teaching of his own observation and experience.

DATES OF SPRING AND FALL KILLING FROSTS, 1897 TO 1908.

Location and county.	Elevation.	Latest spring.	Earliest autumn.
Upper Coast Region.			
Crescent City, Del Norte	50	June 19	Sept. 30
Eureka, Humboldt	64	May 1	Nov. 7
Upper Mattole, Humboldt	244	Apr. 26	Oct. 20
Ukiah, Mendocino	620	May 2	Oct. 16
Fort Bragg, Mendocino	74	Mar. 18	Nov. 5
Fort Ross, Sonoma	100	Mar. 21	Dec. 18
Cloverdale, Sonoma	340	Mar. 25	Nov. 2
Santa Rosa, Sonoma	181	May 10	Oct. 29
Peachland, Sonoma	220	Apr. 11	Oct. 18
Sonoma, Sonoma	30	Apr. 12	Dec. 2
Calistoga, Napa	363	May 1	Oct. 1
Napa, Napa	60	Mar. 30	Nov. 7
Upper Lake, Lake	1350	Apr. 23	Sept. 29
Sacramento Valley and Foothills.			
Redding, Shasta	552	May 1	Oct. 17
Red Bluff, Tehama	307	Apr. 19	Nov. 7
Rosewood, Tehama	865	Apr. 12	Oct. 4
Corning, Tehama	277	Mar. 26	Nov. 2
Chico, Butte	193	Apr. 10	Nov. 6
Durham, Butte	160	Apr. 4	Oct. 22
Biggs, Butte	98	May 10	Nov. 23
Oroville, Butte	250	Apr. 30	Nov. 23
Palermo, Butte	213	Apr. 7	Nov. 14
Fruto, Glenn	624	Apr. 4	Nov. 23
Willows, Glenn	136	Apr. 26	Nov. 28
Dunnigan, Yolo	65	Feb. 25	Nov. 24
Guinda, Yolo	350	May 1	Nov. 16
Woodland, Yolo	63	Apr. 26	Nov. 26
Davis, Yolo	51	Apr. 4	Oct. 22
Vacaville, Solano	175	Apr. 4	Nov. 24
Elmira, Solano	75	Apr. 4	Oct. 26
Suisun, Solano	20	Apr. 4	Nov. 13
Sacramento, Sacramento	35	Apr. 26	Oct. 17
Folsom, Sacramento	252	Apr. 11	Nov. 24
Wheatland, Yuba	84	Apr. 9	Nov. 7
Auburn, Placer	1360	May 2	Oct. 15
Colfax, Placer	2421	May 1	Dec. 5
Eldorado, Eldorado	1609	Apr. 26	Dec. 20
Placerville, Eldorado	1820	Apr. 28	Nov. 28
Georgetown, Eldorado	2650	May 1	Oct. 15
Nevada City, Nevada	2580	May 30	Sept. 29
North Bloomfield, Nevada	3200	May 22	Oct. 1
Jackson, Amador	1900	Apr. 28	Oct. 14
Central Coast Region.			
San Francisco, San Francisco	207	Mar. 27	Dec. 18
Oakland, Alameda	36	Feb. 15	Dec. 15
Berkeley, Alameda	320	Feb. 19	Dec. 14
Niles, Alameda	87	Apr. 29	Oct. 17
San Leandro, Alameda	50	Mar. 28	Nov. 24
Livermore, Alameda	485	Apr. 12	Nov. 9
Menlo Park, San Mateo	64	Feb. 13	Dec. 18
San Jose, Santa Clara	95	Apr. 9	Oct. 22
Santa Clara, Santa Clara	90	Apr. 9	Nov. 24
Los Gatos, Santa Clara	600	Mar. 8	Dec. 9
Gilroy, Santa Clara	193	May 11	Nov. 6
Santa Cruz, Santa Cruz	20	Apr. 1	Nov. 23
Laurel, Santa Cruz	910	Mar. 12	Oct. 24
Aptos, Santa Cruz	102	Mar. 31	Oct. 31
Watsonville, Santa Cruz	23	Apr. 8	Sept. 22
Hollister, San Benito	284	Apr. 22	Oct. 17
Salinas, Monterey	40	Apr. 1	Nov. 21
Soledad, Monterey	183	Feb. 13	Nov. 30
San Ardo, Monterey	236	Apr. 10	Dec. 9
San Miguel, San Luis Obispo	616	Mar. 8	Oct. 22
Paso Robles, San Luis Obispo	800	Apr. 26	Oct. 30
San Luis Obispo, San Luis Obispo	201	May 18	Oct. 18
San Joaquin Valley and Foothills.			
Antioch, Contra Costa	46	Feb. 1	Dec. 5
Lodi, San Joaquin	35	Apr. 9	Oct. 18
Tracy, San Joaquin	64	Mar. 14	Nov. 24
Milton, Calaveras	660	Apr. 7	Nov. 29
Mokelumne, Calaveras	1550	Apr. 28	Nov. 17
West Point, Calaveras	2326	June 15	Oct. 7
Jackson, Amador	1900	Apr. 28	Oct. 14
Merced, Merced	173	Mar. 28	Nov. 28
Fresno, Fresno	293	Mar. 31	Nov. 11
Selma, Fresno	311	Mar. 31	Oct. 20
Kingsburg, Fresno	301	Apr. 28	Dec. 23
Hanford, Kings	249	Apr. 29	Oct. 25
Visalia, Tulare	334	Apr. 11	Nov. 16
Lemon Grove, Tulare	600	Feb. 16	Dec. 9
Porterville, Tulare	461	Mar. 10	Nov. 26
Tulare, Tulare	274	Apr. 11	Oct. 20
Dinuba, Tulare	335	May 2	Nov. 27
Southern California.			
Santa Barbara, Santa Barbara	130	Mar. 18	Nov. 30
Santa Paula, Ventura	350	Feb. 16	Dec. 12
Los Angeles, Los Angeles	293	Mar. 9	Dec. 13
Anaheim, Orange	134	Apr. 17	Dec. 12
Riverside, Riverside	851	Apr. 2	Nov. 12
San Jacinto, Riverside	1550	Apr. 8	Nov. 25
Redlands, San Bernardino	1352	Apr. 9	Nov. 24
Escondido, San Diego	657	Mar. 18	Dec. 7
Poway, San Diego	460	Feb. 15	Nov. 18
El Cajon, San Diego	482	Mar. 14	Nov. 19
Campo, San Diego	2543	June 17	Sept. 17
Mountain Regions.			
Sisson, Shasta	3555	July 6	Sept. 13
Cedarville, Modoc	4675	June 24	Aug. 30
Susanville, Lassen	4195	June 22	Sept. 8
Laporte, Plumas	5000	July 6	Sept. 6
Greenville, Plumas	3600	June 11	Aug. 20
Boca, Nevada	5531	May 1	Oct. 2
Summerdale, Mariposa	5270	June 15	Sept. 25
Lick Observatory, Santa Clara	4209	May 25	Oct. 2
Tehachapi, Kern	3964	Apr. 11	Nov. 20
Cuyamaca, San Diego	4543	July 11	Sept. 5

The general reader, after studying the foregoing data, may conclude that in nearly all the valley districts of California there is little difference in the length of the absolute frost-free period; also that elevation influences temperature similarly in all parts of the State. At elevations below 1500 feet, which is the point at which foothills begin to shade into mountains, there are about two-thirds of the whole year in which even the tenderest vegetation may be considered practically safe from injury from frost, and particular situations in which the frost-free period is even longer. On the other hand, there are mountain valleys, with good soil and sunshine and ample total heat for vegetables, in which tender plants must be always protected, because frost may occur every month in the year.

The Endurance of Different Vegetables.—The degree of cold which plants will survive depends upon several considerations and conditions, involving state of air, moisture and of the plant itself, which makes it impossible to fix the injury point of a plant definitely. There is, however, practical value in the following compilation made from reports by Pacific Coast growers as to the effect of our style of low temperatures, the temperatures being given as nearly as possible those in contact with the plant itself:

TEMPERATURE AT WHICH CERTAIN PLANTS ARE LIABLE TO RECEIVE INJURY FROM FROSTS.

Plant.	Degrees Fahr.	Plant.	Degrees Fahr.
Asparagus	29	Beans	31
Cantaloupes	32	Celery	28
Cucumbers	32	Onions	28
Potatoes	30	Sweet Potatoes	31
Spinach	21	Squash	31
Turnips	26	Watermelons	31

SUCCESSIONS AND ROTATIONS IN CALIFORNIA GARDENS.

Naturally, an all-the-year growing season suggests constant use of the ground and the possibility of turning the soil over several times in the course of the year. This can be done by quick revolution, like the following:

Where water is handy, two, three, or even four crops can be grown on the same ground in the year. Start April 1 and sow the plot to lettuce, and with proper cultivation it will mature in two months. Resow with turnip-radish, which is a good summer variety. These will be fit to use in three weeks, or by the first week of July, when the ground will be ready for late cucumbers, which will occupy the ground until the first frost, or till nights become too cold for them to fruit. Now plant to carrots, beets, or onion sets, and any of them will be ready for use in February or March. Here we have four crops within the twelve months, and no two of them occupying the ground at the same time. There are other combinations that would do as well.

Though this rapid work is quite feasible, as shown, and many plants can enter into such combinations, the two-crop plan will probably be as fast movement as most farm gardeners will keep up with, and that consists in fall sowing of hardy vegetables for winter and spring use, followed by spring planting of tender vegetables for summer and fall use. Occasionally there will be intervals in this rotation for a third or catch crop of lettuce, radish, etc., which takes a very short time. This will be a vast improvement on the present popular conception of gardening possibilities, and if the hint of a fall crop of tender vegetables like melons, beans, corn, etc., planted in July to come on fast in the heat, followed by fall planting of the hardy list for winter use, these two crops will be gained before the outbreak of the usual "garden fever," which rallies all garden forces in February and March. The agencies to demonstrate this broader conception of our gardening possibilities are Will and Work and Water, to which allusion is made in the chapter on Farmer's Gardens in California.

(To be Continued.)

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The Vineyard.

WINE MAKING ON A SMALL SCALE.

Written for the PACIFIC RURAL PRESS
By PROF. F. T. BIOLETTI, of the University of California.

Requests for a small, simple manual of wine making or for information on how to make wine for home use come frequently, and have been particularly numerous lately.

Some of the requests take the naive form of a demand for a formula or receipt for the making of wine. It may be possible to write a receipt that will enable an amateur to make pumpkin pie (though from personal experience this seems doubtful), but wine making is more complicated and can be reduced only to principles or at most to a general outline which must at every step be modified and controlled by the intelligence of the cook.

The principles of wine making are the same whether we make five gallons or a million. These methods of applying these principles, however, are widely different in the two cases. Most that is written on the methods of application refers only to wholesale practice. It may be useful, therefore, in a few short articles to outline a method of wine making suitable for small scale operations and based on what are recognized as correct principles.

PROFITS OF WINE MAKING.—There can be only one reason in California for making wine on a small scale, and that is to obtain a wine of exceptional quality. If the wine is for home use we can buy it cheaper than we can make it if we are satisfied with common quality. If it is intended for sale we cannot compete profitably with the large wineries except on the score of quality.

GRADES OF WINE.—Ordinary or standard wines are best and most economically made in very large wineries; fine wines are practically always made in small or medium wineries. On the other hand the scale must not be too small for the best results. We can produce a fine wine even if we make only one or two hundred gallons, but there are practical difficulties in the way that increase the trouble and expense. Below this amount the proper handling and aging of the wine are almost impossible. The most favorable scale, as a rule, for making fine wine lies somewhere between 5000 and 50,000 gallons yearly. Where large cellars do make fine wine it is made separately from the rest and by essentially small scale methods.

BUILDINGS.—For making the wine an open shed is as good as anything in the warmer and earlier districts. Where the vintage is late and the weather cool a closed fermenting room which can be warmed on occasions is necessary. For aging, the wine must be stored in a cool room varying little in temperature summer and winter. An underground cellar is the best.

STORAGE CASKS.—Oak casks of moderate size give the best results. If only a few hundred gallons are made there is nothing better than 50 gallon barrels. When several thousand gallons are made puncheons of about 175 gallons are preferable on account of the saving in labor of handling. When the product exceeds 10,000 gallons it is desirable to have some larger containers for the first storing of young wines. These can be upright vats of redwood and may contain from 500 to 2500 gallons. Larger containers than this are not advisable for fine wine.

An ideal arrangement would be to have 1000 gallon vats for storage of the wine during the first six or nine months, 175 gallon puncheons for the next 12 months, and 50 gallon barrels for the third year or as much longer as it was found advisable will be needed a brass-lined hand pump, to keep the wine before bottling. Storage in 50 gallon barrels, however, is costly and seldom adopted except where the highest priced wines are produced. The cooler the storage cellar the smaller the containers should be and the higher the quality of the wine. Wine would suffer from premature aging if stored in small packages in an open or warm cellar.

FERMENTING VATS.—For the fermentation of white wine nothing is better than the storage casks. For red wine open vats are preferable and always used in California. Upright redwood vats of from 1000 to 2000 gallons are the best. These vats may be furnished with removable heads and used after the vintage for the storage of young wine.

CRUSHERS AND PRESSES.—Some form of crusher is needed to thoroughly break up the berries before they are pressed or fermented. The best crusher is one which will most completely break up the pulp of the fruit without grinding the seeds or stems. The common form consists of a pair of smooth or corrugated rollers between which the fruit is pressed. A better form for small scale practice is that made by Simon Freres, of Cherbourg, France, in which the berries are crushed by being carried over and pressed against a stationary corrugated surface by means of a single roller.

A press of some kind is needed to separate the must from the skins for white wine and the wine from the pomace for red wine. The lever, screw and hydraulic presses are the best for small cellars. Continuous presses are convenient and economical in large wineries but unsuited to the making of fine wines. The best results from the point of view of quality are obtained by the use of displacement batteries which do away with the necessity of presses in red wine making. These batteries, however, are difficult to manage in a very small cellar.

CELLAR EQUIPMENT.—Various appliances, tools, vessels, etc., will be needed for handling the grapes and wine, but they differ so much according to the scale and conditions of operation that it is impossible to properly discuss them here. They consist of various forms of conveyers, hand cars, and tube for handling the grapes and pomace and of pumps, hoses, buckets, funnels, faucets and strainers for handling the wine. Apparatus for testing the must and wine is also desirable.

A well equipped cellar, even a small one, should possess a Balling saccharometer for determining the amount of sugar in the wine and an ebullioscope for determining the amount of alcohol. Two dairy thermometers are necessary. Testing the acidity of the must is very desirable and can easily be learned in a



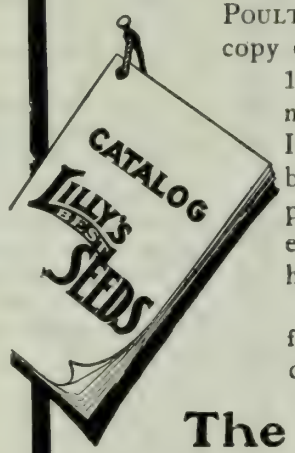
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On the smallest practical scale there with hose, a few tubs, buckets, faucets, siphons and strainers. A few special tools, such as cooper's hammers and driver, bung starters and sulphur bungs are also necessary.

OPERATIONS.—The principal operations in the manufacture of dry wine are as follows:

Vinification—Red wine: Gathering, crushing and stemming, fermentation, pressing. White wine: Gathering, crushing and pressing, defecation, fermentation.

Aging—Red wine: Racking, fining, bottling. White wine: Racking, fining, bottling.

The manufacture of sweet wines cannot as a rule be undertaken on a small scale.

GATHERING.—The grapes should be gathered only when they are perfectly ripe, that is, when they have their maximum flavor and color. This will usually be according to variety, in the cooler regions when the saccharometer shows from 20 to 23% of sugar. In the hotter regions from 22 to 25%.

Wine-making ripeness, however, is determined more by the flavor and appearance of the fruit than by the saccharometer. A Zinfandel may be perfectly ripe in Sonoma county when showing only 20% of Balling, while in Fresno county it may have the deficiencies of color and flavor which distinguish an underripe grape when it shows 22%. Fine wine cannot be made from underripe grapes, nor the best from overripe. White grapes should be a little riper than red.

For the best results it is seldom possible to gather all the grapes at once. It is usually much better to go over the vineyard twice, the first time leaving all dried, moldy, underripe or otherwise defective bunches. Sorting the grapes after gathering is impracticable.

TRANSPORTATION.—The grapes should always get to the crusher cool. This is accomplished by hauling directly to the winery only those grapes gathered in the early morning or on cool doys. The rest should be left in the picking boxes along the edges of the avenue and not piled up until the following morning. The nights are always cool enough to reduce them to a favorable temperature.

The grapes should reach the crusher as clean and fresh as possible. Gathered grapes, especially if warm and roughly handled, will quickly deteriorate by molding and fermenting.

STEMMING.—There is nothing in the stems of any value to the wine, and often much that is harmful. Their only use with red wine is in promoting the extraction of color and tannin from the skins, and with white wine in facilitating the separation of the must from the pomace in pressing. For red wine, thorough extraction is better brought about in other ways and it is nearly always advisable to stem red grapes in California. For white wine the stems are in contact with the must for so short a time that little or no harm results, especially if the grapes are completely ripe and the stems have lost their green succulent character. White grapes, therefore, do not require stemming.

The stems may be removed by rubbing the grapes through a sieve or grating placed over the hopper of the crusher. This method is slow and laborious, and most crushers are supplied with a centrifugal stemmer which removes the stems as the grapes come from the rollers.

FERMENTATION OF RED WINE.—The crushed and stemmed grapes are conveyed immediately to the open ferment-

(*Continued on Page 388.*)

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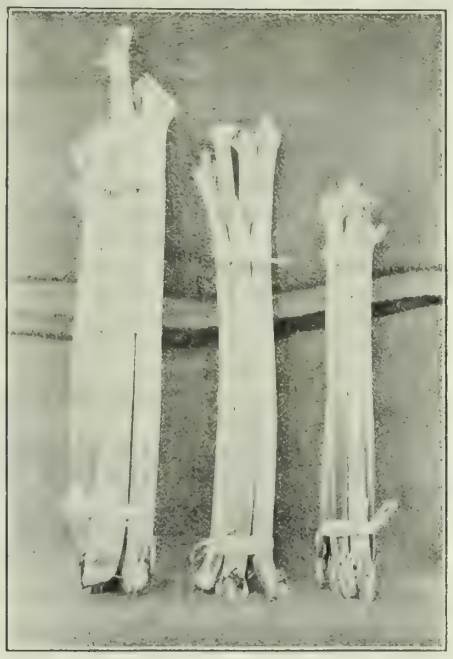
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AGRICULTURAL REVIEW.

FARMERS' INSTITUTES FOR BEE KEEPERS.

A series of special purpose Farmers' Institutes for Bee Keepers has been arranged for at various points over the State. This institute for the central coast counties will be held in the Chamber of Commerce at Monterey on December 14th and 15th. This gathering will be under the auspicies of the California Central Coast Bee Keepers' Association, and the opening session at 1:30 o'clock on the 14th will be given over to the annual business meeting of that organization, after which the regular program of the university institute will proceed.

On December 17th and 18th, jointly with the Northern California Bee Keepers' Association, there will be an institute held for bee keepers at Pioneer hall, Seventh street, between J and K streets, Sacramento. The annual business session will take place at 10 o'clock in the morning of the 17th and at 1:30 o'clock in the afternoon the institute program proper will begin.

For the bee keepers of the San Joaquin valley an institute has been arranged for at Tulare on December 20th and 21st, beginning at 10 o'clock of the first day. The local committee in charge of this institute is the executive committee of the Tulare Bee Keepers' Association, under whose auspicies the institute is being held.

In southern California, where local bee keepers' associations are not yet well organized, the university's representative, Mr. J. B. Neff, of Anaheim, has arranged with local committees of representative bee keepers, for two institutes: One in the Ventura district, to be held at Santa Paula, on December 22nd and 23rd, and the other in the Riverside district, to be held in the city hall at Colton, on December 29th and 30th. These two institutes will both begin at 10 o'clock in the morning on their respective dates and will be conducted by Mr. Neff.

All bee keepers are requested to be present at the institute held nearest to their home, and to bring with them samples of honey and wax to contribute to the institute exhibit. Excellent programs have been arranged for, and all are requested to take part in the discussion. The following are some of the subjects to be presented: Farmers' Institutes and What They are For; Honey Yielding Plants and How to Utilize Them; Modern Equipment Available for the Bee Keeper; Problems in Bee Breeding; Improved Methods of Queen Rearing; Building Bees Up for the Harvest; Moving Bees to Increase Returns; The Chemistry of Honey; The Latest in Bee Diseases; The Rendering of Wax; The Selection of a Location for an Apiary; Bee Disease Control Work; An Up-to-date Apiary; Producing Comb Honey; The Products of the Apiary—Honey, Wax, Vinegar; Marketing Honey; Co-operative Marketing; Protection from Ants and Other Insects.

DINUBA CITRUS FAIR.

The seventh annual citrus fair to be held in Tulare county attracted a good attendance at Dinuba last week. The fair, as an institution, is held at various parts of the citrus belt in Tulare county, this being the first one to be held at Dinuba, where commodious quarters were erected and everything possible done by the citizens of that town to make it a success. From the standpoint of excellence of fruit, varieties of exhibits and elaborateness of display, the fair was away ahead of previous exhibitions. The attendance and interest was good, and altogether those who had the affair in charge have reason to feel well pleased at the result of their efforts. The judges of the fruit exhibits were: H. W. Kruckeberg, of Los Angeles; R. M. Teague, of San Dimas, and C. D. Hubbard, of San Fernando, and as their manner of making the awards may prove instructive, we quote the following from their report:

"We, your Judges of the first Citrus Fair in this city, desire first to commend the fine display you have gathered, not only as to the quality shown and the striking manner in which it was exhibited, but also as to its superb quality. Naturally enough, here and there a specimen suffered from the fact that it was not wholly matured nor fully ripe. Something might also be said that in cases the specimens submitted for competition were faulty in shape, damage to peel, and other blemishes, all of which militated against as premium-winning fruit. These little drawbacks call attention to the importance in careful selection of specimens when the same is to compete against the field, as it must in all exhibitions.

"To the beginner in citrus culture the mere outward appearance of the fruit often is the only test by which comparative judging is done, but in its last analysis the real test is its eating quality. In this connection it may be of interest to give in brief the system whereby the survival of the fittest is arrived at in the judging of oranges and lemons. To do this we establish a scale, the perfect specimens representing 100 points—divided as follows:

"For oranges we have 10 points for size; 5 for form; 10 for color of pee' and flesh; 10 for weight; 10 for peel; 6 for fiber; 6 for grain; 4 for seeds; 30 for taste. For the lemon a similar scale is used varying, of course, in the several divisions. By this system the single entries were carefully gone over, each fruit was cut in halves and carefully tested out."

THE RAISIN SITUATION.

According to a letter to the trade, issued by L. F. Giffin & Co., at Fresno, last week, the total crop of raisins in the valley for the season is placed at 60,000 tons. Already sold and shipped by all interests, all varieties, 35,000 tons. Still in hands of growers: Muscats, 5000 tons; Sultanas, 2000 tons; Thompson Seedless, 1500 tons; total, 8500 tons. Controlled by Consolidated Packers, 2800 tons; by Selma Fruit Co., 750 tons; by Armona Fruit Exchange, 500 tons; by Farmers' Union, 750 tons; by California Dried Fruit Agency, 1700 tons; by Giffin & Co., 10,000 tons. Total, 60,000 tons.

Giffin & Co. claim that there are only 25,000 tons of raisins on the Coast to be sold, and that as 70,000 tons of old and new crop have been sold during the past 10 months, that the trade is facing an actual shortage, and that prices will be higher rather than lower.

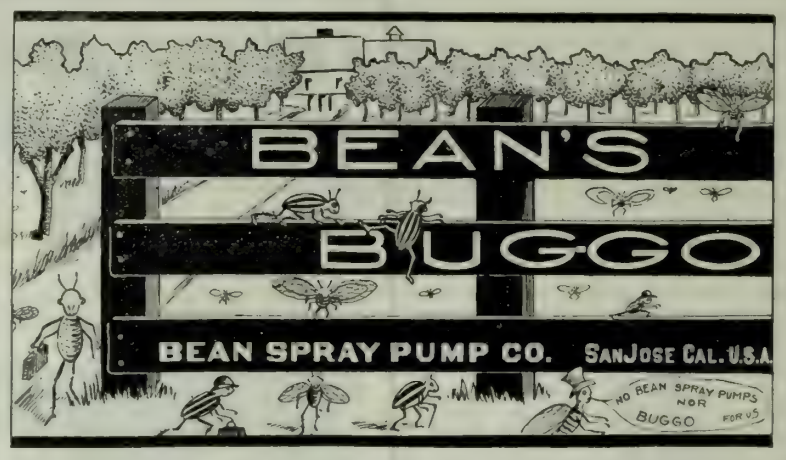
Speaking for the packers, A. Gartenlaub claimed that the Giffin figures were not correct and that there were more raisins to be marketed than were given above. However, it is stated that buyers are offering 2½ cents in the sweat box, plus transportation, to cover shortages.

Horticultural Notes.

According to District Fruit Inspector C. D. Whitney, a quarter of million of apple trees will be planted around Walla Walla, Washington, the coming season.

Up to last Saturday over 3000 cars of apples had been shipped from the Pajaro valley for the season. Most of the crop has been forwarded and the year has been a prosperous one.

The shipments of walnuts from Santa Ana will amount to 228 cars this season, making it the biggest shipping point for walnuts in the United States. From other points in Orange county, excluding the Anaheim, Fullerton and Placentia



BUG-GO cleans 'em up. Spray Now.

BUG-GO gives your trees a chance to bear.

BUG-GO kills the scale, the moss, and fungus growth.

BUG-GO was used extensively in the Santa Clara Valley last year and did wonders.

BUG-GO is no secret dope but a thick, creamy oil emulsion which dilutes with 14 parts of cold water making 750 gallons. Costs $11.75 delivered with 45 pounds Caustic Soda.

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LLOYD R. TAYLOR, Modesto, Cal.

districts, 60 cars will be shipped. The associations controlled about 70 cars more of the above output than last year. In the Placentia-Fullerton district almost the entire crop has been shipped, of which 56 cars went through the association and 27 cars by the Golden Belt Fruit Company. The crop was about as large as previous seasons, and while the price was a little lower than in 1908, the farmers are pleased that it was sold so quickly.

Manager F. B. McKevitt, of the California Fruit Distributors, in an interview given out last week, stated that the season of 1909 has shown the heaviest shipment of deciduous fruits ever sent out of California. The total shipments being a little over 15,100 cars, thus exceeding the heavy movement of last year which amounted to 12,920 cars. While the season was fairly prosperous to the fruit growers, yet in some lines fruit sold very low, and the poor prices are attributed by Mr. McKevitt to the poor conditions the fruit arrived in the Eastern market. A movement is under way in this State for the standardizing of our fruit pack that no fruit be shipped except it is strictly good and dependable article, honestly packed, that will command a higher price in the market, and besides build up the reputation for California fruits.

General Agriculture.

Preparations are being made for the erection of an alfalfa mill at Meridan, Sutter county.

L. H. Weed, of near Willows, Glenn county, has purchased a Johnson tractor engine and will use it to plow his grain lands.

The recent poultry show held at San Jose paid expenses and $34 over. The annual meeting for the election of officers will be held at the Chamber of Commerce on January 6th, and a banquet will be given at its close.

The Farmers' Union of Imperial valley have taken up the work of establishing a union hay market in Los Angeles that the producers and consumers may get in closer touch, that the surplus hay raised in the Imperial valley may have a better market.

The Alameda Sugar Company is leasing land near Woodland on which to raise sugar beets, besides contracting with farmers there to raise beets next season. The company will have the product of several thousand acres in that section next year.

Although the cotton crop was considerably less than last year yet this season's output from the Southern States will bring to the growers a larger volume of money, owing to higher prices. The crop this year is estimated to bring near $1,000,000,000.

A much larger acreage than usual is being prepared for grain in the northern Sacramento valley this season. The favorable weather and the high price of grain is the cause of the increased acreage. The big Stanford ranch, near Vina, will seed thousands of acres this winter.

An immense acreage of ground is being prepared for early sowing to grain around Winchester, in Riverside county. Many farmers are plowing from 500 to 3000 acres of ground each, to be ready for early sowing. The prospects are that a larger acreage will be sown to wheat this fall in this State than for a good many years past.

A letter received from one of our subscribers at Ventura states that the Lima Bean Association, with headquarters at Oxnard, has 75% of the Lima bean crop under its control, and the other 25% is held by parties in sympathy with it, and are standing "pat." A great fight has been made there this season for the control of the business and it now is practically won by the growers.

Great interest is being manifested in Merced county lands. Within the past two months many deals have been made which will mean the changing over the country from big grain and cattle ranches to small fruit, alfalfa and dairy ranches. The latest sale announced was that of the Trafton & Willoughby ranch, near the Stanislaus county line, in the Turlock irrigation district for $130,000. The 1600 acres are said to be all good land, several hundred are now seeded to alfalfa, and more will be planted this winter.

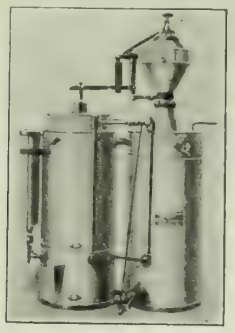
Miscellaneous.

Articles of incorporation have been filed by the Grape Tartar Company, which will build a plant at Lodi. The company will make tartar from grape pomace from the wineries.

Corn husk packers from near Merced are selling their husks for shipment. These corn husks are sold all along the Coast States to tamale factories and make up quite a business as a by-product. The husks are put up into bales weighing about 80 pounds and brings to that county from $5000 to $10,000 annually.

The weather was quite cold in southern California on the night and morning of the 3rd and 4th inst., and tomatoes all over the south were badly nipped. Some of the tender growth on the citrus trees was nipped, but up to this time nothing serious has been reported. On the morning of the 5th the mercury went dangerously low and some go so far as to say that only the coming of the rainstorm saved them from a severe chill.

A. N. Collins, recently from St. Louis, is now at San Jacinto looking into the matter of irrigation by pumping preparatory to installing a series of pumps on the 800 acres of land near Moreno, Riverside county, where he and other parties interested with him expect to plant out an 800-acre orange grove. The new company is confident that he can secure all the water necessary for the 800-acre grove, which when planted out will make one of the largest acreages set to oranges in one body in the State.



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Superb—Everbearing Strawberries.
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Extracted from the atmosphere.
99% Pure—13 Nitrogen
New stock early 1910 will arrive in San Pedro and San Francisco.
Contracts are now being signed for delivery next year.
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Flowering Bulbs
of
"Highest Quality"
for the particular planter. The right kinds for this Coast; 17 years experience here enables us to do it.
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SUPPLIES
CHAMPION STRAIN PETUNIA SEED
GIANTS OF CALIFORNIA
RUFFLED GIANTS
Lodge Flowering Hybrid Delphinium
Write for Prices.
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COMPLETE ASSORTMENT OF
Fruit and Ornamental Trees, Shrubs, Etc.
Trees grown on high sandy land without irrigation.
Write for new catalog and prices.
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You can have
MORE FRUIT
and
BETTER FRUIT
securing more money from your orchard, with but trifling exertion and small expense. The secret is simply learning to use the right kind of
FERTILIZER
Send for our free book "The Farmer's Friend; 1910," now ready for distribution, which tells you all about your fertilizer problems and how to solve them.
Pacific Guano and Fertilizer Co.,
Dept. C., 268 Market St., San Francisco.

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SAVING FRUIT CROP BY SIMPLE MEANS
With the possible exception of the loss occasioned by insect pests, there is probably no one cause of loss so seriously affecting fruit crops as frost.
THE BOLTON ORCHARD HEATER AND
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will positively protect any orchard or vineyard from damage at a very small cost. For full information and particulars, address
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Carbon Bisulphide
COMPLETELY DESTROYS
Borers, Root Aphis, Etc.
On Fruit Trees
and Ground Squirrels, Gophers, Etc. For sale by dealers and the manufacturers
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FOR 25 CENTS

EACH COLOR IN A SEPARATE PACKET

Dorothy Eckford. Pure white.
Hon. Mrs. E. Kenyon. Pure yellow.
King Edward VII. Deep rich red.
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The above 8 Cracker Jack Sweet Peas sent postpaid for 25 cents.

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Leading Growers in the State of Commercial Varieties of:

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Peach Trees

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Salesmen Wanted.

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We grow a large stock of first class Fruit and Ornamental Trees, Walnuts, Grape Vines, Eucalyptus, Orange, Lemons, Roses, Berry Plants, etc.

ESTABLISHED 1864.

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TREES

A few 1000 assorted fruit trees at low prices; send for price list.

T. J. TRUE, Modesto, R. F. D., 1.

WINE MAKING ON A SMALL SCALE.

(*Continued From Page 385.*)

ing vat, which is filled four-fifths full. This vat should be supplied with an efficient strainer to facilitate drawing off the must and wine from the botom.

SULPHITING.—As soon as the vat is sufficiently filled, a proper amount of potassium meta-bisulphite should be added. The proper amount is from 4 to 8 ounces per ton of grapes in cool regions and about twice this amount in the hot regions. The hotter the weather and the less acidity contained in the grapes, the more sulphite should be used. It is seldom advisable to exceed one pound per ton, however.

The sulphite should be thoroughly distributed in all parts of the vat. A convenient way to accomplish this is to place the calculated amount in a pump tub or sump, allow the must to run from the vat into the sump and pump over on top of the crushed grapes, distributing the must over the whole surface by allowing it to fall on a small piece of board placed exactly in the center.

The sulphite will gradually dissolve and decolorize the must, which runs pink from the faucet. When the must comes from the faucet colorless or brownish the sulphite has reached every part of the vat and the process is finished.

STARTERS.—It is always advisable to use a yeast starter, and especially so when sulphiting is practiced. The starter is best applied by placing it in the pump tub after sulphiting and pumping over exactly as already described. The same amount of pumping is necessary as in sulphiting in order to insure the yeast reaching every part of the vat. The best starter is a culture of pure yeast prepared as described in Circular 23 of the Berkeley Agricultural Experiment Station. If this is unavailable, fermenting must from a vat which has about two-thirds finished its fermentation may be used.

About one gallon of vigorous fresh starter to 100 gallons of crushed grapes should be used; a little less in warm weather and a little more in cold.

TEMPERATURE.—Grapes treated in this way in a small cellar will usually ferment dry (i. e., until the complete disappearance of the sugar) without any attention to the temperature. To obtain a fine wine, however, the temperature must be controlled. If the temperature goes above 92° F. during fermentation the quality will suffer. For the best results it should be kept below 90° F.

This is accomplished by the use of cool grapes, small vats of proper shape, judicious handling, and, where necessary, the use of cooling appliances. The last are discussed in bulletins 167 and 174 of the University of California Experiment Station.

ACME

Lime for Spraying

Purest and best. Largest barrels.

USED EXCLUSIVELY BY CALIFORNIA REX SPRAY COMPANY, AND MANY OTHERS.

Ask your dealer for it or address,

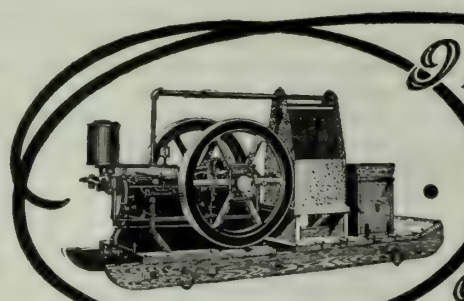
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FAY ELBERTA PEACH

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IRRIGATION by pumping is making hundreds of farmers prosperous. It is the modern way. It makes you master of the water situation. You can use water when and where and as long as you like. You do not have to wait on the neighbors, or agree with them as to when the water shall be turned into your lateral.

In many cases, pumping is the only means of irrigating—you cannot get water upon your land any other way.

The simple, strong, efficient I H C gasoline engines are

Turning Waste Lands Into High-Priced Farms

There are hundreds of places where land can be had for a few dollars an acre. The moment you put this land under irrigation it jumps in value to one, two or three hundred dollars an acre.

There is no mystery and no impossibility about it. It is simply applying water to the land by means of an economical power that old-time irrigators did not have the advantage of. You can always find water in lakes, sloughs, springs, streams—in the underflow, in seepage, etc. Your I H C engine will pump it just where you want it.

The engines require but little attention. They pump water in large quantities and they do it economically. They are not adapted to pumping water only. You will have a score or more uses for them on your farm—operating your grinder, fanning mill, cream separator, churn, pump, thresher; your bean huller, cider press, alfalfa cutter, and any other machines requiring power.

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Look into this matter of pump irrigation. It may mean the reclamation of your land and a fortune for you. An International agent in your town will supply catalogues and particulars, or address any of the following houses for further information:

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THE FAMOUS INSECTICIDE AND FUNGICIDE.

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For particulars inquire of your dealer or write to the factory at

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By PAUL P. PARKER.

STOCKMEN'S PROTECTIVE ASSOCIATIONS.

Stockmen can derive great benefit from protective associations when they are run in a businesslike manner. A good illustration of what a protective association can do for the stockmen is found in the case of the association at Livermore. For several years past thousands of acres of feed had been destroyed every season by careless hunters or campers starting fires in the grass. In fact it got so bad that several prominent stockmen had to quit the business and many were preparing to give it up. As a last resort a protective association was organized in which all the leading stockmen became members. Every member is a fire warden over his own district, and when a fire starts he drops everything and goes to fight the fire. No member gets money for his services, the only persons being paid are those outsiders who are hired in emergencies. Since the organization of the association there has not been a serious fire in the district and the members are able to get the full value from their grazing lands. After a fire sweeps over a range there is not only no feed for the present, but the feed for several years is affected, the seed is destroyed and there is no dry grass to protect the tender shoots in the spring. The following is a copy of the notice which the Livermore Stockmen's Protective Association posts over its land.

"Having suffered great loss from fire on our ranges in recent years, the members of the undersigned association have been compelled to forbid trespassing, hunting, camping and starting of fire on these premises and on all property owned, leased and controlled by said members. Trespassers will be prosecuted to the full extent of the law. This notice shall be operative between May 16 and July 1 of each year hereafter. (Signed by members.)"

It is seen that they only protect their ranges during the dry seasons and when fires are prevalent.

ALFALFA FOR HOGS.

Alfalfa is the king of forage plants in California, and reports from all sections of the State indicate that the acreage will be doubled in the next two years. Hundreds of acres now being planted are to be used exclusively for hog raising, or at least hogs are to be the principal product, with a few cows to be raised on the side to furnish skimmed milk and to make expense money by the sale of the cream. Alfalfa is the best feed for the farrowing sow and the young pig, as it is rich in proteins and mineral matter. Being an almost balanced ration in itself, alfalfa is invaluable for the development of the young porker. It gives them that bone and sinew which makes it possible to put on more flesh when they are being finished for the market. The farrowing sow which is fed on alfalfa gives an increased flow of milk, so that her litters are not stunted when young and they are therefore in better position to resist the many diseases which carry off young pigs. Another feature in favor of alfalfa for young hogs is that it is bulky and the stomach of the young porkers is not overloaded with heavy food so as to overheat them, which is the case with grains or corn.

Hogs given a straight diet of alfalfa will thrive until they attain their growth, after that they will not do so well, so it is best to feed skimmed milk along with the alfalfa as they reach maturity. Hogs, like human beings, like a change of diet, so when it is possible, pumpkins, citrons, raisins, Mother Hubbard squash or any grain should be fed them. In this way their appetite will always be keyed up and the best results from the food will be obtained. One of the large hog raisers in the San Joaquin valley who has made a success of raising hogs on alfalfa, gives them all the skimmed milk he can during the summer months along with alfalfa about six weeks previous to selling them to the butcher. He runs them in the stubble fields to pick up the loose grain. They stay on this grain diet for a month and then they are put in pens and are given all the corn and grain they can eat. In this way his hogs got a good growth from being on the alfalfa and are in condition to take a fine finish from the grain.

DAIRY NOTES.

H. W. Timm, owner of the certified dairy at Dixon, has just closed a contract with the Southern Pacific to furnish certified milk on all their trains running out of San Francisco. The milk is to be put in specially designed bottles which are now being made by the De Laval Company.

W. E. Booth, a creameryman of the San Joaquin valley, has been elected manager of the creamery of the Imperial Valley Milk Company at Brawley. The creamery will commence operations in a few days.

The Upper Williams creamery at Grants Pass, Oregon, has been sold to Frank Sutton of Ashland. The sale includes the creamery with a daily capacity of 800 pounds, 155 acres of alfalfa and 30 head of dairy cows.

The Kerman Creamery Company will soon commence the construction of a creamery building which will be built partly of concrete. The officers of the company are N. E. Carmine, president; Jacob Wise, manager. Others interested are P. Bowdish, Wilfred Baker and Emile Jung. The new creamery and the alfalfa mill make such a demand for alfalfa that the acreagae will be doubled next year. Many of the vineyardists who are discouraged over the grape outlook are contemplating pulling up their grape vines and planting alfalfa.

The Marysville Dairy Company has sold its dairy herd to the Yuba Dairy Company, who are erecting a dairy near Yuba City.

H. T. Goethe of Sacramento has purchased the stock ranges of W. Rassmusen, and R. Colwell near Folsom will put a dairy herd on the land.

The San Pasqual creamery near Escondido has paid 30 patrons up to November 1, $40,000. The receipts of cream were 241,858 pounds, from which 124,429 pounds of butter was made. The average price received by the dairymen for butterfat was 32 7-10 cents per pound.

The Wheatville section near Laton is rapidly becoming a dairy center. A. Brown has built a new barn with the latest sanitation facilities, which will accommodate 60 cows. Mr. Brown has been testing his Holstein cows and found that many of his herd were averaging from $12 to $14 per month. Henry Munson, W. W. Curtis and M. T. Simas are also renting more land and otherwise enlarging their dairy plants.

The dairymen of Salt River, Ariz., have formed an association in order that they can get a better price for their butterfat. This association has determined to pool the milk of 2500 cows and sell it to the creamery offering the largest price, the highest bidder to receive the cream for a year or even longer. If the creameries will not accept their proposition they intend forming a co-operative creamery.

It is estimated that 25 dairies will be started around Brawley before spring.

A Berkeley company has purchased 450 acres of land in the Tully tract near Turlock and will plant alfalfa. When the



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For Thirty Years
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As much better than other separators as other separators are better than gravity creamers.
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Stickney Gasoline Engines
ARE THE BEST
Why? Because of the outside igniter, modern open cooling system, straight-line valve motion and ball-bearing governor. Thousands in successful operation because of our years of experience in building the best. Send for our Free Catalog and our Catechism telling fifty-seven reasons why
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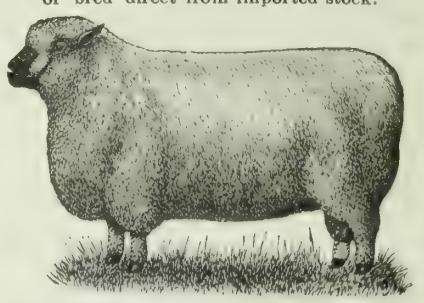
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CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

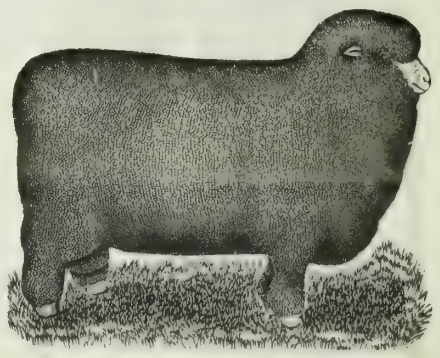
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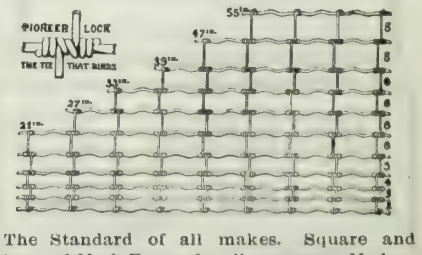


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alfalfa gets ready for cows they intend building a large cheese factory on the land.

Frank Rocha has leased 630 acres of alfalfa land from L. P. Denny of Corcoran at the rate of $10 per acre a year. Mr. Rocha will soon stock the place with several hundred head of dairy cows.

G. A. Smith of Corcoran left for Kentucky to buy 100 head of registered Jerseys for his ranch.

The Woodland creamery has paid its 250 patrons in the last year $141,816 for 454,535 pounds of cream. The average price for butterfat for the year was 33⅓ cents a pound.

LIVE STOCK NOTES.

Dr. G. H. Hart, who has been stationed at Porterville to eradicate the Texas tick in behalf of the government, has been called to San Francisco for assignment, as that pest has been wiped out of the district.

The lip and leg disease has broken out among the sheep in Utah, and all the sheep in that section are being quaran tines.

H. S. Stephenson bought 1600 head of cattle for the Chino Land & Water Com pany in Utah recently to be fattened on beet pulp at the silo near Chino.

The Texas Cattle Raisers' Association is trying to have the rule of the Bureau of Animal Industry modified, which pre vents them from removing cattle from a district where ticks existed six months prior to date of removal, as it works a hardship on them when the feed or water gets low in these districts.

The grass is in fine condition around Douglas, Arizona, due to the heavy rainfall this summer. As a result the cattle were never fatter. The wild hay raised in the San Simon valley near Douglas is selling for $10 per ton.

R. H. Benton of Imperial recently brought 19 carloads of cattle from Arizona to fatten on his ranch.

It is estimated that 450,000 head of lambs will be shipped out of New Mexico by the 15th of December. Last year the shipments amounted to about 1,000,000 head. The shortage this year is due to the drouth in the spring, which killed off large numbers. Most of the shipments are being made to the feed lots in Colorado, where they are fattened for the Eastern markets. The price this year is from 50 cents to $1 higher per hundred pounds than last year, being now from $5 to $5.50.

The mohair growers of the Southwest have formed an association so as to get a better price for their mohair. They intend storing the mohair in a central warehouse in the East and hold it there until the market justifies them in selling their product.

J. W. Cox of Datil, N. M., recently shipped 500 head of cattle to Kansas City. In order to prevent them injuring themselves en route most of the animals had been dehorned.

Cliff Cramer of Susanville drove 300 head of cattle through the snow to Gridley last week.

The cattle business is very quiet in Tehama county. Many of the stockmen intend retiring from the business at the end of this season. The high price of land and the restrictions of the forest reserves is the principal cause of the decline of the cattle industry in this section.

George Taylor recently bought 18 carloads of cattle from Arizona to fatten on his ranch near Imperial.

Capitalists from Augusta, Maine, have bought the Milne-Bush ranch of 13,000 acres near Roswell, N. M., for the purpose of raising cattle.

J. T. Willet has organized a meat packing company at Tampico, Mexico. On account of the high price of beef in the United States and the corresponding low price in Mexico he expects to undersell the large American packers in the foreign markets.

The sheep exhibit at the coming National Stock Show to be held in Denver from January 8 to 15 is to be an especially large one.

Ten horses infected with glanders were recently destroyed at Hanford.

T. B. Owen of Calexico has just received 150 mules from Missouri which he is selling to the farmers in that vicinity. Mr. Owens has imported over 400 mules in the last two years from the Southern States, and he gets as high as $600 a pair for them.

Thing Bros. of Calexico recently shipped to the Maier Packing Company of Los Angeles 27 steers which brought $1318 or $48.82 apiece.

Graham Bros. of Hollister slaughtered a hog last week which weighed 618 pounds. It was slightly over a year old and had been fed on corn.

Bigelow Bros. have leased the Forbes ranch of 2500 acres near Marysville and will engage in dairying and hog raising.

The Oakland Meat Company are looking over the ground at Klamath Falls for a possible site upon which to erect a meat packing plant.

Twenty-two cows belonging to the Utah State Penitentiary were killed because of being infected with tuberculosis.

Price of feed in Texas is exorbitant, so that many cattle owners are rushing their stock to the market.

Sixteen thousand dollars worth of cattle were shipped out of Imperial in one day



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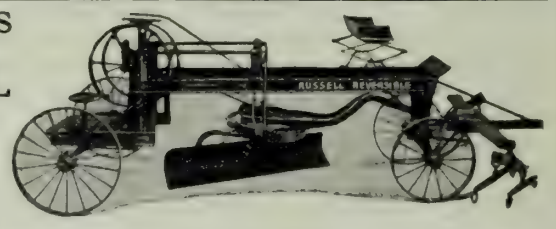
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CHARLES GLOECKNER.

last week. The stock belonged to G. A. Long, R. H. Benton and Virgil Patterson.

About 55,000 head of cattle have been dipped in Santa Barbara county this year. The most effectual dip is made of 8 pounds of arsenic, 24 pounds of sodium carbonate, 2 pounds of soft soap and 1 to 2 gallons of pine tar and 500 gallons of water.

F. B. Moson, manager of the Greene ranches in Sonora, Mexico, reports feed very scarce in that section.

QUESTIONS AND ANSWERS.

HOGS ON ALFALFA.

"Is it possible to raise 500 pigs a year on 30 or 40 acres of alfalfa which is also carrying about 20 cows, the hogs to get all the skimmed milk and to be finished on grain."—G. M., Oakland.

It would not be possible to raise 500 hogs on 30 or 40 acres of alfalfa which is also carrying 20 cows. One acre of alfalfa will feed one cow a year or 20 to 25 hogs. We refer you to an article on "Alfalfa for Hogs" in this issue of the RURAL PRESS.

HOG RAISING.

"Could you refer us to any article on feeding raisins to hogs? Also which is the best way to get rid of worms in hogs? How many acres are necessary to feed 1600 hogs and about what profit can be expected from each animal? Do you know of any literature on hog raising?—J. A. K., Dinuba.

In regard to feeding raisins to hogs, we refer you to the December 4th issue of the RURAL PRESS and an article on alfalfa in this issue. The simplest method to remove worms from hogs is to mix one teaspoonful of turpentine in a slop of some kind with every 80 pounds of live weight. Feed this for three days and then repeat the dose for three days one week hence. It would take from 65 to 70 acres to feed 1600 hogs. The profit to be expected per animal varies in the different sections, it being regulated by the cost of alfalfa, labor and water. At the present time hog raisers are doubling their money on pigs, and from all indications the price of hogs will go still higher. Some hog raisers figure that it costs about 3½ cents a pound to put fat on the hog so with pork at 7½ they clear about 4 cents a pound. This department is soon to have an article on hog raising in California which is to cover the various breeds and the methods of feeding in vogue about the State.

CLARIFIED BUTTER.

Can you tell us of a better way of clarifying butter than we are now using? We heat it over water and then strain it twice through absorbent cotton. It only keeps about a month, after which it puffs up and gets rancid. Would filter paper be any better to strain the butter?—M. S., San Rafael.

Straining is not the best way to clarify butter. There are several methods used but in all cases the fat after melting is purified with hot water, after which it is plunged into ice cold water, a factor which you have omitted. One method is to put the melted butter in a barrel with spigots on the sides through which the milky portion and sediment is drawn off and the fat is removed by gravity. Another method is by aerating the melted butter into hot water and then skimming the oil off the top and suddenly immersing it into cold water. Filter paper will not be any better than the cotton.

COYOTE PROOF WIRE FENCES FOR SHEEP.

J. T. Jardine, who has been carrying on investigations for the government in regard to enclosing pastures with wire fences as a protection against coyotes in eastern Oregon, has given out some of the results of his work. The experimental work was carried on in an area of 2550 acres enclosed in a coyote proof fence. In 1908 a band of ewes and lambs were turned loose in the summer grazing season, and this year similar tests were made. Not one coyote has gone through the fence during the two seasons' test. In 1908 the loss from pastured sheep was one-half of one per cent, and this year only one-fifth of one per cent, or four sheep out of 2150. The loss to bands on the outside for the same period was from two to three per cent. The lambs from the pastured bunch each season weighed eight pounds heavier than the best lambs from the bands herded near the enclosure. The wool clip is better and only two-thirds the arceage of range is needed for sheep in the enclosure.

THE SWINEYARD.

The profits in hog raising are plainly demonstrated by the care of the California Nurseries at Niles. Mr. Eberley, the manager, put in hogs to eat up wormy fruit and refuse about the place, which had been going to waste for years. The results from these hogs has been more than satisfactory. Mr. Eberley prefers the Berkshires and has just received a six-months-old boar out of Odeal Masterpiece, the famous prize winner.

Hogs should be kept off the pasture after rains or after the ground has been irrigated, as the sharp feet of animals tear up the surface and the soft ground makes it easy for them to root. Also care should be exercised not to graze too closely as the crowns of the plant will be injured and the yield of the alfalfa materially lessened. Not more than 20 to 25 hogs should be allowed to graze per acre on the average field.

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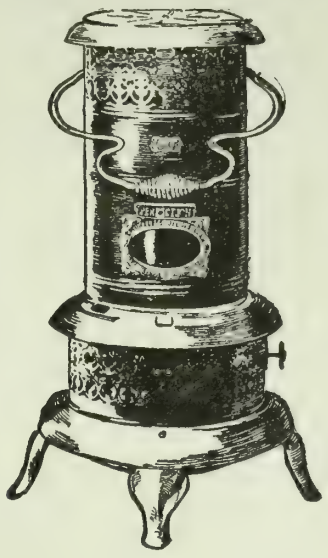


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The Poultry Yard.

THE TURKEY ON THE FARM.

Written for the Pacific Rural Press
By M. Russell James.

In the spring, the poet tells us, the fancy lightly turns to love, and we all know that at Thanksgiving the fancy longingly turns to turkey. Thanksgiving and turkey—these two ideas are firmly associated in the mind of the true citizen of the United States and are hallowed by national tradition and custom. But, alack, it has come to pass that the average citizen has only the association of ideas to feast upon. The noble bird has soared beyond his Thanksgiving bill of fare.

There is one class of citizens, however, that might always enjoy this true Thanksgiving feast, let the dollars be never so few, and this is the farmer, orchardist or whoever has a range of woodland or pasture about his home. Yet we doubt if many families of this class were cheered and made thankful this Thanksgiving by that crisp, savory roast at the head of their tables.

Though the turkey has been classed with domestic fowls for near 400 years, it is still a wild bird in its instincts, and it requires conditions closely related to its native habits for best results. The luxuries of civilization—stuffing on rich food and confinement—agree not with this noble bird of the forest. In the orchard and field turkeys are a valuable aid in destroying insects, which comprise the greater part of their natural food, and lucky is the worm, bug, fly or hopper that escapes their keen sight and quick movement. Even among growing and stacked grain they cause little damage unless in very large numbers.

This bird is a true-blue native of the Western Hemisphere, though its name would indicate otherwise. Much research has been devoted to the origin of its name, and it is now generally conceded that it comes from the Hebrew word "Tukki" or peacock. E. Richardson in his book on turkeys explains how this Hebrew designation might have come about by the chief trade in these strange birds, which seem most nearly related to the peacock, falling into the hands of the Jew merchants, of which there were many in Spain at the time of the Cortez expedition to Mexico.

There are six standard varieties of turkeys, Bronze, Narragansett, Buff, Slate, White and Black. Each of these varieties has its admirers and breeders in this country, but the Bronze easily heads the list. The standard weight for the matured cock of this breed is 36 pounds and 20 pounds for the hen, though these weights are often greatly exceeded. However, this breed does not fully mature and attain heavy weights till three or four years of age. Heavy cocks and overfat hens should never be used in breeding. The medium weights, 25 pounds for the male and from 15 to 20 for the female make the best breeders. As a rule the medium weights are also preferred for the market, as only the hotels and restaurants, etc., can handle the 40 and 60-pounders.

Formerly we were inclined to the belief that our climate directly on the coast did not agree with this bird, and that efforts to raise turkeys to any extent were likely to be thrown away, but practical proofs to the contrary have changed this belief to the certainty that with free range and rational care these birds may be successfully and profitably raised directly on the coast. At one homestead near the Stege Park from 50 to 100 turkeys are raised every season and disposed of at a handsome profit. In a future article we shall describe the methods and results in this case more fully.

From the new book, "Turkeys, Their Care and Management," published by the Reliable Poultry Journal Co., we give a few items of interest relating to this subject:

"As an illustration of what can be and has been done with a few turkeys, will state that one of my neighbors purchased a trio of Bronze turkeys for $9, and with the use of some common hens to hatch the first eggs, he raised 63 head of young turkeys, and in November he sold the entire lot to a buyer at market rates for an even $100, and the purchaser took them at the farm with no time nor expense lost to the grower in delivering. One day recently Cleveland market quoted hogs at $6.50 per hundred and turkeys at $20 per hundred. These comparisons are made simply to show the difference in value of the two farm commodities."

This from "How Turkeys Reach the Market:" "The buyers visit certain towns where the turkey production is enormous, contract wherever possible for the purchase of all the fowls, and then drive to the farms and see the farmers themselves—or rather the farmer's wives, for we have found that the women are the ones who really have the 'say' as to when and where the stock shall be sold. My head buyer the other day handed a Missouri woman $563 for her flock, and she said she was saving the money to buy another farm to raise more grain to fatten more turkeys to buy another farm—and so on. She finds there is more money and less trouble in turkeys than in hogs."

The Rhode Island turkey grower, Horace Vose, famous for having furnished the White House Thanksgiving turkey for the past 30 odd years, and who has autograph letters of thanks from General Grant down, says in regard to the fattening of his world-famous birds: "The object of fattening a turkey is to produce firm, finely flavored, luscious flesh. Therefore it should be fattened on whole corn—not meal—as the corn gives a firmer constituency to the flesh. It should never be stuffed artificially or confined in close quarters. If sweet apples are available they may be fed, as nothing will give a necer flavor to the flesh."

The following practical advice to farmer turkey growers is from one of the noted breeders who make this turkey book especially valuable: "If I were a farmer raising market poultry I would want turkey pullets weighing from 15 to 17 pounds, good, large-boned birds, not fat, and young toms weighing from 24 to 28 pounds, or yearlings from 30 to 35 pounds. I would hatch my turkeys early and in the fall they would be as good market turkeys as anybody would want. I would keep the pure Bronze turkeys, for nothing has ever equaled them. I would not do as some have done—in-breed until I decreased both vigor and size of my birds, nor would I save the late small, runty turkeys to breed from. I would save nice pullets and yearling hens and buy a tom from some fancier every year, or if I were short of money I might keep one two years, though I prefer changing stock every year. One tom is sufficient for ten or twelve hens or even more. I would keep more hens than most farmers' wives do, and instead of breaking them up from sitting, I would let them sit on their own eggs, or, if preferred, I would set the eggs under the domestic hen, giving all the young to the turkey hen, and if I did not care to keep over so many hens I would sell the surplus after they had laid the early eggs. I raise late turkeys, but if I were not a fancier and were raising market poultry, I should not raise late turkeys; early ones are much more profitable. They are much hardier during the summer and are not apt to be affected with the diseases which take off hundreds of young turkeys in the fall. The farmer should learn that he needs good, strong, large-boned, vigorous breeding stock, such as will take on flesh when he wishes to market them. I should advise the beginner not to buy more than a trio. The mistake of nearly all beginners is that they want to start with too many. When writing for stock state just what line of business you are in. Do you wish to sell your stock on the market or as breeders? Do you wish to raise exhibition birds or simply good pure birds?"

The census report of 1900 gave 6,599,367 as the number of turkeys then in the country, the bulk of these being in the Middle West.

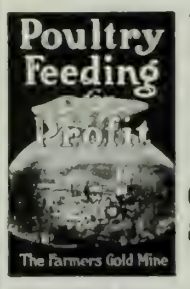
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The Home Circle.

When Grandpa Was a Little Boy.

"When grandpa was a little boy about
your age," said he,
To the curly-headed youngster who had
climbed upon his knee;
"So studious was he at school, he never
failed to pass;
And out of three he always stood the
second in his class—"
"But, if no more were in it, you were next
to foot like me!"
"Why, bless you, grandpa never thought
of that before," said he.

"When grandpa was a little boy about
your age," said he;
"He very seldom spent his pretty pennies
foolishly;
No toy or candy store was there for
miles and miles about,
And with his books straight home he'd
go the moment schol was out—"
"But, if there had been one, you might
have spent them all like me!"
"Why, bless you, grandpa never thought
of that before," said he.

"When grandpa was a little boy about
your age," said he,
"He never stayed up later than an hour
after tea;
It wasn't good for little boys at all, his
mother said;
An so, when it was early, she would
march him off to bed—"
"But, if she hadn't maybe you'd have
stayed up late, like me!"
"Why, bless you, grandpa never thought
of that before," said he.

"When grandpa was a little boy about
your age," said he;
"In summer he went barefoot and was
happy as could be;
And all the neighbors 'round about
agreed he was a lad
Who was as good as he could be, except
when he was bad—"
"But, 'ceptin' going barefoot, you were
very much like me."
"Why, bless you, grandpa's often thought
of that before," said he.

The Flower Wife.

Alicia Sayles was troubled. What troubled her was her own secret and was not suspected by anyone. Indeed, it was not suspected at all that she was troubled. Why should she be? She owned the finest farm in the county, was a college graduate and comely. True, she was an orphan, but as far back as she could remember she had always been an orphan. Her home was with an uncle and an aunt.

What troubled her was this: She had nearly passed what might be considered the best age for women to marry—she was 27—and was not married. Had it not been for her property she might have been married long ago. None of the young men of her acquaintance dared to aspire to the hand of the heiress, especially an heiress who was a college graduate. Nevertheless Alicia was a country girl and desired to remain a country girl. If she married she would marry a farmer.

On her return from college she did not think of marriage. She had resources within herself which were greatly broadened by her education. For a time she read books on the lines marked out for her in college and was satisfied. But one morning she awoke to the fact that she was drifting into perpetual spinsterhood. The prospect did not please her. In her childhood and youth she had been deprived of that affection which exists in families and was averse to passing the latter half of her life without a husband and children. She thought over the bachelors of her acquaintance, and after some deliberation settled on Silas Blakely, a young farmer with little on his farm except a mortgage. On him she resolved to bestow her hand.

She did not know that Blakely would care to marry her, though she rather thought he would. But, considering she was well to do and he was poor, she knew he would not have the assurance to propose to her. She must propose to him. How should she propose?

One evening Alicia saw Blakely coming up the road, driving the stock from pasture. Hurrying into the garden, she gathered a bouquet and said to it, "I take you beautiful flowers, with your pink and blue and crimson and white complexions, to be my wedded husband." Then, calling to her aunt, she told her to take them to the well and throw them in as soon as Blakely came opposite, making sure he saw her doing so. The aunt took the bouquet, went to the well and when the young farmer passed acted as she had been told.

"Why do you throw those beautiful flowers away?" called Silas.

"They are my husband," said Alicia from the porch. "I'm a widow."

"What do you mean by that?"

"Have you ever heard of the proverb:

"Go to the ant, thou sluggard; consider her ways and be wise?"

"Yes."

"Well, if you wish to know the meaning of my being married to the flowers, go to your books, and if you hunt patiently you will find out."

With this she went into the house.

Blakely hurried on to overtake the stock which had passed during the brief dialogue, but he knew not of horses or cows; the strange episode had got into his head, and he was filled with wonder as to what it meant. While Alicia had been telling him that she was a widow she had looked upon him kindly, and her voice, which was sweet, still sounded pleasantly in his ears.

Now, Silas Blakely was no fool. His education was good for a countryman, but he neither had the books nor the inclination to hunt through them for any interpretation of such an inane proceeding. One of his schoolmates, however, had gone to college and had become a professor. To him Blakely wrote an account of the episode, asking for an interpretation.

Alicia possibly wished to test Silas' common sense. To hunt for the explanation himself would have been like looking for a needle in a haystack and while doing so his farm would have been sold out under the hammer.

It was a long while before he received the interpretation to the conundrum, but when it came he opened his eyes and his heart started up at a gait of a hundred beats to the minute. The same evening, getting off his farm clothes and into a very respectable outfit, in which, by the way, he looked very well, he went to call on Alicia.

"I have come," he said, "to offer all I have—that is, my farm with a mortgage on it—for the flower widow."

"And how," she asked, blushing and smiling, did you learn what is meant by a flower widow?"

Blakely told her of his application and showed her the reply, which was as follows:

In India a man often remains unmarried longer than he would desire simply because he cannot afford to pay the sum the father of a desirable daughter demands of his would-be son-in-law. Widows, however, are cheap, and a wily father who finds his daughter is getting on in years while suitors tarry takes advantage of this act. He marries his girl to a bunch of flowers, which he then throws into a well. Thus the lady becomes technically a widow, and as such she is a bargain in the marriage market. Thus the flower widow is secured as a wife by a suitor who would not have dared offer a small sum for her before her so-called marriage.

Alicia found in Silas Blakely the man she desired for a husband. He not only lifted the mortgage from his farm, but managed hers for her so that both prospered. Through her life Alicia was devoted to her husband and her children, and when the former died no flowers were thrown in the well. She remained a real widow.—F. A. Mitchell, in Household Journal.

Homemade Christmas Candies.

Good homemade candies are enjoyed by everyone, and the enjoyment is not only in the eating, for the making is certainly an enjoyable task if the results are satisfactory. Following are some tried recipes that are sure to be successful if the directions are carefully followed:

VANILLA CREAM STICK.—Boil three cups of sugar with one and one-half cups of water and one-quarter teaspoon of tartaric acid until, on trying in cold water, it can be rolled into a ball. Pour out on a buttered dish, being very careful not to stir the mixture while cooking, nor scrape the pan when pouring out. When cool enough to handle, add flavoring and pull until white. This candy will soften in 24 hours, and if flavored with oil of peppermint makes delicious after dinner mints.

CHOCOLATE CHIPS.—Stir together one cupful of brown sugar, one cupful of molasses, one teaspoonful of butter and a pinch of soda. Boil as for taffy, and when done and cool pull to a light brown. Cut into small squares, and while warm roll with a greased rolling pin into thin strips. Set aside to harden before dipping each strip of taffy into melted, sweetened chocolate. Place on oiled paper to harden.

PEANUT BRITTLE.—Melt two cupfuls of light brown sugar in a saucepan and when melted add one cupful of peanut kernels. Turn quickly into shallow pans and break up when cold. Care must be taken not to scorch the sugar.

ALMOND CREAM CANDY.—Beat the white of one egg and heat it with one tablespoonful of water and then stir in one and one-quarter pounds of confectioner's sugar, adding three teaspoonfuls of vanilla; mix into this one cup of chopped almonds. Make this into bars and when cold cut in slices.

RECIPE FOR FONDANT.—Make a fondant by boiling together two cups of granulated sugar and half a cupful of water without stirring. Let boil over a hot fire four minutes, then take from the fire and with a dry spoon put a few drops of the boiled sugar in a cold saucer and stir. If it turns at all milky it is done enough for icing, dates and all kinds of candies. Set the saucepan in a basin of cold water and beat until creamy. A good fondant is the foundation for many candies, such as chocolate and walnut creams.

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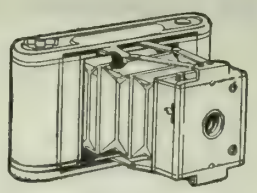
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THE MARKETS.

San Francisco, Dec. 8, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The amount of wheat in warehouse shows some increase since last month. The local market is hardly as active as for some time past, though Northern grain is still coming in freely. Both Club and Bluestem continue to advance, in sympathy with the Northern market. California grain is becoming scarce and Sonora is very closely held at extreme prices.

California Club	$1.90	@1.95
Sonora	2.10	@2.25
White Australian	2.00	@2.07½
Northern Club	1.90	@1.95
Northern Bluestem	2.05	@2.10
Russian Red	1.80	@1.85

BARLEY.

Barley has been moving off freely of late, though exports to date are less than last year. Arrivals for the week have been moderate. Prices show a little more firmness on all grades, but values fluctuate within a rather narrow range.

Brewing	$1.47½	@1.50
Shipping	$1.47½	@1.50
Good to Choice Feed, per ctl.	1.47½	
Common Feed	1.42½	@1.45

OATS.

Supplies are somewhat larger than a month ago, owing to heavy arrivals from the North. The market, while not very active, is steady on most descriptions. White are in more demand and firmer, and reds also show a slight advance, though there is little movement of this grade.

Red, feed	$1.65	@1.75
Seed	2.00	@2.15
Black	2.60	@2.90
Gray	Nominal	
White	1.67½	@1.70

CORN.

Offerings show some increase, but there is little feature to the market and trading is too light to establish very definite values locally. The Western crop is reported short. Egyptian is weak, with little demand.

California Small Yellow	$1.70	@1.75
California Large Yellow	1.75	@1.80
Western State Yellow, bulk.		1.63
Mixed, in bulk		1.61
White, in bulk		1.67
Egyptian—White		1.60
Brown		1.55

RYE.

The top quotation is nominal, as there is practically no movement at that figure. Lower grades are also quiet, but occasional lots are sold at the figure quoted.

Rye, per ctl	$1.90	@2.10

BEANS.

The market is still in a somewhat unsettled condition, owing to the extremely high level of values and occasional small fluctuations are noted. Quotations, however, are not materially different from those previously given, and so far there has been no weakening. The market has quieted down considerably, both arrivals and shipments for the last week showing a material reduction, though the movement is fully normal for this season. The stock on hand here December 1 was 204,312 bags, considerably less than at the same time last year, but the supply in the State is considered about equal to that of last December.

Bayos, per ctl	$4.75	@5.25
Blackeyes	4.00	@4.25
Cranberry Beans	4.25	@4.75
Garvanos	2.50	@3.00
Horse Beans	1.75	@2.00
Small Whites	4.75	@5.00
Large Whites	3.25	@3.50
Limas	4.10	@4.25
Pea	4.25	@4.50
Pink	3.70	@3.80
Red	6.00	@7.00
Red Kidneys	4.75	@5.25

SEEDS.

Considerable new alfalfa seed is arriving in the market at present, causing a slightly easier feeling in prices, but with an active demand values are well maintained. Miscellaneous lines are moving about as before, with no quotable change in prices. Local dealers quote as follows.

Alfalfa, per lb	17½	@18 c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb		4 c
Canary		4½c
Flaxseed		4 c
Hemp	3¾	@ 4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

Two advances have been made by local millmen within the last few days, adding 40 cents to the former prices on all grades, and Northern grades are also higher. Trading has been active up to the present time, but the high level which has now been reached is expected to cause some falling off in the movement.

Cal. Family Extras	$6.40	@6.90
Bakers' Extras	6.00	@6.40
Superfine	5.40	@5.70
Oregon and Washington	5.90	@6.10

HAY.

Bad weather and unfavorable market conditions have caused a considerable reduction of arrivals, and the market as a result is taking on a little stronger tone. Prices, however, show no quotable improvement. From estimates of the amount so far shipped, dealers believe that shipments will again increase later in the season. Some movement is now reported to the neighboring States, and this is expected to increase as the season advances, making it possible to clean up the surplus.

Choice Wheat, per ton	$17.00	@19.00
Other Grade Wheat	13.00	@16.50
Wheat and Oats	13.00	@16.50
Tame Oat	13.00	@16.00
Barley	10.00	@13.50
Wild Oat	10.00	@13.00
Alfalfa	9.00	@12.00
Stock Hay	7.00	@ 9.00
Straw, per bale	50@	75c

MILLSTUFFS.

The increasing supply of green feed is causing some decrease in the demand for feedstuffs, and as the output has been comparatively large of late prices generally show some tendency to weakness. Bran and middlings are lower and some other descriptions also show a decline.

Alfalfa Meal, ton	$22.00@24.00
Bran, ton	27.00@29.00
Broom Corn Feed, per ctl	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Cracked Corn	36.00
Middlings	31.00@35.00
Mixer Feeds	29.00
Oil Cake, per ton	37.00@40.00
Rolled Barley	31.00@32.00
Shorts	31.50@33.00

VEGETABLES.

Onions are slowly but steadily moving off, and the remaining stock is in strong hands and firmly held. A further advance is expected. Miscellaneous vegetables have been very quiet this week, buyers generally taking only small lots, and considerable surplus has been left from day to day. Some local tomatoes are still arriving, but most offerings now come from the south. Tomatoes are about the only article on which prices are maintained. Turnips are plentiful and have declined sharply, while most other lines are easy at the quotations.

Onions—New Yellow, per ctl	$1.00@	1.10
Garlic, per lb		5c
Green Peas, per lb	4@	6c
String Beans, per lb	4@	7c
Lima Beans, per lb	6@	8c
Turnips, per sack		50c
Summer Squash, large box	75c@	1.00
Tomatoes, per box	1.00@	1.50
Green Peppers, per lb	4@	6c
Celery, per doz	20@	30c
Egg Plant, per lb	5@	6c

POULTRY.

The market is quiet, and with about average offerings of Eastern stock prices show no improvement, everything being quoted as before. Ordinary offerings are easy, as it is difficult to clean up the market. Dressed turkeys are scare and in fair demand. Live stock is offered again and meets with a fair demand at quotations.

Broilers	$ 4.00@	4.50
Small Broilers	3.00@	4.00
Fryers	5.00@	6.00
Hens, extra	7.00@	10.00
Hens, per doz	6.50@	7.00
Small Hens	5.50@	6.00
Old Roosters	4.00@	5.00
Young Roosters	6.50@	7.00
Young Roosters, full grown	7.00@	8.00
Pigeons		1.25
Squabs	3.50@	4.00
Ducks	6.00@	9.00
Geese, per pair	2.50@	3.00
Dressed Turkeys, lb		25c
Live Turkeys, lb	21@	23c

BUTTER.

While the arrivals have been slightly less than last week, demands have been very moderate, and the market has been rather easy than otherwise. There is a little stronger feeling at present, however, with a slight advance in extras, of which the supply is short. The following prices are quoted by the San Francisco Dairy Exchange:

California (extras), per lb	37 c
Firsts	31 c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

The extreme prices of last week caused a marked curtailment of demand, resulting in another decline, though the arrivals are small and include very little of extra grade. The market is stronger than at the first of the week, but firsts, as well as extras, are lower than before. Storage stock is in good demand.

California (extras), per doz	55 c
Firsts	48 c
Seconds	35 c
Thirds	28 c
California Storage (extras)	30 c

CHEESE.

Fancy flats again show a little advance, but the market is hardly as strong in tone as last week. Supplies, especially in new local grades, are very small, but the movement is less active locally.

Fancy California Flats, per lb.	18½c
Firsts	17 c
New Young Americas, fancy	19 c
Oregon Flats	17 c
Oregon Young Americas	18½c
N. Y., fancy	19 c
Storage, Fancy Flats	16 c
Young Americas	18½c

POTATOES.

Potatoes show more activity than for some time past, all descriptions being in fair demand, and prices are firmly held at an advance. A few Early Rose are coming in from the North and are held at about $1.50.

Potatoes—River Whites	70c@	$1.00
Salinas Burbanks	$ 1.15@	1.35
Oregon Burbanks	1.00@	1.15
Sweet Potatoes, ctl	1.00@	1.25

FRESH FRUITS.

The market shows little feature at present, as there are few lines to be had. Strawberries and huckleberries no longer appear in any quantity, and the few remaining grapes, while firmly held, find little sale. Pomegranates and persimmons are still offered, but receive little attention. Cranberries are in better shape, most choice stock being held at $12, though there are still some cheap lots to be moved. Apples have been moving fairly well and all desirable lots are firmer, though ordinary apples are dull. Pears are quiet at former values.

Cranberries, per bbl	$ 9.00@	10.00
Huckleberries, per lb	8@	10c
Grapes, per crate	50@	75c
Apples—		
Fancy, per box	1.10@	1.75
Choice	75c@	1.00
Common	40@	65c
Christmas Apples	2.00@	2.25
Pears—		
Winter Nelis	1.50@	1.75
Other varieties	50c@	1.00
Pomegranates, small box	50@	75c
Persimmons	85c@	1.00

CITRUS FRUITS.

With unfavorable weather the citrus market remains rather quiet but values in general are maintained at about the figures last quoted. Valencia oranges are a little lower, but new navels, though becoming quite plentiful, are firmly held. Lemons and limes are quiet and easy.

Oranges—		
Valencias	$ 2.00@	2.50
Tangerines, box	1.75@	2.00
Navels	1.75@	2.50
Choice Lemons	2.50@	3.00
Fancy Lemons	4.25@	4.75
Standard	1.00@	1.50
Limes	4.00@	4.50
Grape Fruit	2.50@	3.00

DRIED FRUITS.

The market on most lines of fruit has settled down to a rather quiet condition locally, the movement being principally of a jobbing nature, as offerings in the country are for the most part well cleaned up, and the small lots remainig in growers' hands are generally held for high prices. There is still some inquiry for prunes, especially for large sizes, which are hard to get, and jobbers' stocks are rapidly moving into consumption. With most of the crop disposed of, prices are very firm, a slight advance being offered in some quarters. Jobbing trade in apricots and peaches is quiet, owing to the high prices, but a larger demand is expected later in the winter. Figs are nearly all in the hands of the trade, and the fancy grades are closely held. Raisins are still unsettled, with little trade in a large way, as stock in growers' hands is firmly held, and Eastern buyers are not in the market. More buying is expected after the first of the year, however, and the outlook is still favorable for a clean-up.

Evaporated Apples, per lb	8 @	8½c
Figs, black		2 c
Figs, white		4 c
Apricots	9½@	10 c
Peaches	5 @	5½c
Prunes, 4-size basis	2½@	2¾c
Pears	6 @	8 c
Raisins—		
Loose Muscatels, in sweatbox	2¼ @	2½c
Thompson Seedless		2 c
Seedless Sultanas		1½c
London Layers, 3 crown	85 @	95 c

NUTS.

Conditions are about as before, quotations on growers' stock being entirely nominal, as there is nothing of any consequence offered. Few dealers have any large supplies, and what there is on hand will probably be entirely sold out long before the next crop appears. Prices are very firm in the jobbing trade, but little further advance is to be expected.

Almonds—		
Nonpareils		14 c
IXL		13 c
Ne Plus Ultra		12½c
Drakes		10 c
Languedoc		9 c
Chestnuts, California	8 @	12 c
Walnuts—Softshell, No. 1		13½c
Softshell, No. 2	Nominal	

HONEY.

Growers in most districts have moved their crops, prices in general being unsatisfactory, as most lots of extracted have brought only about 5 or 5½ cents. The local market is weak, and some large holders have made liberal concessions in order to move their accumulations.

Comb	8 @	15 c
Exeracted, Water White	7 @	7½c
Extracted, Amber	5½ @	6 c
Old Extracted	4 @	4½c

HOPS.

There is some activity in Oregon, but the local movement is very moderate. Prices are steadily held at former quotations.

Hops, new crop	20 @	23 c

WOOL.

As some sales were made early in the season at prices which buyers found to be too high, they have held off from the market since then, but a few sales have been made recently and values are steady at the present level. There is considerable fall wool still in the hands of growers.

Fall Clip, Northern Free	11 @	13 c
Fall Lambs—Northern, per lb.	12 @	15 c
Southern	8 @	10 c
Fall Clip, Southern (defective)	7½ @	8½c

MEAT.

Dressed beef and mutton are a little stronger, with light supplies and a rather quiet demand. Live wethers are easier, while hogs are in strong demand for packing and all grades bring higher prices.

Beef: Steers, per lb	7 @	7½c
Cows	6 @	7 c
Heifers	6 @	7 c
Veal	7½ @	10½c
Mutton: Wethers	8½@	10 c
Ewes		8½c
Lambs		11½c
Hogs, dressed	9 @	12 c
Livestock—		
Steers: No. 1	4 @	4½c
No. 2	3¾ @	4 c
Cows and Heifers: No. 1		3½c
No. 2		3 c
Bulls and Stags	2 @	2¼c
Calves: Light		5½c
Medium		5 c
Heavy	4 @	4½c
Sheep: Wethers		5 c
Ewes		4½c
Lambs		6 c
Hogs: Grain fed, 100 to 150 lbs.		7¾ c
150 to 250 lbs		8 c
250 to 325 lbs		7½c
Common Hogs, lb	5 @	6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., Dec. 7.—Orange picking is now general all over California. The growers in Butte and Tulare counties have been at it for some time, about five weeks, and in Orange county there has been some activity for the past two weeks, but not until the past week did picking become general. It need not be inferred from this statement that the pick will be very heavy in the south, for it will be the lightest in years, but rather that some fruit will be shipped from nearly every district in California for the holiday trade.

Cash quotations have been made for Redlands-Highlands at $1.80 per packed box at this end, and some sales have been made on this basis. Rialto, Pomona, Ontario, Covina and Monrovia fruit is being quoted at $1.65 cash. California and Riverside navels at $1.60 a box. Orange county prices range from $1.50 to $1.60, with not so many orders as common, because the prices are higher. In previous years the prices for Orange county stock have ranged from $1.25 to $1.45 for Christmas delivery, but this year the packers cannot furnish the fruit at that money, as the growers will not sell for less than $1 to $1.10 a box on the tree.

It would not be entirely beyond the range of possibility if the price on the California navels should go up very materially by Christmas time, and that the shippers who have unsold fruit in the East at that time would realize handsomely. There is always something of a demand for California oranges at Christmas time, for their color if nothing else, and this year will probably be no exception. The fruit shipped in time for Christmas will be much less in quantity than ever before sent out, at least in the past three or four years, and it is very likely that the dealers will find themselves short of what the demand calls for.

While lemons are still bringing top prices in the Eastern auctions, the f. o. b. quotations are not so very high, from $2.50 to $3 cash. The auction prices are from $3 to $4 a box, with a freight rate of 83 cents a box to get the fruit there. The available supply of foreign lemons within the next 30 days is 29,000 boxes, as against 48,000 boxes in 1908 and 29,000 boxes the previous year.

The citrus fruit shipments up to and including Sunday, the 5th inst., are 335 cars of oranges and 253 cars of lemons from all points south of the Tehachapi. From northern California about 1250 cars of oranges have been shipped to date.

PUBLISHER'S DEPARTMENT.

The Phoenix Tool and Valve Co. of San Francisco is carrying, beside a complete line of hardware, outfits for bee-keepers. The aviary can be supplied with any and all appurtenances intended to stimulate the work of honey-making. Bee men of California are enabled to make purchases here that will start them in business on a large or small scale, as desired. Fruit growers, as a rule, are bee-keepers, and they will be interested in this information.

C. Henry Smith of San Francisco has recently ordered for import a large stock of Norway nitrate of lime. This will be delivered at San Francisco and at San Pedro. Nitrate of lime, as a fertilizer or a promoter of proficient growth to the soil, is in great demand in California. It is popular because of its never-failing virtue in these especial features, and the imported Norway article is in preference always. C. Henry Smith is located in the Marvin block, California street.

Ed J. Crubbuck, manager of the California Supply Co., San Francisco, has secured agencies for the sale of many desirable specialties, among which are the Napa pruning shears, patty irons, waffle irons, pruning saws, belt fasteners, Swedish scythes, whale amber, land pulverizers and force pumps. Mr. Chubbuck is an advertiser in the RURAL PRESS and it will interest you in perusing his announcements.

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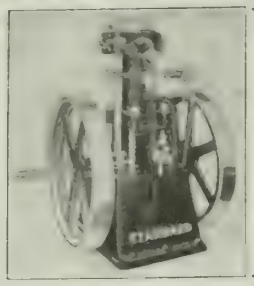
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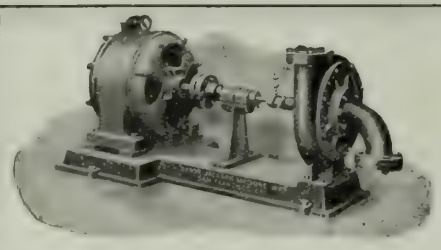
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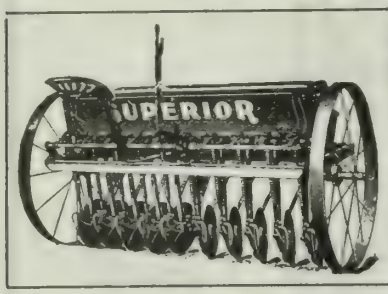
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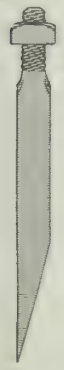
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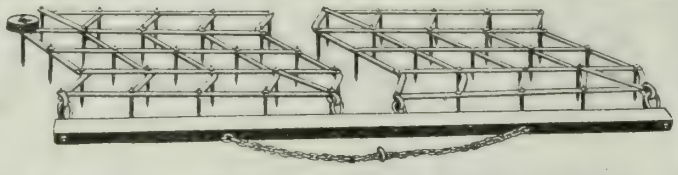
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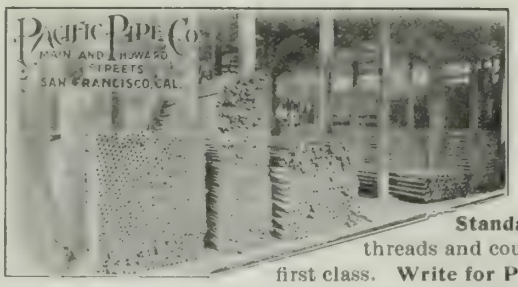


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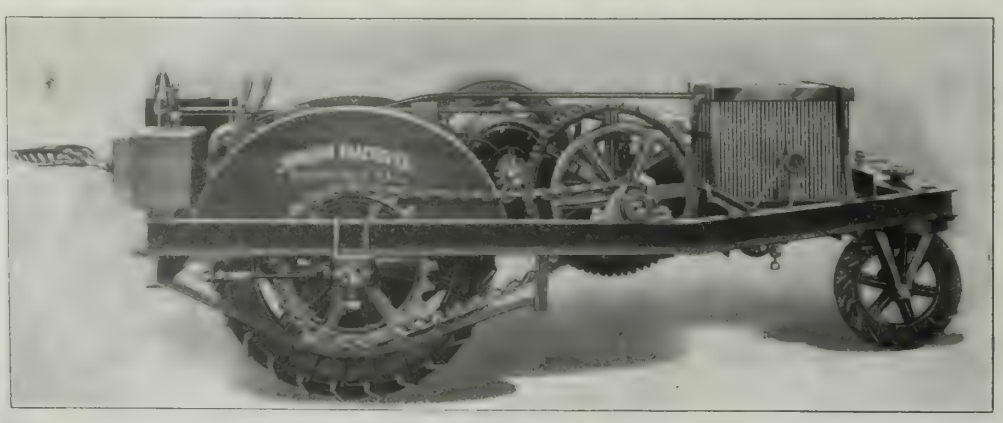
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THE PACIFIC RURAL PRESS

AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 25. SAN FRANCISCO, SATURDAY, DECEMBER 18, 1909. Thirty-ninth Year.

FRUIT FOR THE EAST.

By Mr. F. B. McKevit, Manager of the California Fruit Distributors.

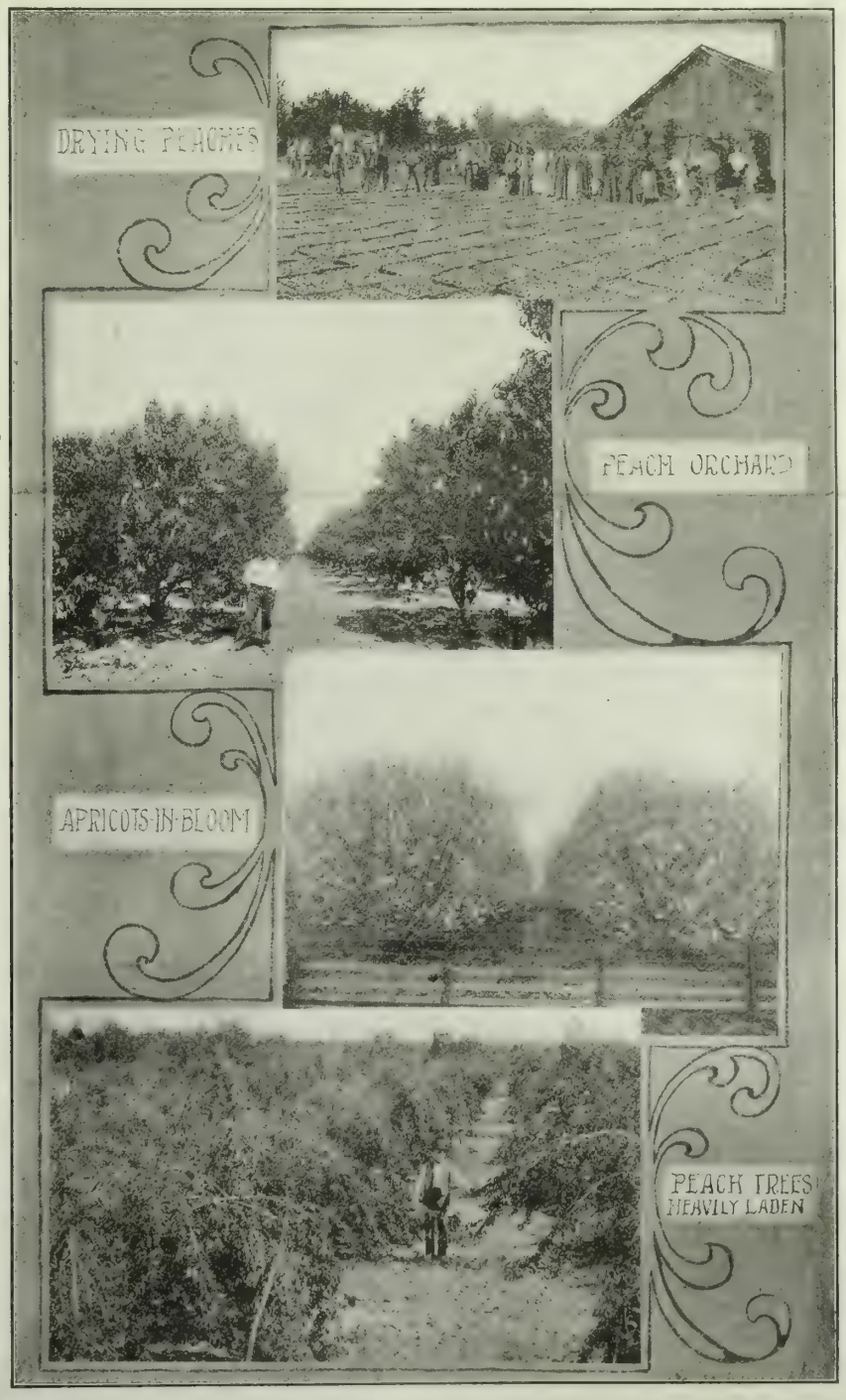
The fruit season of 1909 is distinguished from all others by the fact that never before in the history of the industry has the movement of fresh fruit to outside markets been of such great volume, 15,265 carloads having been shipped, nearly 2400 more than in 1908.

It might be inferred from this heavy shipment that the deciduous fruit crop of the State was unusually large, but this would not be true, the crop of some varieties and of some localities having been quite short. Last year the crop was very heavy, and owing to the season being comparatively dry, there having been practically no spring rains, the fruit did not attain full size, and trees especially showed the effect by a lessened growth and poor bud development. This was true more particularly in the localities where irrigation is not practiced, but to some extent was the case almost everywhere in the Sacramento valley. In the spring the setting of fruit showed an almost total failure of apricots, light crop of cherries, and a half crop of peaches, pears and plums. Owing to the abundant rainfall, fairly satisfactory cultivation, and the fact that the crop was short, it was estimated that we would be safe in providing for an output of these varieties which should be about 75% of last year's shipments. We have, however, done better than that. In the San Joaquin valley all tree fruits excepting apricots were full crops, as were also grapes.

Cherries.—A total of 249¾ cars of cherries were shipped, this being 41½ cars more than in the preceding year. As has been stated before, this did not result from a larger crop than in 1908, but the canners and other factors, which are usually purchasers of this fruit, were not much in evidence, the Eastern market was good, and the result was the increased shipment. Prices were very satisfactory. Practically all these shipments were forwarded by the regular freight service, which proved perfectly satisfactory.

Apricots.—Apricots were almost a total failure in the early sections, but were better in Santa Clara, and a fine crop south of Tehachapi. There were, however, nearly as many cars shipped as in 1908, when the crop was the heaviest known for several years, the shipments for that year being 231¾ cars, while that of 1909 was 208¼ cars.

Plums.—The plum crop, while very good, was not heavy. Trees of this variety showed wonderful qualities of endurance and productiveness, some trees which were so loaded with fruit the preceding year that the product was too small for shipment, and whose buds were inferior and poorly developed, surprised the most experienced observers with a good crop. Our plum shipment reaches a total of 1526¾ cars, or only 237 cars less than in 1908. Prices were unusually good. Our plums seem to be increasing in popularity everywhere, and are a very desirable fruit. Many of the Burbank varieties resemble the Bartlett pear in having the exceedingly valuable proper of ripening up beautifully and developing an exquisite flavor when picked green. This is true particularly of the Climax and Wickson.



California Deciduous Fruits as Grown in Kings County.

Peaches.—The peach shipments were quite heavy for California, a total of 2599 cars going forward, or 620 more than last season. The quality of the fruit was not very good, much of it being small and inferior and in some localities was very wormy. Owing to the shortage of this variety in Eastern fruit growing centers a strong demand was anticipated, thus undoubtedly causing the shipment of a quality that should never have been permitted to leave California in its fresh state. Prices were low on the major portion of the shipments, and returns to growers were very small. To add to the misfortune, there was a car famine that came at the height of the season, some of the fruit lying on the loading platforms and in the packing houses from 24 to 72 hours, thus causing it to arrive at destination in a soft and overripe condition.

Pears.—The Bartlett pear crop was very good, and the quality of the fruit was unusually fine, being of good size, and free from scab and other defects. Winter pears were generally a short crop. Shipments were 2638 cars, being exceeded by those of the preceding year by 63 carloads. Prices were generally very good, owing to the fact that the crop was almost entirely sold at a time when the Eastern markets were nearly bare of domestic fruit of all kinds, and especially of this variety. The reason for the heavy Eastern shipment of pears is to be found in the absence of demand on the Coast, the canners who are usually heavy buyers being practically out of the market until the bulk of the crop had been moved. This variety is undoubtedly the most popular of all California deciduous fruit in Eastern shipment.

Grapes.—The grape shipment in 1909 exceeded that of any previous season by more than 2000 carloads, the total for the season being 5875 cars, while that of last year was 3812 cars, a gain of over 50% in one year, and it is probably true that there were more than 1000 additional carloads available had the demand and condition of the fruit justified shipment. The grape market was satisfactory until about September 15th, covering the sale of upwards of 1200 carloads, but after that time prices were low, and in the great majority of cases showed no profit to the grower. A reason for the low prices is to be found in the fact that not only was the shipment from this State very much heavier than ever before, but unfortunately it came into direct competition with a very heavy crop of grapes and peaches grown in the East.

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Dec. 14, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	1.37	——	12.85	62	36
Red Bluff	1.26	7.91	7.47	62	32
Sacramento	1.35	5.08	4.97	58	38
San Francisco	1.49	8.39	5.56	60	42
San Jose	.82	5.14	3.75	60	34
Fresno	.96	6.37	2.60	60	38
Independence	1.02	4.38	2.52	40	19
San Luis Obispo	2.61	7.83	4.38	68	42
Los Angeles	3.13	5.37	3.19	70	46
San Diego	1.68	5.03	1.91	66	44

The Week.

Since our last issue heavy rains have fallen in different parts of the State, especially in those which usually receive least, and justify the anticipations which we indulged in last week as to the depth and width of this season's wetness. For the sake of variety the water is being counted in dollars rather than in inches, and a Los Angeles dispatch says that four million dollars' worth fell at the close of last week. No figures are given of area or price of water, so we simply have to take the statement as meaning something glad and great—which answers all present purposes. As we go to press a howling norther is prevailing in the central part of the State, which will drink considerable moisture, but as a sign that the elements are busy, even this becomes a token of a good year. The most dangerous kind of a year is one in which the weather is deliciously indolent and balmy; the sun rising and setting clear and flooding the landscape from dawn to eve in tourists' delight. We have something different this year, and we are agriculturally glad of it.

Echoes of the Fruit Growers' Convention continue in our issue this week and may be expected until we reach the end of the large supply of pertinent and practical affairs which were prepared for, or spontaneously arose at, the convention. One of the transactions of the meeting we take up briefly out of its order because of the crowning importance of it to the fruit interest, and that is the cost of transportation of deciduous fruit from orchard and vineyard to market. There is probably no man in the State who will do more and harder work for a cause which he believes in than Mr. R. D. Stephens of Sacramento. He will work for nothing, buy his own board and clothes, pay his own expenses—in fact, set his purse, his hand and his mouth wide open when he believes he has a cause which he conceives to be right. He has done this for years, and seems to gain point and vigor as he goes along. His report this year as chairman of the convention's committee on transportation shows that he has been at work all the year piling up facts and arguments to show that deciduous fruit must be carried overland at less cost or growers cannot pursue production—as they certainly cannot on the basis of this year's experiences along the overland route. The very pertinent suggestion is made that the transportation people take their ideas of the profitability of the fruit business from the gilded statistics of promotion publications, and thus form a false conception of what the traffic will bear, and that not only are purchasers misled, but the whole environment of the business is given a fictitious character. But the weight of the committee's argument for lower freight rates is based upon a comparison with the rates for moving citrus fruits, the statement being that it costs $72 per car less to ship oranges from south of Tehachipi to New York than it does to send deciduous fruits from the Sacramento and San Joaquin valleys to the same point, although the haul from the south is virtually one-sixth longer. It is stated that in addition to this, $90 for refrigeration should be added to the difference in cost, as this refrigeration is not done at cost, but yields an additional and an unreasonable profit, which is not required from citrus fruits which do not require icing. It is shown that citrus fruits are more profitable than deciduous as a rule, and therefore have less need for a favoring rate.

We do not like this kind of an argument, because it arraigns one group of California producers against another and because it involves comparisons which are invidious and possibly reactionary. If our citrus growers have made a good case for their product and secured a rate at which they can increase their business and make money, we say, good for the citrus growers, with their business force and effective co-operation and their closely standardized product and skill at market hunting. If there should be anything which the deciduous growers set up which could be used by the transportation companies in defense of a raise in citrus fruit rates, it would injure our citrus interest and the whole State with it. It seems to us the argument is stronger and safer and more likely to be permanently effective if more emphasis is placed upon the needs of the decidious fruit interest from the facts of its own experience. We do not always agree with Mr. Stephens in the matter of emphasis. There is another contention in the report the wisdom and policy of which we also doubt. Considerable pains is taken to compare the taxes which the grower has to pay to his State and county with the twenty times greater "tax" which he has to pay for moving his product to the East. This is comparing two things which are essentially unlike. What does the grower get from his general taxes? Good general order perhaps, a judge on the bench and a fire in the court house, a little work on the roads, etc., just what every owner of property has to pay and enjoys the right to growl about. How can transportation be compared with these general blessings of American citizens. Transportation involves essential and direct service in production. To our notion it can be effectively compared with the cost of labor, the cost of boxing, cost of the product itself to the producer, but not with the tax for general purposes, which every community must levy for its own existence. An argument of this kind might be taken also as emphasis in the wrong place, and therefore not likely to strengthen a contention of an appeal—unless it be to demagoguery.

But these are minor considerations which we take up merely to express our opinion that the main contention of Mr. Stephens and his committee does not depend upon them, and would be stronger and clearer if they had not been included in the category of reasons why the deciduous grower and shipper should have a concession in rates and in incidental charges. The convention naturally declared strongly for such concessions, and it did something better than declaration, for it arranged for the organization of a league of fruit growers which will consider the railroad rate and other problems of the fruit industry. A committee was appointed to prepare for the forming of a league which is to assemble at Sacramento as soon as possible and begin its deliberations of the rate problem, standardization of fruit packs and uniformity of fruit boxes. If Mr. Stephens' year's work and his forceful report have done nothing else than to prepare the way for a means by which the deciduous fruit interest can clear its pathway of obstacles and push forward, he would not have worked in vain.

If anything were needed to actuate this proposition it ought to be found in the example of the citrus fruit growers in their proceeding for fairer treatment on lemon rates. Another complaint having to do with the protest of citrus growers against the proposed raise in freight rates on lemon shipments was filed in the United States Circuit Court in Los Angeles last week. The Southern Pacific and Santa Fe railways and the Transcontinental Freight Bureau are made defendants by the California Citrus Union. The complaint followed the lines of the former, which was filed some time ago. The papers have been forwarded to San Francisco, where one of the Circuit Court judges will hear the case at some date not yet set.

Along the same line was another transaction of the Watsonville convention which unifies the fruit interests of the State and that is an appeal to Congress to give increased powers to the Interstate Commerce Commission, permitting the Commission to prevent any advance in freight rates unless found to be just and reasonable by the commissioners. Another resolution urges that the capitalization of railroad and express companies be regulated in such a way that the transportation charges made by each company may be readily controlled by law. Rational regulation on sound economic principles seems to be essential to the proper relation of all great commercial factors in the life we are now living.

We have gone so far on the ties that we might as well run out this siding. Wells Fargo & Co. are charged with maintaining exorbitant rates by the Rivers Brothers Company, a Los Angeles produce corporation which has filed a petition with the Interstate Commerce Commission, requesting an investigation. One ground of complaint is that fruits and vegetables shipped to Arizona, Utah, Nevada and New Mexico are frequently delayed so long in transit as to ruin the produce, the express company then forcing the shippers to pay transportation charges, though no payment is made for the goods. It is asserted that the company denies responsibility in all cases, which are frequent. Charges on green vegetables from Los Angeles to New York are $1.50 a hundred more than from Seattle, though the distance is about the same, while the cost of refrigeration on an express carload is $60 from Los Angeles and but $30 from Seattle. Express rates in the Southwest are declared to be more than twice as much as in the Middle West, due, the complainants allege, to a monopoly maintained by Wells Fargo & Co.

And not only do our far northern sisters have the advantage of us in rates from the coast to the East, but ocean rates from Seattle to the Philippines also work against us. Two representatives of the San Francisco hay trade were at the War Department in Washington last week to make an appeal in behalf of California hay in the Philippine contracts. The Californians felt they were discriminated against for it has been in-

possible for them to sell fodder to the army for island consumption. It developed that the government has a special trans-Pacific rate of $3.98 per ton from Seattle, as against the regular rate of $6 per ton from San Francisco. This was the principal reason why a 10,000-ton contract was recently awarded to Seattle. The San Franciscans were successful in their mission in so far as receiving assurances that before the next hay bid is called the War Department will make an effort to obtain a reduced ocean rate from their city so as to place it on an equal footing with Seattle.

We doubt if we have ever had a week with so much complaining in it. It becomes necessary to ruffle the feathers sometimes, though we confess we do not enjoy it. It is, however, clearly a fact of this rumpled-up age that something bad will catch you if you don't watch out.

Queries and Replies

Nuts Around a Grain Field.

To the Editor: I have a 40 acre tract and have not fully decided what I can plant, so I thought of planting one or two rows of almonds all around the edge or possibly some walnuts and almonds, and then just plant barley to try to make expenses for this year, and possibly next year, until I can plant more trees or vines. Do you think it is all right to do so, and what kind of almonds and walnuts would you suggest as the most profitable?—Beginner, Colusa county.

You can plant almonds and walnuts around your place, as you propose, putting the walnut trees about 50 feet apart with the almonds between, so that the almonds may be removed when the walnut trees require all the space. The safest walnut to plant is the Franchette, grafted upon the California black walnut root. You can plant the California walnut seedling and graft over to the English walnut when the trees attain some size, for it is easier to graft a large walnut tree than a small one. The almond, which seems to be surest to bear, is the Texas Prolific, and although this is not a large nut, the freedom and regularity of its bearing make it more profitable than some trees which make larger nuts. You must keep the ground well cultivated around the trees, and not allow the barley to come too close, not nearer than six feet during the first year or two. For if the barley is allowed to grow all around the trees and the land to go uncultivated, it is likely that the trees will either die outright or make very unsatisfactory growth.

Spraying for Safety.

To the Editor: Kindly inform us about spraying fruit trees this year. We are in doubt whether it is necessary to spray at all this year. Would it not poison the trees by putting on a heavy coat of bluestone year after year? Kindly tell us all about it.—F. A. Kingsburg.

You do not say what you wish to spray for, but we presume it is peach blight, and in that case it is a good deal safer to spray well than to trust to the absence of the disease, for it will probably crop out and do great injury if the weather conditions this season favor it, unless the spores are killed by an early spraying. There is, as yet, no injury determined to fruit trees from the use of the Bordeaux mixture, and one should not hesitate to use it, for if his trees do not bear profitable crops, they would not be worth having anyway. There is some injury from Bordeaux mixture reported from the East in the way of marking the fruit when it is growing, but no injury through the soil. Marking fruit is of course out of the question in winter spraying. You should not use bluestone without lime and it is not necessary to use as much bluestone as was thought to be necessary at first. Five or six pounds each of bluestone and lime to fifty gallons of water is strong enough if thoroughly applied.

Fertilizers for Almonds.

To the Editor: I have a lot of 25-year-old almond trees and for the last four or five years have practically had no crop from them. They are very large trees and were planted 24 feet apart on the square. I received a pamphlet a short time ago from the Mountain Copper Co., of San Francisco, in which they highly recommended a fertilizer for almonds called "Mocco Superphospate," an "ideal water soluble phosphoric acid fertilizer." Could you advise as to whether it is a good thing to use or not? You probably know this section as to its soil, etc., and there is probably none better, but the trees are getting old and are planted close together and they certainly do not bear enough to pay for their cultivation. —Orchardist, Suisun valley.

The fertilizer of the Mountain Copper Company is a good form of superphosphate, and is well worth what they ask for it. What effect it will have upon your trees can only be determined by trial, and it certainly would be well worth while to make such a trial. We would also use, on other trees for comparison, some stable manure, because the stable manure contains nitrogen, which the superphosphate does not, and in that way you can determine whether your trees really do not need stimulation in growth, as well as promotion in fruitfulness, which is understood to be the special scope of the superphosphate.

Green Manuring.

To the Editor: Will you kindly advise me in regard to the Canadian peas as a fertilizer for orchards? I have about 30 acres in trees, mostly cherries. Will the peas be a good fertilizer for them? What quantity per acre, and when should they be sown for best results? Will they be beneficial for apricots also?—Amateur, Alameda county.

Canadian peas will certainly be a good green fertilizer for your orchard, providing you can get a satisfactory growth of them during the time when moisture can be secured, and before your orchard ought to have its spring planting. The value of a crop as a fertilizer depends directly on the amount of it, and sometimes the growth is not enough to pay for the seed. You might try a small piece this winter to see how they grow, and also put in some of the common Niles pea alongside to see which is a better grower with you. This experiment ought, however, to have been begun a month or two ago, for the ground may now be too cold and wet to get a good start. If you can get a good winter growth of burr clover in your orchard, nothing in the way of a green fertilizer can be better.

Newtown and Not Newton.

To the Editor: We have just got into a discussion regarding the spelling of "Newton" as applied to Yellow Newton Pippin apples, and to prove our contention—thinking it was spelled Newtown—referred to your work entitled "California Fruits and how to Grow Them, Fourth Edition," and were surprised very much to find that in that work it is spelled both ways. In the first page of the index it is spelled Newtown, referring to page 167, and on that page it is spelled, in the list of varieties, Newton. It is again referred to on page 161, first column, line 32, as spelled with the "w." Would you kindly tell us the correct spelling and from what the name originated. We have always looked to your book as an authority on questions of fruits of all kinds and would like to have it as an authority on point mentioned.—Klein Fruit Co., Los Angeles.

We had not noticed before that we were in conflict with ourselves in the spelling of the name of the apple, to which you call attention. The correct name is Newtown, because it is a native of Newtown, Long Island, a place where several popular varieties originated. The contraction to Newton was the work of the intelligent printer. Perhaps he harked back to the time when Sir Isaac was a pippin, and changed his name for the sake of brevity.

Tobacco Growing.

To the Editor: I wish to ask information concerning raising Turkish tobacco in Fresno county. I have two acres of good, white ash, sandy loam land. Part of this land I am going to put in peach trees. I would like to know if you think it is advisable to plant tobacco between the rows: whether it will hurt the trees in any manner? The remainder of the land I am going to use for raising tobacco. Please inform me if Turkish tobacco can be raised in this county, or is it worth while to try?—Enquirer, Fresno.

There is little doubt but that you can grow tobacco successfully in the way which you describe, but there is a very great question as to whether it will be worth growing, because of the difficulty of curing to secure quality suitable to the market. During the last 30 years nearly a million dollars has been expended in the fruitless effort to establish tobacco growing in California. These experiments are still in progress in Tulare county by a rich corporation which can afford to undertake the growing, and it is hoped that a successful handling can be demonstrated. At the present time we would not advise you to grow tobacco at all, unless you wish to use it for insect killing or to fill your own pipe, if the quality pleases you.

Chickens and Pigs in an Orchard.

To the Editor: Will chickens running in a pear orchard injure the trees; also will hogs injure trees if not allowed to root?—R. E. C., San Miguel.

The running of poultry in a pear orchard would be more likely to be beneficial than otherwise. With hogs, however, the case is somewhat different, because, even if well ringed so that they cannot root, hogs sometimes have a bad habit of gnawing bark, and, therefore, they should be carefully watched for injuries of this kind. Otherwise, they would not do injury, unless too many were confined on a very small area, in which case, the constant trampling would harden the soil to such an extent that good cultivation would be very difficult. For the same reason, they should not be admitted to the orchard when wet, even if the larger area were opened to them.

The American Black Walnut.

To the Editor: I see very little on the qualities of the big, rough shelled black walnut as a root stock for the English. A neighbor of mine has such a tree that grew extra quick, and is very productive. Do you know whether they are better or not than the California black for root stock?—J. C. D., Walnut Creek.

This matter has not been fully determined although the preference of a number of growers who have used both is for the California wild nut rather than the Eastern. Still the Eastern black nut is so far as we know a good stock and is carrying a number of large English walnut trees in different parts of the State and it is growing and bearing well on its own account as you say. The university has at its station in southern California the American root under observation and plantings for the same purpose will be made on the university farm at Davis and elsewhere.

Coast Hillside Pastures.

To the Editor: Can you tell me what kind of grass seed to sow on hillside land just grubbed out and plowed?—Farmer, Santa Rosa.

The grasses of which seed is in the trade and which are most likely to succeed on the place which you describe, are the Australian rye grass and orchard grass. Both of them will make a good winter growth, but neither will live through the summer if the soil becomes very dry. It is doubtful whether you can get any grass to make permanent pasture without irrigation on uplands.

Horticulture.

THE ALMOND COMMERCIALLY CONSIDERED.

By Mr. J. P. Dargitz, Acampo, at the State Fruit Growers' Convention at Watsonville, Cal.

(*Continued From Page 381 of Last Issue.*)

Marketing.—And now we come to the keystone of the whole matter. We may get lots of pleasure and satisfaction out of our orchards in producing a beautiful bloom and a splendid crop, but unless we can turn this into cold hard cash, it will never be considered as a commercial proposition. It must pay! We must be able to make a net profit over and above the cost of production or there will be no inducement to become or continue to be a producer. The last few cents per pound that the market warrants will be that net profit and you should have it. Don't forget this. There are various efforts at co-operation among growers which are more or less successful, but there is no other line in which all might be enlisted as easily as the almond growers. The reason for this is the ease with which values may be determined. Just as long as the larger part of the almonds consumed are imported it is plain that the price of the foreign product must fix the price of the home produce. When we have a plentiful crop on this Coast we have to ship to the East. Therefore, the price of foreign almonds laid down at New York, duty paid, less the freight from here to New York will determine the price on this Coast. When crops are light here we consume all our product on the Coast, and then the prices of foreign almonds landed at New York, plus duty and freight out here will determine the price here. This is so fixed and definite that it should be easy to determine the market price, yet very few seem to know about it.

The present method of marketing in a haphazard way works a hardship on the grower, because he does not always get a fair price for his product, the price the market warrants. As at present operated, the speculators learn about the foreign crop late in June or early in July, determine what the maximum price on this Coast will be and then endeavor to purchase from the grower just as much below that price as possible. The object is not to buy low and sell high, for they usually sell on a fixed margin above cost, but the aim is to undersell their competitors when they go to the jobbing trade as this is the one method above all others which will bring them business. The system is not to their real advantage, however, because they never know when a competitor may be able to buy still cheaper from some other grower and so undersell them or cause them a loss. The party who bought our almonds this year said he would just as soon pay 30 cents as 20 cents if the market was steadied so he knew just what he was doing. But when he buys on a two cent margin and some other buyer succeeds in buying from some other grower for two cents less, then the other buyer is able to depress the market to that extent in his quotations to the trade and my buyer as well as others who were inclined to deal fairly by the growers suffer a loss which ultimately falls on the growers themselves. Understand that if you sell below the market price you not only lose the net profit that should be yours, but you cause a loss to all other growers and fair dealers. It is absolutely a case where no grower stands or falls alone but he necessarily carries his fellow men with him. What we want is some method of marketing that will make the market for almonds as steady and stable as the market for flour or sugar. This will work no hardship to anyone but will be universally beneficial. It is a plan that ought to meet the approval of every buyer and seller alike. Then why not?

Local associations, able to render much valuable assistance to each other in the way of providing spraying, hulling and shelling machinery, of promulgating advanced ideas as to varieties, production, detecting and fighting pests, proper curing and preparing for market, marketing, etc., is the first step. It should not be forgotten that uniform handling and standard grading will be necessary and of untold advantage to the grower. Nothing like it could be done which would so speedily put the almond production on a solid footing and relieve some of the other lines of orchard and vineyard production. It would bring multiplied wealth to our State, employment to our citizens by increasing production, and help to settle the food problem of the race, because it is one of the most valuable and condensed forms of food production.

At present there are organized associations of almond growers in Sutter, Yolo and Contra Costa counties, and in our own neighborhood we have a quasi association which handles 80% of our output. Every one of these associations has wrought good results for its members and the trade. Then why not extend the work of organization? Let the growers in every section or community organize an association and then all the associations select or form some central marketing exchange which shall do the marketing of the crop. This central exchange, with the foreign and home crop statistics before it, could determine what would be a fair price and should be given power to maintain said price. My word for it, the buyers would be just as glad as the growers to have this done if they understood it, and they might be given a hearing in fixing the price, but always the growers' organizations should hold the deciding vote. This is a point which cannot be too strongly emphasized because it touches on the weakest point in our body politic today. The farmer and the fruit grower constitute the only class of people in the world wherein the producer does not fix the selling price on his own products. The manufacturer, the merchant, the professions, labor organizations, all say what their services and products are worth. Is it not high time for the farmer and fruit grower to wake up and take his stand alongside of his fellowman? But it requires a Moses or a Joshua to mean success! Yes, to be sure, and also be sure that whenever anything is right and needs a Moses or a Joshua, the Power that shapes the destinies of men and nations will not be found wanting with the man or leaders. It all means dollars for every one engaged in the business and that spells commercial success.

THE LATEST DEVELOPMENTS IN FIG CULTURE.

By Walter T. Swingle and G. P. Rixford at the Fruit Growers' Convention at Watsonville.

For the first time in the history of Smyrna fig culture in California, the markets have this fall been partially supplied with home grown Smyrna figs that many experts pronounce equal to the product of the famous fig district of Asia Minor. We say, partially, because the quantity offered is not one-quarter part of the requirements of even the local markets. The writers know one buyer who never handles any but the best of everything, who wants ten tons of a certain pack put up at Reedley, Fresno county. This particular producer could furnish about four tons from his young ten acre orchard. This is certainly an encouraging outlook for the industry and holds out the promise that when enough such figs are packed to supply the American market, the million dollars annually paid to the Turks will be paid to the California fruit grower.

The Smyrna is the best of all figs grown in the world, and nowhere equalled in the eastern hemisphere, outside the limited area of the Meander valley, a district about 75 miles in length and 10 to 12 miles wide, and situated about 50 miles southeast from the city of Smyrna. The figs of southern Europe, including Spain, Portugal, the south of France, Italy and Greece, as well as the north of Africa, all fig growing countries, have failed to yield a product which for tenderness of skin and delicacy of flavor compares with that of the Adin district mentioned above. It is, therefore, a matter for congratulation, that only in the sunny valleys of California, of all the world, can this delicious product be equalled.

One of the writers recently sent samples of the product of two growers at Reedley and one at Selma to the United States Department of Agriculture, at Washington, that must have produced a sensation, as a telegram was immediately received to send 10 or 12 pounds more for exhibition purposes. The Department has taken a deep interest in the establishment of the industry on the Pacific Coast, and is evidently impressed with the progress that has been made. In fact the industry has, to a great extent, passed the experimental stage.

A Visit to the Principal Fig District.—At the instance of the Department it was the pleasure of one of the writers, two weeks ago, to make an extended visit to the fig growers of the central part of the San Joaquin valley, in the counties of Stanislaus, Merced, Madera, Fresno, and Tulare, where the industry has its greatest development, largely due to the efforts of Mr. George C. Roeding, of Fresno. More than a thousand acres have been planted in these counties, more than half in Fresno, most of which have reached the bearing age. There was a two-fold purpose in this visit. One was to see the men who are putting up the splendid product, and the other was to ascertain the cause, and if possible, suggest a remedy for the discouragement known to exist among a portions of the growers. It cannot be denied that failures have been made and in a few instances bearing trees have been dug up. But it is a satisfaction to be able to say, that with a little time and attention to details, the cause of the failures can be removed.

Cause of the Failures.—With soil and climate well adapted to the industry, it is regretable that any failure should have occurred. Intimate contact with a large number of growers has impressed the fact upon the writers that the great and paramount cause of failure is an inadequate supply of the fig wasp, Blastophaga grossorum. The crop depends absolutely upon the number of this minute, but beneficent insect, that is supplied to the Smyrna trees and upon a sufficient number of good capri trees to support them. Here then, is the condition of affairs with which we are confronted. Some growers have no capri trees at all, having neglected to plant them when putting out their Smyrna orchards, many more have too small a number and not of the best kinds, while in some instances the trees are scattered about in the Smyrna orchards at considerable distances apart—too far for the trees to properly assist each other in sustaining the insect through the year. Occassionally a grower is met with, and fortunately the number is very small, who has, perhaps, mistaken his calling in becoming a fruit grower. One such in speaking of his small Smyrna crop, was asked if he had a good supply of caprifigs and the fig wasp. Replying, he said there was a good many bugs flying about his place and he thought he was getting his share. It is not surprising that his crops are small.

In that portion of the San Jaoquin valley mentioned, the principal capri varieties are Roeding's No. 1, 2 and 3. While these varieties are excellent in some respects, others can be added to the list that will give much value to the whole. Some think that No. 1 is the best of the three, and it is valuable in producing an early profichi or spring crop. No. 2 seldom bears a mamme or over-wintering crop, though an abundant profichi crop, and must, therefore, be planted where it can be fertilized by other capri trees. No. 3 generally carries a fair mamme and a good profichi crop. As some capri trees fail to produce all the crops required for the support of the Blastophaga through the year, it is recommended that several varieties be planted, that they may fertilize each other and thus with more certainty furnish an abundant supply of profichi wasps in early summer when required by the Smyrna trees.

The Milco Capri.—Among the most valuable capri trees is the Milco, named after the late G. N. Milco of Buhach fame. This tree has been under observation by one of the writers for some years in widely separated localities and under varying conditions of soil and climate and he has never found it to fail to carry an abundant mamme, a fair mammoni and a large profichi crop. As a striking evidence of the value of this variety it may be mentioned that a number of old trees, giants among their fellows, have been found that have carried the insect unaided by the proximity of other trees, for forty years. Some growers rely on this variety alone and never fail to have an abundance of fertilizing material. While being one of the earliest producers of profichi figs it is also one of the latest, and possesses the virtue of giving a steady succession of profichi from their beginning to the end of its season. Most capri trees when under five years of age fail to carry an overwintering crop, but the Milco is one of the most precocious in this respect of the whole list under observation. This tree then with our present knowledge of the hundred or more varieties now in cultivation in this State, is confidently

recommended as one of the most desirable to plant.

History of the Milco Caprifig Tree.—In this connection it may be of interest to give a brief history of the first introduction into this country of the caprifig tree and the Blastophaga. On the ranch of Samuel Gates, 10 miles from Modesto, stands an ancient capri tree about 45 feet high with a spread of 40 feet and a trunk 8 feet in circumfrence just below the branches. The tree was planted in 1867 by Lewis Adams of Stockton, who purchased it with other trees from the late W. B. West, an enterprising and intelligent nurseryman of the same place, well known to many of the older fruit growers of the State. Of these old capri trees of which the Gates is one of the oldest, more than fifty have been located by one of the writers. About 30 are growing in the vicinity of Ripon, 2 near Lathrop, 7 at Stockton and about a dozen near Milton. Some of the these trees are about as old and about as large as the Gates tree, and we have positive proof, have carried the Blastophaga for about 40 years. A number of them have been traced directly to the West nursery and as they are all of the same variety, there is little doubt that they all came from the same source.

(To be Continued.)

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By Mr. EDGAR WRIGHT, of Los Angeles.

I said something in my last letter about the work of the institutes along agricultural lines, and the lack of understanding of the importance of this work among the growers in general. It seemed to me to be a good time to look up my friends Prof. R. E. Smith and Dr. J. Eliot Coit, of the Pathological Laboratory, at Whittier, and so I took a car this week for that beautiful little city. I was a stranger there and did not know where to find the headquarters of the gentlemen, but I had a tongue in my head which I seldom hesitate to use when occasion requires. To the first man I saw after alighting from the car I said, "Can you direct me to the Whittier Institute presided over by Prof. Smith, the place where they solve horticultural problems, the Experiment Station, sometimes called the Pathological Laboratory?" He grinned and said, "I guess you mean the "bughouse," its right down there."

Dr. Coit did not seem at all disturbed when I told him what the man had said to me, and he remarked that the people liked to use that name in preference to the longer one, and if it suited them, it did him. I site this instance to show that there is still a tendency to smile a little when an institution of this kind is mentioned in the hearing of some, though the advanced growers have long ago conceded the usefulness of such organizations and the great bulk of the orange growers come inside of this classification, as applied to thought if not to practice.

Dr. Coit very kindly showed me through the rooms of the building and into the hot houses and chemical apartments where most of the work is done. He showed me enough so that I could see the value of the work being carried forward, though to try and describe it all in detail would be far beyond me, and is material for the bulletins which they issue when occasion requires. The laboratory at Whittier and the Citrus Station at Riverside are local branches of the Experiment Station of the University of California at Berkeley. It so happened that I picked out a day for my visit when Prof. Smith was in Los Angeles. I very much wanted to ask him as to what had been done towards regulating the "brown spot" on oranges, as the first time I ever saw him was in an orange packing house, where he was studying this very peculiar matter. I asked Dr. Coit in regard to this, and he said that the results of the experiments and research had been largely negative, meaning that they had proved to their entire satisfaction that a number of supposed reasons were not the real ones, but that up to this time they had not been able to tell just what the real reason was. He said that he had been detailed for this work this season and that he had just started with the work.

I asked him to tell me just what had been learned about the "brown spot," and he told me that the trouble seemed to be general in the foothill country in the early season, but that it wholly disappeared in the early part of January. I suggested that perhaps it was nature's protest against the slaughter of the innocents to make an Eastern holiday. He said: "It appears only in navels and in typical foothill country. It is prevalent in that halfmoon swing from Covina to Colton and Highland. It is noticed only on fruit that is picked early to reach the holiday markets and the spots range from a tiny mark up to an inch in diameter. This color is only in the most superficial cells, not even extending to the length of the depth of the oil cells, but just on the surface of the skin. It in no wise impairs the eating quality of the fruit, but it does detract seriously from the appearance and consequently from the selling quality.

"One peculiar feature about this spot, and one that I am not as yet inclined to credit wholly, is that it appears, according to the packing house men, almost wholly on the better fruit, that it rarely touches the standard grades and never the culls, that the otherwise smooth and wholly beautiful fruit is the worst effected and the rough uncouth orange not at all."

More than anything else Dr. Coit dreams of improving the strain of the three leading varieties of California citrus fruits, the valencias and navel oranges and the Eureka lemon. He thinks that this can be done by selection and breeding, following somewhat along the lines of Luther Burbank in his improvement of the common varieties of vegetable and flower. To this end he wishes that all growers of citrus fruits would report any "sports," trees that have characteristics different from their fellows, whether good or bad. He wants to try and reproduce every kind of a "sport" so that he may study them. In the navel he wishes to develop an orange that will not split, sunburn or puff. One that will ripen early, to be the first in the market, and one that will not come in until late, and will hang on the trees like a valencia. He does not, of course, expect to get one fruit that will come in early and also hold late, but hopes with different strains to get navels that will do both.

With the Valencia he expects to finally find a strain that will not turn green after once being colored, and that will be almost, if not quite seedless, and that will bear regularly. In the Eureka lemon he wants to find a strain that will not bear on the end of the limbs, but more in the body of the tree.

He had faith that all this can be done, but says that it will take time, many years, perhaps. He tells me that his greatest find in a "sport" is a navel tree in the San Fernando valley that ripens its fruit in early October and does it every year. He says that the fruit is of fine appearance with smooth skin and the right shape, and of fine eating quality. Mentioning the "sport" that I described in a recent issue of the PACIFIC RURAL PRESS as having found in the orchard of Mr. C. A. Boston, of Porterville, Dr. Coit says that he intends to write to Mr. Boston and ask for a cutting, that in all probability the tree would not be one that he would want to perpetuate, but that it had features he would like to study.

Reading the article in this column some time ago in where it was stated that Mr. A. B. Chapman received the first valencia tree ever brought to this country and that for a long time he did not know what he had except that he bought it for and thought it was a navel, and that it was obtained from Sir Thomas Rivers, of London, England, Dr. Coit took the trouble to write to the London firm and their reply shows that they know nothing about the variety, and nothing about the shipment. The letter from London was as follows: "In answer to your letter of November 1, we think that the valencia orange is that which we grow under the name of 'Excelsior.' We see that we first catalogued this variety in 1865 as being recently received from the Azores among other sorts.

"We have written Covent Garden for specimens of the valencia as it comes from abroad, but learn that they are only just arriving and that they will be sent us a little later and when we get them we shall, no doubt, be able to recognize the variety."

It would seem that November 19th was rather a late date for California valencias to just begin to arrive in England, and I fear that Sir Thomas is in the wrong. I have been in the Azores myself and doubt if the orange now called the valencia is grown there, the common varieties being the seedlings and the St. Michael, one of the islands of the Azores group being called the St. Michael, and no doubt from whence the variety received its name.

In the story told me by Mr. Chapman he stated that he sold some of the cuttings to a neighbor named Colonel J. R. Dobbins, who supposed he was buying navels. I ran across an article from the pen of B. M. DeLong, who was at one time secretary of the California State Board of Horticulture, written in 1888. Referring to the valencia orange and to the incident above mentioned, he says: "This variety has in the past six years fruited in this State and is one of the best varieties grown. The fruit resembles the paper rind St. Michael in color and firmness, but is oblong and larger in size. The tree is not an early bearer, which is in its favor as most of the foreign varieties commence to bear when entirely too young, thus checking the growth of the tree. It is a very good keeper and a prolific bearer, ripening late when all other varieties are out of the market.

"Through a mistake this variety was budded in the orchard of Colonel J. R. Dobbins, of San Gabriel, who supposed he was getting navel buds. These buds were yet in one corner of the orchard separate from the Washington navels that were budded at the same time. When the navels began to fruit these trees showed no signs of bearing whatever. The navels bloomed three or four years before the valencia lates. Colonel Dobbins became disgusted with them and concluded to have them re-budded to Washington navels, but that year the trees put forth a heavy bdoom, the fruit set well and after all other fruit had been shipped he turned his attention to this variety, which, up to this time had not been ripe enough for shipment, and to his gratification and surprise proved to be the best orange he had, the trees being twice the size of the navels and consequently much heavier producers and the receipts per box much larger."

This account dovetails in with that of Mr. Chapman except for date, Mr. DeLong placing the event in 1882 and Mr. Chapman nearly ten years earlier, stating that as near as he could remember it was in the very early '70s that he received the shipment of trees from England and as the buds were sold to Colonel Dobbins before the original tree had ever borne fruit, that date could hardly have been more than two or three years later.

I hope to report more of the doings of the men connected with this and other institutions that are carrying on the work for the good of the citrus fruit grower. The results attained sometimes come slowly but these earnest young men will in the end produce the results that will satisfy the most sceptical and work wonderful good for the industry as a whole.

I have a friend who vigorously commends the use of cow peas as a cover crop, saying that they are better than anything else and that he has raised 15 to 18 tons to the acre. Something brand new in cover crop is a clover that is highly recommended for its deep root system and has been largely used in the orange groves of Arizona. It is called melilotus clover and is said to contain much nitrogen, that indispensible element of plant food and the most expensive item in commercial fertilizer.

I take the following from an article on cover crops, and it seems to be worth repeating: "The way the nitrogen is stored up is interesting, being the result of reciprocal action between the growing plant and the bacteria in the soil. These bacteria absorb the free nitrogen of the atmosphere and store it in the nodules that can be seen on the roots of any of the clovers, peas or other pod bearing plants. They nourish the growing plant, while in turn they receive most of their sustenance from the plant, which when plowed in liberates, in the process of decay, the stored up nitrogen for the use of the tree. There are several varieties of leguminous plants used for cover crops, but other things being equal, the deeper rooting plants are much to be preferred, as they penetrate the subsoil, opening it up and allowing the air and moisture to enter, and in this way do much to give a deeper surface soil. Also when plowed under they tend to enrich the surface soil with potash and phosphorus drawn from the subsoil."

California Vegetables in Garden and Field

By E. J. WICKSON, of the University of California.

Second and Revised Edition; published serially in the PACIFIC RURAL PRESS (beginning with the issue of November 27, 1909), and subsequently to appear in book form.

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Family Garden Programmes.—It will surprise anyone who carries out rapid succession of plantings to see how much desirable food can be secured from a very small area. An enthusiastic farm gardener of Lakeside, San Diego county, says that his garden of 50 feet square supplies enough vegetables, excepting potatoes, for a large family, and requires less than half a day's attention during a week. He grows the following vegetables, planting each month in the year as follows:

January—After the 20th, turnips, cabbage seed, carrots, lettuce, peas.

February—Radishes, beets, salsify, spinach, onion seed or sets.

March—Potatoes (in field), turnips, cabbage, lettuce, peas, cabbage plants.

April—Cucumbers, watermelons, muskmelons, squashes, tomato plants, radishes, beets, salsify, corn, beans, sweet potatoes, cabbage seed.

May—Carrots, lettuce, peas, onion seed or sets.

June—Radishes, beets, beans, corn, salsify, cabbage plants.

July—Carrots, lettuce, cabbage seed.

August—Potatoes (in field), corn, beans, radishes.

September—Cabbage plants, peas, turnips, salsify, and carrots.

October—Beets, beans, onion sets, lettuce.

November—Turnips, spinach, salsify.

December—Winter radishes, peas, lettuce.

He has the advantage of a very short period of frosts, and light ones at that. He plants in rows 18 inches apart, irrigates his garden every 10 days in trenches and cultivates twice a week. In favorable seasons he has natural moisture from November to April or May. If the rainfall is light he cultivates twice a week.

Another arrangement for succession is that practiced by a vineyardist in the Santa Cruz mountains, who grows vegetables in his vineyard. He plows one furrow in the center, between the vines, manured in the furrow and covered with a furrow plowed each side. The bed thus formed is planted in November with a row, thickly sown, of American Wonder peas, covered with the rake, making a smooth place where, about four inches from the peas are planted cabbage, Chinese Rose Winter radishes, onions, lettuce and turnip seed, mixed. Other sowings, adding carrots, beans, etc., are made, according to the weather, until May. In February he gathers radishes and lettuce; in March, peas. He sells or gives away bushels of lettuce and radishes, and has enough to supply a big family from March 1 to July. As late as November he gathers beets, carrots, turnips and string beans. He has the advantage of a larger winter rainfall, and conserves moisture by cultivating between the rows every week in dry weather.

CHAPTER XI.

PROPAGATION.

From what has been said of the favoring conditions in California for open air work and freedom from low temperatures, it may be rightly inferred that the higher arts of propagation involving the use of acres of glass and the most approved heating devices, are not to be found in California. The forcing of vegetables which is now commanding such wide effort and investment at the East is only undertaken to a limited extent and although it is increasing with our advance in population and wealth, it will always be menaced by the open air work, both in average situations and in frostless localities which are, at present, only worked up to a fraction of their capacity. Forcing is, however, accomplished with much less expensive structures and heating arrangements than at the East, because only slight drops in temperature are to be overcome. We have also a decided advantage in the large percentage of winter sunshine. Forcing is, therefore, relatively cheaper than in wintry regions and there may be, ere long, an important industry. Of course the same general conditions which favor forcing with us also makes elaborate and expensive arrangements for growing plants for subsequent planting out, unnecessary. Not only do hot-beds of the scantiest construction and covering answer local purposes, but even their heating materials have to be toned down by more slowly fermenting intermixtures and by freer entrance of air, lest the growths be over-forced. Often, as will be described presently, a little bottom heat, without close covering above, is all that conditions require to bring forward and protect tender seedlings until it is safe for them to take their chances under kind skies.

GROWTH FROM SEED IN OPEN GROUND.

Adequate heat and moisture are essential to germination and subsequent growth. The preceding chapter has shown at what times these factors are present in California soil, either by nature or artifice of the planter. Heat is always adequate for the germination of the seed of common vegetables, in well-drained surface soil in the California valley regions. Even in our frosty weather, the day temperature of the soil is adequate for germination except, perhaps, during the colder storms and seldom does our rain have too low a temperature. Even in this it is not so much the matter of germination as of conditions inhospitable to the subsequent growth of the germs. It makes little practical difference, perhaps, whether the seed is killed or the germ perishes after starting. But the death of either seed or germ is more often due to moisture lack or excess, than to temperature conditions. For this reason a sowing may go for naught if seeding is done in the fall without thorough moistening of the soil by irrigation or rainfall, or the same disappointment may follow sowing even seed of hardy plants in certain localities in December and January in years of heavy rainfall. For these reasons it is all-important that the vegetable grower should carefully observe his local conditions of soil heat and moisture and arrive at proper deductions from his own experience as to what acts he should perform under his ruling local conditions and the peculiar phases of the weather of the particular year in which he is acting. And then a vegetable grower, in garden practice, which involves succession of small areas, must be enterprisingly venturesome. He must take some chances of losing a sowing or planting and of renewing it, and he should always keep adequate supplies of seeds or seedlings at hand. It is a great deal better to lose a sowing than to set up some arbitrary dead-sure date for sowing; for with such a policy he will never have anything early, and perhaps never anything profitable. Field work for staple vegetables is another proposition, but field work for shipment of early stuff is always attended by some risk, for the grower has to venture everything on doing the best he can to be safe and early, but to be early at any rate.

Although this is true, it must always be remembered that nothing is gained in working the soil or sowing the seed when the soil is not in condition to work well. Some results of this bad practice have been mentioned in other connections and they are deplorable, especially in the heavier soils. It is especially an error of judgment in seed sowing to suppose that any time can be gained by sowing early upon an unfit seed bed. Even if a fair stand should be secured there will be handicaps upon the plants all through their course, and a somewhat later planting with the soil in good condition will probably surpass them both in time and quality.

There is often advantage in soaking seed overnight in tepid water. The lighter the soil and the later the sowing the greater benefit will accrue from this method of hastening germination. When the wet seed is difficult to handle, or when it is to be used with a seed-drill, sift some fine ashes over the seed. This will take up the surface moisture and allow them to run through the drill easily.

Arranging Moisture Conditions for Germination.—In addition to the greater undertakings described in the chapters on irrigation and drainage, there are little acts which are of the utmost importance in securing moisture conditions favorable to germination and growth.

First: Seed covering. Darkness is favorable to germination of most seeds, but covering is primarily for two other purposes. One is to assist the seedling in its anchorage and root penetration, but the more important is to insure it moisture. There can be no positive rule for depth of sowing. Five times the diameter of the seed might do at the best of the season in the best of garden soil, but this depth would be too great for some seeds in some soils in the rainy season and far too shallow for the same seed and soil in the dry season. On all soils the rule must be shallow sowing, if large rainfall is characteristic of the region: deep sowing if scant rainfall is to be expected: shallow sowing early in the rainy season: deep sowing near its close: shallow sowing on the heavier soils: deep sowing on the lighter soils. Late in the season the surface layer which is air dried in spite of stirring, does not count as depth at all. It must be brushed aside and the seed sown in the moist layer beneath whether the sowing is done by hand or with a seed drill. Later cultivation will level the soil back around the plant stem to assist in retaining moisture below. Conforming to this condition, the larger summer-sown seeds should be sown in the light soil of the interior valleys at four to six inches deep—twice or three times the depth prescribed for the seed in humid climates or in the humid side of our own climate. Seeds sown in hills can stand deep planting better than when sown singly, as they seem to join their strength in uplifting the weight of soil above them.

(To be Continued.)

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SOMETHING GREATER IN PUMPKINS.

To the Editor: In you issue of November 13 is a short article from George Babcock, of Fresno, headed: "How Is This For a Pumpkin Crop?" and he asks, "Are we some pumpkins or not?" I answer, No. And at the close of his article you ask, "Who can weigh up against this?"

The following is an exact copy of a letter which the late Mr. P. E. Kellogg wrote for me at my request some years ago: "The following is a true statement of a number of large squashes raised by me in 1881, near Goleta, Cal. I planted my squashes in May, and harvested them in October. On finding that they were unusually large I weighed ten of the largest and found that their aggregate weight was one ton and fifty odd pounds; the largest one weighing 225 pounds. This squash was exhibited at the county fair and received the first prize. On the 15th of November, which was my son's birthday, I cut open a squash that weighed 210 pounds. I removed the seeds and pulp and the boy got in and I put the parts together and completely closed him in, the edges of the squash coming tight together. I then persuaded my 13 year old daughter to get into it and closed her in, in the same manner. Her weight was 110 pounds. After that I put in three little girls at one time, their ages were 6, 4, and 2 years, and their united weight was 116 pounds."

IRA W. ADAMS.

Potter Valley.

HORSE BEANS ON FRESH PLOWING.

To the Editor: I send you a specimen of fig and a seed of a palm. Can you tell me what this palm seed or its fruit is good for? Please advise me how to cure this kind of figs.

I read recently in your paper about plowing under green grass and whether horse beans for fertilizer could be planted right away after plowing under grass and weeds. If you want to do that, my experience would commend clod-mashing, and the way it is plowed with a heavy clod-masher, so the green stuff will be pressed down tight, or in other words, press down stuff so it will decay and do not harrow crosswise and you will have good results. SUBSCRIBER.

Sunnyvale.

[We are glad to have your hint of working so as to keep the green stuff pressed down, and covered well. It is a very important point to all covering in to promote decay. We cannot recognize the palm from the seed. The seed would yield oil, but it would cost more to get it than it would be worth unless you had tons enough to warrant buying powerful machinery. In this zone there are many other cheaper sources of oil. The fig is a modified late fruit which we cannot connect with its variety.—EDITOR].

BOGUS GAME LAWS.

To the Editor: I am much interested in the discussion of California game laws by Mr. Overacker in your issue of November 20. When he speaks about bogus game laws, I suppose he refers not to the laws as passed, but to the copies of the laws which some one gave out for publication in the papers. The fact is that the law as passed distinctly states that one does not need a license for shooting predatory birds and animals, but the bogus copies that were printed in a great many papers, including the PACIFIC RURAL PRESS, and which I have not seen corrected, left this clause out, and of course a great many people spent their dollars for licenses who need not have done so.

This was, of course, blameworthy because it was not keeping good faith with the public. FARMER.

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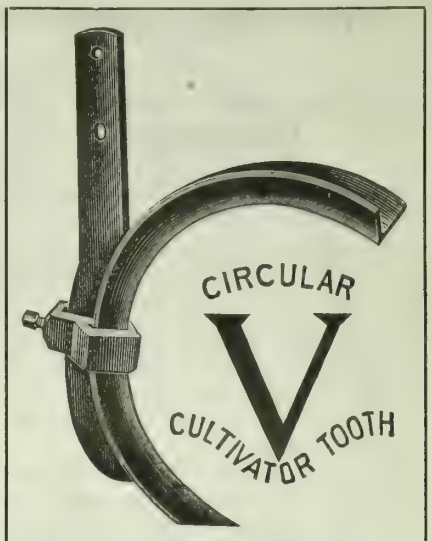
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FRUIT GRADING, PACKING AND INSPECTION.

Written for the PACIFIC RURAL PRESS
By MR. J. T. LAW, Loomis.

The meetings which have been held and the resolutions which have been passed about the grading, packing and marketing of fresh fruits incline one to doubt whether such subjects might not be much better discussed through the newspaper and where everyone can read and ponder well at leisure in his own home the various schemes put forward.

Probably there is no medium so convenient as the PACIFIC RURAL PRESS for thrashing out and solving problems in which so many are deeply interested. Public meetings and resolutions may and should reasonably follow so to decide by vote any points upon which men never unanimously agree. But it seems like running the cart before the horse to pass resolutions and not consider them till afterwards, and this has evidently been done in regard to public packing houses. Resolutions more or less complicated were read out, voted upon, and passed at Newcastle and at Loomis, which I do not believe were fully understood or considered by the bulk of the fruit growers present. Indeed it is doubtful whether half the speeches or half the resolutions were even heard by half in the meetings.

Unfortunately people in excitable meetings often take it for granted that all is right and vote as called upon, without really knowing exactly what for. They may be actually surprised afterwards to read what they assented to.

One particular resolution which I would refer to is that which calls for the establishment of public packing houses, to which the growers must haul their fruit for sorting, grading, packing, etc.

I am told that this was passed unanimously and yet I cannot find any one in this district in favor of such a scheme—excepting the party who introduced it. I have asked many, and all have ridiculed the idea of hauling and jolting delicate, fresh fruits, full of bloom and color, in lug boxes, over rough roads, in dust and heat to some distant public packing house. Surely more would be spoilt than packed. It might suit very well a large grower, who has more fruit than he can manage, to have a public packing house erected in his orchard. It would be handy, also relieve him of much anxiety and expense in getting hands to do his work, but for the great majority of growers it will never do, and if persisted in, may wreck the whole movement. Everybody agrees that a grading of the various sizes and official inspection will be good. All that is, therefore, needed is a simple plan providing an opportunity whereby every grower may have his fruit passed and stamped by an inspector. Descending from the abstract to the concrete I would suggest that:

(1) A responsible and certified inspector be appointed for each shipping house, whose duty it shall be to inspect and to pass or reject all the packed fruit submitted to him.

(2) The inspector to be at liberty to select and engage any assistants he may need in busy times, but the inspector to be responsible for the acts of his assistants.

(3) The grower or owner of fruit to be at liberty to have all or only part of his fruit inspected, just as he pleases.

(4) On arrival at a shipping house with his fruit the grower shall declare how many packages he wants inspected, and thereupon pay a charge of one cent per box on same. These charges may form a fund out of which the cost of inspection, etc., shall be paid.

(5) The inspector with or without his assistants shall then proceed to examine the condition of the fruit, its ripeness, and whether graded according to standard marked on the box by the grower. He shall open as many boxes as he pleases. When satisfied that the fruit is right he will stamp or label each box with the stamp or label adopted by the associated authorities, also marking thereon his own name or number of his certificate, so that if complaints come in from the East, the inspector could be easily identified.

(6) Fruit not submitted for inspection as also fruit rejected shall not be marked, stamped or labeled by the inspector, but shall be left to the grower or owner to sell, consign, can; dry or throw away as he chooses, and as he has been at liberty to do heretofore.

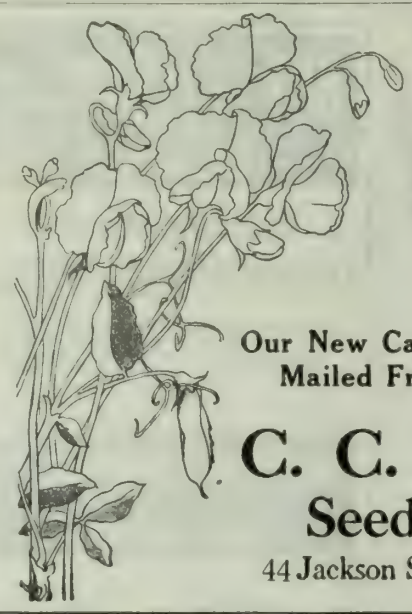
These arrangements would not interfere with horticultural commissioners, nor shipping companies, so their assistance would not be necessary. I believe such a plan as this would be sufficient. Soon as growers see inspected fruit fetching 10 to 50 cents a box more than uninspected, they will quickly learn how to sort, grade and pack so as to get these higher prices.

There must not be any coercion attempted. And as to none but first-class qualities of fruit being shipped it must be remembered on the one hand that every man has more or less of faulty fruit every year, which he could afford to sell cheap, while on the other hand there are in our large cities crowds of poor people, men, women and children, unable to pay high prices for highest qualities but who are happy to buy slightly damaged fruit at a low price. A peach or a pear may have a bird peck, or a worm hole, and yet be an excellent fruit. To waste such would be a sin and a shame.

Growers may do well to think things over well and then know how to vote on resolutions.

Loomis, Cal.

[This discussion is good; it is the way to get to the bottom of things. In handling citrus fruits it has been found essential to have the fruit packed at the association packing house and wholly under its regulation. Will it not work as well with other fruits? If not, why not? That is a point to be demonstrated. Certainly it should be discussed. It took several years to carry the orange growers' movement to success.—EDITOR].



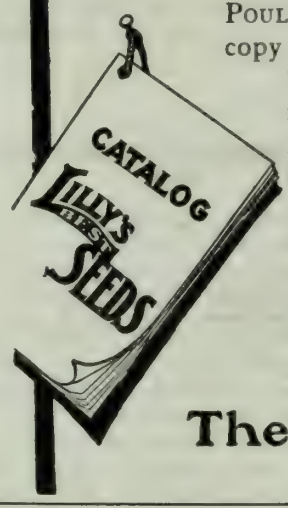
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CANNING TOMATOES.

To the Editor: As a subscriber to your valuable paper, the PACIFIC RURAL PRESS, I would like to ask a few questions. I have been thinking somewhat of starting a cannery—canning tomatoes for a while. I have bought all brands of tomatoes from 7 cents to 30 cents a can. The canneries put 21 ozs. tomatoes in a can, and fill the can with juice or water. This is known as "standard." Other cans contain 26 ozs. tomatoes, balance water or juice. This is what they call "select," or the best. I know this to be true, for I have seen it with my own eyes at the factories. The women that weigh them are not backward in telling you so, and so are men, and the office help tell the same story.

My idea is to fill the can solid with tomatoes and not juice. I claim the tomato contains enough juice to keep it. If they claim three pounds to a can, why don't they put it in? I suppose people want cheap goods, consequently they put them up that way. My idea is to put three pounds in a three pound can. I believe the better class of trade would buy them in preference to what we used to call "slops" back East.

I was talking to a real estate man the other day about my scheme and he gave me to understand I could not go in the canning business. When I asked why, he said the association had everything their own way, it was a trust. They would not allow me to do any canning. I ask you, is this so? Could they keep me from canning goods produced or grown on my own land? I would like to put up good, first-class, honest goods; three pounds of tomatoes, and not 1¼ pounds of tomatoes, balance water. People could put in as much water as they required. I don't know exactly where I'm at. Could the trust or combine tie the other trust, the can makers, so they would refuse to sell me cans? Please be free, and give me all particulars and information you can.

Do you think it would pay to be honest and put three pounds of tomatoes in a three pound can? A bushel of tomatoes produces about 16 cans of solid meat; a ton about 500 cans. I would like to have your idea. Can the trust and the board of trade, or wholesalers, knock me out, or would I have any trouble with them?

SUBSCRIBER.

Puente, Los Angeles county.

[Probably no trust or association would give you a bit of trouble; you would have enough of your own if you try to operate on any scale beyond what you can compass by your own time and money in manufacturing and selling. You can make as much finer product as you describe and you can sell it just as far as your voice will reach, and make money if you can talk as well as you can write, because your customers will be those to whom you can personally explain the character and desirability of the goods you are making, and persuade to pay you enough more than they have to pay at the stores to requite your effort. But you cannot compete with large establishments in the cost of the goods nor can you get large dealers to handle them without giving them about all the profits.

If you undertake to operate on a larger scale you will be beaten by the large establishments in the cost of boxes, cans, solder and everything else you use, because you will have to pay profits to box makers, can makers, etc., etc., which the large establishments save by equipping their own box making, can making, etc., departments. They can buy every kind of supply and facility, including transportation, for less than you can, because they can contract for large quantities of everything. They buy lumber, tin, etc.; you buy boxes, cans, etc., and that makes a great difference. They also can command capital at lower interest than you can, and they can, therefore, carry customers as you cannot. You will not be up against any trust whatever; you will simply be up against an economic condition which it will be hard for you to surmount. If you do surmount it, and we hope you will, you will yourself be great, because the business cannot succeed without getting upon the plane of greatness in operation. One thing you can do, if you make enough goods to attract attention, and that is to cause the canners to do better. They can do it just as well as you can, and a great deal more cheaply. They can beat you on your own ground unless you get great as they.—EDITOR].

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AGRICULTURAL REVIEW.

Horticultural Notes.

The board of supervisors of Sutter county have appointed H. P. Stabler horticultural commissioner for the county for the next four years.

On account of the slow coloring of the oranges in the Pomona section, very few oranges will go out of this district in time for the holiday trade.

The Sunwaken Fruit Company, of Los Angeles, was recently incorporated for $10,000. The directors are: L. A. Leroy, Jno. Leroy, and C. H. Treat.

Earl Mills, of Oroville, was a successful applicant in Butte county for a horti cultural certificate at an examination held last month under the new law.

John Van Emon is planting 150,000 orange buds at his new nursery at Porterville. If the new county organization is permanent, no outside trees will be allowed shipped into that district.

Florida is suffering from a spell of the coldest weather experienced this season, the temperature dropping down to 30° above zero. This cold wave is doing considerable damage to the fruit crops.

Tulare county oranges are topping the Eastern market remarkably over the Florida fruit. Florida brights are going to auction in the East as low as $1.65, while Tulare oranges are selling from $2.00 to $2.65 per box.

The olive industry is growing rapidly in north San Joaquin county. Crimp & Son, M. C. Dow, and the Christian colony have had such excellent results from their olives that they are going to increase their acreage.

F. H. Stafford, a prominent almond grower of Lomo, expects to plant about 15 acres of rice the coming season. He has taken out many of his almond trees to put rice instead, as he thinks it will be much more profitable.

C. H. Claubes, one of the best known orange growers of the Porterville district, died this week of glanders, caught from driving behind a horse suffering from that dread malady. His sickness baffled the physicians for some time.

Last week Edmund Peycke Company shipped five cars of oranges direct to London. Mr. Peycke claims to be the first California shipper to send oranges direct to London. He intends making a number of these shipments during the coming season.

A huge strawberry weighing 1½ ounces and measuring 2½ inches in diameter has been placed on exhibition at the San Diego Chamber of Commerce. The berry was grown by T. A. Bedford, at 4640 Campus avenue, San Diego, and was picked on December 2.

The supervisors of Riverside county have recently adopted a new ordinance which forces all people engaged in spraying or fumigating trees to take out a license, and pay a quarterly fee of $1. Only permits will be granted those in the spraying business who are qualified to do the work.

It is estimated that this year 4,000,000 boxes of grape fruit will be consumed by the people of the United States. This is a decided jump from a few hundred boxes used 15 years ago. Since the grape fruit was "discovered" commercially through the Department of Agriculture, its cultivation has grown 200% in all the semi-tropical regions of the United States.

The canteloupe growers of Imperial valley profiting by the experience of this last year will not grow so many canteloupes this coming season as they did last, cutting the crop down one-third. They also intend to improve the handling and culling of the melons. In this way they hope to find a better market for their output. They also intend to have but two forwarding agencies in the valley the coming season, and all shipments will be subject to rigid limitations.

General Agriculture.

The Tagus ranch, located near Visalia, will not be planted to sugar beets this season, but will be set out to wheat and barley.

The Agricultural Year Book is now ready, and all those desirous of securing a copy, should write the Congressman of their district.

Ninety barrels of turkeys shipped to Los Angeles from Oklahoma were recently condemned by the food inspector as being unfit for use.

William Watson, of Napa Junction, is planting two acres in mushrooms. He expects to supply the San Francisco market with these edibles.

W. Gogswell, of Scotts Valley, raised a potato which weighed four pounds and is free from all blemishes. The potatoes from the field from which this potato is taken will average 1½ pounds.

It is estimated that 1240 acres of cotton will be planted in the vicinity of Calexico next season. Most of this will be

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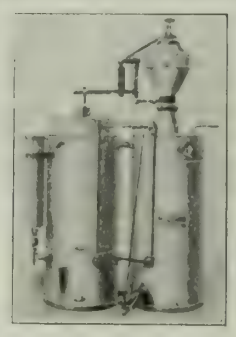


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LLOYD R. TAYLOR, Modesto, Cal.

planted in small tracts of such sizes that they can be cared for and picked by the planters themselves.

The farmers around El Modena, Orange county, expect to have an excellent crop the coming season due to the opportune rainfall. Between two and three thousand acres will be planted to barley this winter.

J. R. Royce, superintendent of the Indian reservations in Coachella valley, is investigating the cotton fields and gin mills around El Centro, prior to interesting the Indians of the Coachella valley in cotton culture. Mr. Royce hopes to induce the Indians to plant 200 acres to cotton this next season.

The hop market in Sonoma county is very active at present, some of the growers getting 24 cents a pound. Over 6000 bales have been sold during the past week.

Several farmers around Klamath Falls, Oregon, are going to plant ginseng. The reason of the activity is due to the success of David Graham, of Jackson county, who made quite a success growing this herb.

The report of the Crop Reporting Board of the United States Department of Agriculture estimates that the newly seeded area of winter wheat in the United States is 7 9/10% more than the estimated area sown in the fall of 1908 or an increase of 2,449,000 acres, making the total area of winter wheat 33,433,000 acres. The condition of winter wheat on December 1 was 95.8 against 85.3 on December 1, 1908, and a 10 year average of 91.5.

Miscellaneous.

The State Board of Prison Directors have cut the price of jute bags from 5¾ to 5¼ cents. The present board has over 7,000,000 bags on hand.

The Kearney crop of 550 tons of raisins near Fresno has been sold. It is reported that the Rexford Packing Company bought these raisins at three cents a pound.

An Iowa syndicate recently bought 1600 acres of land on the Southern Pacific railroad, between Livingston and Atwater, in Merced county, to be sub-divided and placed on the market in small tracts.

The work of constructing the big citrus fair pavilion at Cloverdale is being rushed, that everything may be in readiness for the eighteenth annual citrus exhibition to be held at that city next February.

Prominent irrigationists throughout San Joaquin valley have taken up the proposition of holding an irrigation congress in Stockton next spring. They expect to make it the largest gathering of this kind ever held on the Coast.

Surveyors are in the field working on the project to utilize the waters of Cowhead lake, in Modoc county, to irirgate the land of South Surprise valley. The land to be irrigated comprises about 60,000 acres now largely devoted to sage brush.

The stockholders of the Lemon Growers' Exchange, at Upland, have decided to increase the size of their warehouses, as last year they could not accommodate all of the lemons shipped in, and were compelled to put them in private storage plants.

The Banning Company, who own the Catalina island have stopped the Los Angeles florists from gathering holly and Christmas berries on this island. They have recently confiscated several hundred sacks of holly worth $8 a sack, and arrested six men for gathering these berries.

The work of reclaiming Sherman Island in the San Joaquin river is now under way. Five pumps with a capacity of 150,000 gallons of water per minute are at work steadily pumping out the water and three large dredgers are strengthening the levees. At the rate the work is being done it is estimated that the island will be dry by January 1, which will release 10,000 acres of good sediment land for farming purposes.

The Winters Canning Co. has constructed a separate olive packing and oil making department and are putting up many thousand gallons of fine pickled olives besides making high-grade oil. The cannery has been paying 3¼ cents a pound for olives delivered to them. The olive industry in general through the northern part of Sacramento valley is increasing very fast. The heavy demand for this fruit and good prices are causing the growers to take better care of their olive orchards and plant out young trees.

Owing to the shortage of meat for export from the United States and the great growth of population which prevents this country from exporting grain in necessary quantity, the people of Great Britain are looking to the Argentine Republic to supply them with food in the future. Already that country has cut into our European trade heavily, as last year it sent to England three times more maize than we did, and something like 4,500,000 hundred weight more wheat, besides twice the amount of refrigerated meat. Both Chile and the Argentine Republic are becoming the granary for Europe.

The raisin war which has been waging so bitterly in Fresno for the last three months has taken another turn. Practically all of the raisins of this district have been united in one big pool to be sold by a board of three trustees. About 10,000 tons of different varieties were signed up and 3 cent price is being sought for the muscats. Three cents is also asked for Thompson's and 2½ for malagas. Over 700 growers are in this pool and it is believed that about 95% of the unsold crop will be included. The trustees of the pool are Thomas H. Lynch, of Fresno, D. S. Snodgrass, of Selma, and A. L. Sayre, of Madera.



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T. J. TRUE, Modesto, R. F. D., 1.

SUGGESTIONS FOR TREE PLANTING.

The Woman's Civic League of Visalia has taken up the matter of tree planting along the city's streets, and Mrs. George W. Stewart, chairman of the street committee of the Woman's Civic League, wrote to Dr. W. L. Jepson, of the University of California, asking him to suggest varieties which he would recommend for the purpose. Mrs. Stewart stated it to be the desire of the league, as far as possible, to have only one kind of tree on each street. The sugar maple has been suggested, but statements are current that it does not do well in the valley climate and is of uneven growth.

In response to Mrs. Stewart's request, Dr. Jepson replied as follows:

"It is difficult for me, at this distance, to recommend particular trees for your streets. The determination of the best kind of tree for a particular street ought to be determined by an expert on the ground. It all depends on local conditions, soil, amount of rainfall (or water from other sources), temperature, and the like. A large number of different kinds of trees have been planted in and around Visalia. Many of them must have done well and would serve as a guide for further planting. I remember the fine umbrella trees which you have; I have seen nothing finer elsewhere.

"On a sufficiently broad roadway a half mile or more in length, where the soil is sandy and moist, you could use the fan palm (Washintgtonia) with striking effect, since your country is flat. But the lines of them should be backed up by orchards or similar growth. The palm is a royal tree and should not be degraded.

"More important than the selection of trees are other matters. Of these I can speak decisively. Plant only one kind of tree on a given street. Space them widely, not less than 100 feet. Do not belittle your most important feature—magnificance of distance—by overcrowding. On north and south streets you might advantageously use evergreen trees (not too large) or evergreen shrubs and plant more closely, say 50 to 80 feet, depending on their adult size."

HAY, STUMPS AND CHICKENS.

To the Editor: I wish to plant hay this year in alluvial soil in a region that is subject to inundation in wet seasons; it is moreover naturally wet in winter only, owing to the poor drainage. What hay would you recommend as being most suitable to these aforementioned conditions—wheat, red oats or barley?

I am to cut down some trees and wish to kill the stumps without removing them. Can you recommend some chemical which, being put into a hole bored into the stump, will kill it.

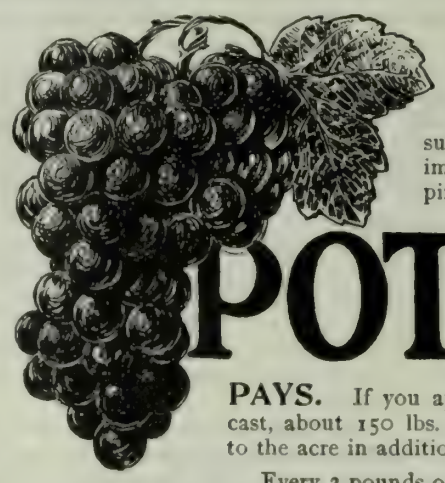
I am desirous of going into the chicken business as a side issue to my orchard, and would be much indebted to you if you would see that I am sent whatever literature the experiment station at Berkeley has prepared for California conditions. I would like advice concerning feed, houses, etc. SUBSCRIBER.

San Jose.

[We should rely on barley, which will do best with such late sowing as you will have to do on such late land.

We know of no such stump killer. The best way to kill a stump is to clean off all bark so that suckers cannot start and watch to see that none do start from live bark which may have been overlooked.

To get things from the Experiment Station, make direct application to the Station at Berkeley by letter or postal. All their poultry bulletins are out of print now, but there will be more coming. Our own poultry department is continually discussing the subjects you mention.—EDITOR.]



GRAPES

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Live Stock and Dairy.

Prepared for PACIFIC RURAL PRESS
By PAUL P. PARKER.

THE MILCH GOAT.

The much ridiculed "Irish Lawn Mower," "Can Exterminator," "Daughter of the Unfragrant Lord," and holder of many other unpoetic names is gradually coming into her own. Milch goats have proved their worth in most of the European countries for many years and America is at last recognizing their value. Through the efforts of the comic press the milch goat has never been taken seriously and it is mainly from this cause that there are not more goats in the United States. A reaction has set in, however, as much interest is centered on the milch goat industry.

The goat, because of its hardy nature, is less liable to tuberculosis than the cow, it utilizes food better and gives considerable more milk in proportion to its body weight, the pure breeds giving from 12 to 18 times their weight annually in milk. They prefer dry, hilly ground and never do as well on low swampy ground. Goats need protection against cold rains and should be well housed.

Goat's milk is thicker, richer and sweeter than cow's, and makes excellent food for invalids and babies, being more like mother's milk than any other kind of milk. Although butter is made from this milk, it takes longer to make it than from cow's milk, because the fat globules are smaller and will not rise as quickly. It makes excellent cheese, however, the best known goat's milk cheese being Roquefort. The odor which is frequently found in goat's milk is due to outside causes, as the milk absorbs flavors very quickly. The presence of the buck or feeding the goat scraps will give a bad odor to the milk. Give the goat wholesome food and keep the buck away and the milk will be free of any objectionable odors.

A goat should give at least two quarts of milk a day to be profitable, although the average is probably three or four quarts a day. They keep this up for six or seven months before drying up. Many of the common goats around California only give milk for three or four months, but they have very little of the milk strain in them. Goats of this type only need to be milked once or twice a day, but the good milch goat should be milked three times a day as the milk distends the udder if allowed to stay too long. The pure breeds have very large udders and teats, some of them missing the ground only by a few inches.

There are some 100 breeds of milch goats but very few are ever seen in California. The Nubian goat of Africa is considered by the authorities to be the greatest milk producer of all breeds, often giving 12 quarts a day. This goat needs a hot, dry climate, and should do well in southern California or Hawaii, but it would be impossible to get one except by sending to Africa or accidentally happening on one that some sailor has picked up on the African coast.

The two most popular breeds on the Pacific Coast are the Toggenburg and Saanen. Crosses are being made from these imported goats and our common goats, and goat breeders expect to produce a typical American milch goat which will surpass all other breeds in milk production. The Toggenburg is the best when the general average of milkers is considered, but when the best of each breed is taken the Saanen will produce the most milk. The Toggenburg has brown hair with a white strip down each side and white feet. The Saanen has white, short hair and is the favorite milch goat in Germany. Both breeds are supposed to be hornless, but horns are occassionally found.

The price of milch goats in California is not certain, because very few are raised to sell. One who has a extra goat can get rid of it so quickly that there is no set price for them. In Switzerland a female Toggenburg from one to two years old will cost $8.50; a two-year-old or over will cost $10; bucks from one to three years range from $10 to $20. Saanens cost from $3 to $10 more apiece. It then costs about $30 to import into the United States. If one is going to buy Swiss goats the best time is in the autumn when they are being taken off the pasture. Care should be exercised in buying goats abroad as they will not sell their best goats but will send over their undesirable culls. A person who is going into the business should buy, if possible, in America, and if the goats are registered, the person buying should insist upon the certificate accompanying the animal. For one just going into the business it is best to buy goats four or five years old as they will know how to take care of kids and will also be broken to milk. The teeth of a goat are all set by the fifth year so after this time the only way to tell a goat's age is by the filmy eyes and head.

Scattered about the hills of San Francisco are many good types of grade Toggenburg and Saanen goats which have been brought over from other countries by sailors and sold here when dry. One of them owned by an old woman and fed on refuse from the kitchen and the grass in the streets gives five quarts a day.

Goats produce milk after their first kid but they do not attain their greatest milk capacity until their third year. Beginners usually breed the goats too young which not only stunts them but reduces their flow of milk. It is best to breed the goat when she is about a year old so that she will have her first kid in about five months, or when she is 17 months old. Goats will produce offspring twice a year but unless one is raising kids for the market, it is best to breed but once a year. By intelligent breeding of the does it is possible to have milk the year round.

Goats need plenty of exercise, especially some place where they can climb. A fence four feet high will keep goats in an enclosure and this is a much better way of keeping them than tying them up to a stake.

One goat will eat about 500 pounds of hay a year, but they should be given a little oats, bran or rolled barley occasionally. Alfalfa makes excellent food for them, in fact they will turn up their noses at any other food when alfalfa is around.

When the kids are born it is best to take them immediately from the mother and feed them from a bottle, because cow's milk is cheaper than goat's. Dilute the cow's milk with warm water and sweeten slightly, and the little fellow will soon learn to take it. Let them take the bottle six or seven times a day so that they will not get hungry. In four months the kids should be weaned and care should be taken to keep them dry, because cold weather is as fatal to kids as poison. A goat lives about 12 years and is in her prime from five to seven years. A buck should not be served until about 18 months, and if kept in good condition, can easily accommodate 50 does a year.

MESCAL PLANT FOR HOGS.

John D. Allen is feeding the agave or mescal, commonly called century plant, to hogs on his ranch, ten miles west of Benson, Arizona. Mr. Allen is feeding 60 hogs on this diet and they are getting fat. He takes the succulent mescal plants and roasts them. The hogs like the desert plant when prepared in this way. As the mescal is fresh and green the whole year he never has to worry about scarcity of feed.

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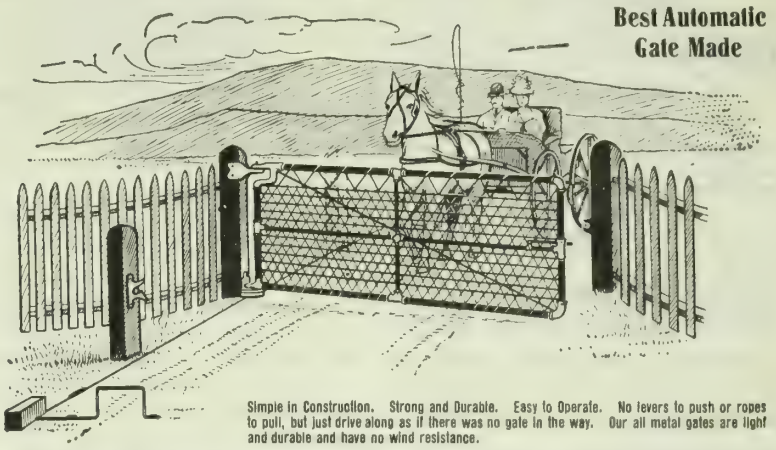
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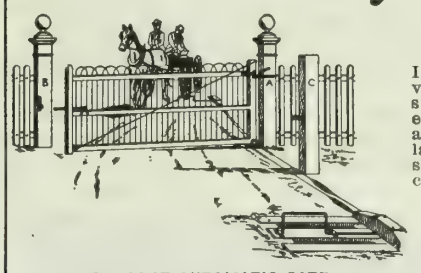
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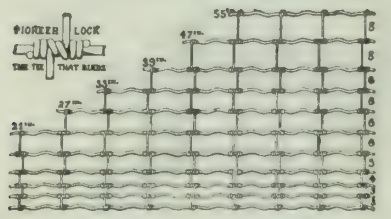
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POMONA MANUFACTURING CO.,
Pomona, Cal.

LIVE STOCK NOTES.

M. M. Fike, of Laton, has two Duroc sows who have littered 50 pigs in the last six months. In the first litter one sow had 13 and the other 12, in the last batch they reversed themselves, the one having 12 the first time, produced 13, and the other sow 12. The first litter is now being fattened for the market and they average 175 pounds apiece.

The cattlemen around Bisbee are worried over the grass outlook as the water is getting low and the grass is too dry to put the stock in the proper shape.

R. E. Young is fattening 250 head of beef stock on wild hay at the Leavitt ranch, near Susanville.

C. B. Stewart, secretary of the Utah Wool Growers' Association, says that the Nevada quarantine against Utah sheep will not affect seriously as most of the Utah sheep destined for winter pasture in Nevada are already there.

Robert Hardin bought P. W. Breen's cattle at Hollister last week paying 8½ cents a pound.

I. N. Castle, of San Jose, recently bought eight carloads of cattle at Gridley to fatten on his ranch near Pacheco Pass.

It is estimated that 100,000 cattle will be shipped out of Chihuahua, Mexico, this year to the United States.

Joseph Terrell, of the Double Creek Ranch, near Clifton, Arizona, and J. H. T. Cooper, of Solomonville, have stocked their ranges with a new importation of range bulls.

All allotments in the Coconino National Forest have been cut down 10% and as a result the sheepmen will be compelled to get rid of some of their flocks.

The Mesa Live Stock Improvement Company, of Mesa, Arizona, has been reorganized and intends to raise jacks, bulls and stallions for breeding purposes.

The people of Oakland have forced the butchers to install deodorizing machinery so as to prevent obnoxious odors escaping from the packing plants.

The sheepmen in Tehama recently received a rebate of $4000 which they paid under protest in 1908 to Trinity county. At this time Trinity county levied a license tax of five cents a head on all sheep and lambs. The sheepmen fought the case and it was compromised by letting the lambs in free and a three cent tax on all sheep, thus winning back about two-fifths of what they paid.

Stockmen who have lost cattle recently may possibly find some of their stock at the Kennel ranch on the San Bruno road, seven miles from San Francisco. According to the police this place is the headquarters for a gang of rustlers who have been stealing cattle all over the State and shipping there. Three steers belonging to R. E. Nordyke, of Oakland, were found in the band of 400 which are supposed to have been stolen by Fred Schaeser, Sol. Levy and Joseph Kennel.

The California Mutual Live Stock Association is being investigated by Insurance Commissioner Wolf, who alleges that it is not run according to the laws of California, in that it has not enough money on hand to pay losses.

Harry Heffner, manager of the Pauba ranch near Beaumont, recently returned from Arizona with a large bunch of cattle to be fattened on that ranch.

C. O. Drew, of Sonora, recently sold to the Western Meat Company 53 head of steers at eight cents which netted him $2000.

Jordan Rodgers, of San Marcial, New Mexico, recently sold out his herds to Kenneth Gunn, of Laguna, New Mexico. The price is supposed to be about $30,000.

HORSES AND CATTLE.

JOHN LYNCH, breeder of Registered Shorthorns; milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

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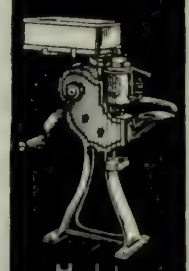
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DAIRY NOTES.

D. G. Whiting, of El Centro, has added 40 registered Jersey heifers, three cows and a bull, to his herd.

During the month of October, 38 cows on the dairy of J. H. Williams, near El Centro, produced $375 in butterfat, and the November output will be even larger.

The El Centro creamery has reduced its indebtedness $2000 in the last year.

Dairymen in the Imperial valley who have been buying their cows on the installment plan, the payments to be in creamery checks, have discovered that they can buy better cows by paying cash, so this practice has been discontinued.

A law has recently been passed in New Mexico forbidding the sale of milk from cows in communities of over 500 people, unless the cows have been tested for tuberculosis.

James T. Raitt has secured the Santa Ana Jersey Farm Dairy. He traded the Loomis Apartments, in Los Angeles, valued at $100,000 for the farm.

E. K. Henderson recently received a carload of cows for his dairy in the Imperial valley.

The Yuba City Creamery will open in a new brick building on January 1st. Gallatin Brothers are the owners and H. H. Herr, formerly manager of the Pozzi Creamery, at Marysville, will be manager. The creamery will have a daily capacity of 2000 pounds. This plant will get much of the cream which formerly went to Marysville from this district.

PUBLISHER'S DEPARTMENT.

AN OLD IDEA PERFECTED.

While there is absolutely nothing new about the method of using air as a cooling agent for an internal combustion engine, its successful application is, however, decidedly novel, and until the past few years nothing but the smallest motors were air cooled, and even these gave such poor service that they were never a success and indeed like all other unperfected articles, they have been taken as an example of air cooled engines, and have worked a hardship on the successful air cooled internal combustion engine.

From its manifest advantages, the air cooled engine is a decided improvement over the old fashioned method of water cooling with cumbersome tanks, leaky gaskets, leaky pipes, etc., and the air cooled engine represented by the new way, like all other achievements, has been brought to a state of perfection only after repeated failures of others, and until the new way air cooled gasoline or distillate engine entered the field, cooling as large a cylinder as 3½ hp. was considered impossible. The New Way, however, not alone accomplished this feat, but have had their 3½ hp. engine on the market for the past six years, and has proven entirely successful. The New Way Air Cooled Gasoline or Distillate Engine is designed and guaranteed for any climate for all day hard work, and for an engine on the farm they fill a long felt want, as they are light and powerful, and can be used for any duty where power is required.

The advertisement of Bowen & French, showing their Circular V Cultivator Tooth, will be found in the PACIFIC RURAL PRESS today. On December 2, James R. H. Wagner, manager of the Cudahy ranch, Los Angeles, wrote Mr. Bowen as follows: "Referring to yours of September 15, asking us for expression on the virtue of your Circular Teeth, have to say that my tardiness in acknowledging has been due to the fact that it was only of recent date that we have applied them to our cultivators, and it is with intense pleasure that I inform you that they are universally conceded to be the most superior cultivator teeth ever used on the ranch. I will pass the word along, and trust you

may meet with huge success in offering this very valuable tool to the company."

The San Francisco Brazing Works, 131 Beale street, announces in the PACIFIC RURAL PRESS that they are in shape to mend or weld broken cast iron parts to all kinds of agricultural machinery, gas engines or motors. A broken plow, or harvesting machinery, or any part of the gas engine can be securely mended or welded, on very short notice and for a small price. This company brazes cast iron, copper, brass, steel or aluminum. Anything broken about agricultural machinery can be repaired as good as new. Don't throw away your broken parts.

The Rogers & D'Artney Manufacturing Co. of Sacramento, which plant was destroyed by fire last August, has reorganized and settled in a new building on the old site. O. H. Rogers is president and manager; L. E. Brant secretary-treasurer. They will manufacture Rogers' Centrifugal Pumps, Imperial Land Graders and Traction Engines. The new arrangement enables the company to manufacture on a large scale in future.

The Alexander Pipe Co., Howard street, San Francisco, has an attractive advertisement in the PACIFIC RURAL PRESS. This company handles new and second-hand iron and steel pipe that is being sold at low prices, considering quality. This firm ranks with the foremost pipe concerns on the Coast, and handles only the very best grades to be obtained.

C. Henry Smith of San Francisco has been appointed California distributing agent for Hemingway's pure lead arsenate. A large stock of this product is booked to reach Mr. Smith in San Francisco early in 1910.

Aggeler & Musser Seed Company have just issued their 1910 catalogue. As usual, it is full of valuable information for the gardener and rancher. It is free to all for the asking. Write for it at once.

A HANDSOME CALENDAR FOR 1910.

One of the most pleasing calanders for 1910 that we have seen is the one sent out by our friends, the Vermont Farm Machine Company.

It is in several colors and shows a pretty dairy maid in full regalia in the foreground, with a setting of trees, a running brook and a herd of dairy cows. And in the corner, modestly symbolizing



the support that it is to all dairy maids who use one, is a United States Cream Separator. It is fitting that it should be there, because these famous machines make life a pleasure to thousands of dairy maids and dairy women throughtout the world.

We reproduce the calendar in the accompanying illustration. Of course, the beautiful effect of the many colors is lost and the reduction detracts from its beauty, but it affords at least an idea of this striking picture.

The Vermont Farm Machine Co., Bellows Falls, Vt., inform us they will mail to those readers of the PACIFIC RURAL PRESS interested in improved dairying methods, this beautiful ten-colored lithographed calendar who mention our paper. Better write at once before the calendars are all gone, as we understand their quantity is limited.

Warranted to Give Satisfaction.
Gombault's
Caustic Balsam



Has Imitators But No Competitors.
A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address
The Lawrence-Williams Co., Cleveland, O.

THE
Sun's Path
is the route of
Sunset Express

Daily between San Francisco, New Orleans and East, via Los Angeles and El Paso.

The Comfortable Way on a Winter Day.

One hundred mile ride along the ocean shores of the Pacific. Through Southern California orange groves—rice, cotton and sugar fields of Texas and Louisiana. Picturesque bayous—the Teche—Land of Evangeline.

Oil burning locomotives. No soot. No cinders.

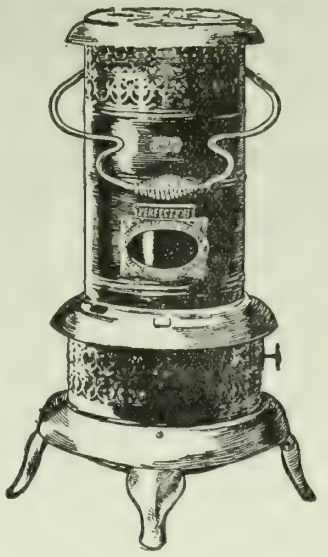
Through drawing-room sleepers, berths, sections, drawing-rooms, dining, parlor and observation car service. Steam heated and electric lighted throughout.

Through tourist car service to New Orleans, Washington, Cincinnati, St. Louis and Chicago.

SOUTHERN PACIFIC

Ticket Offices:
Flood Building,
Market Street Ferry Depot,
Third and Townsend Sts., Depot.
Broadway and Thirteenth Sts., Oakland.

Little Things Annoy or Please Us



Little things annoy us—the little curl of smoke that, if left alone, would soon smudge the furnishings and make work for the house-wife.

There are no annoying little things in the

PERFECTION Oil Heater
(Equipped with Smokeless Device)

They've been banished by hard thought and tireless work. In their stead there are little things that please—that make for comfort and satisfaction. The little self-locking

Automatic Smokeless Device

that actually prevents smoke—the little lock on the inside of the tube that holds the wick in check—keeps it below the smoke zone, so accurately adjusted that it cannot go wrong—these are some of the little things that please—that have contributed to the name and fame of the Perfection Oil Heater.

The most satisfying heater you can buy—always ready—easy to manage—always dependable—quickly cleaned.

Brass font holds 4 quarts—burns 9 hours. Attractively finished in Nickel or Japan in various styles and finishes.

Every Dealer Everywhere. If Not At Yours, Write for Descriptive Circular to the Nearest Agency of the
STANDARD OIL COMPANY
(Incorporated)

For Store, Hall, Church, Factory, Warehouse, Office or Lodge Room



600 Candle Power for 26 hours on 1 gallon common gasoline.

Gasoline lights of every description. The only manufacturer on the Coast.

THE COAST LIGHTING CO., Inc.
2233 2nd Ave., Seattle, Wash.

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United States and Foreign Procured, Defended and Sold.
PACIFIC COAST PATENT AGENCY, INC., Stockton, Cal.

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Reasonable rates. Advice free.
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812 and 814 Claus Spreckels Bldg., San Francisco

The Poultry Yard.

THE SEASON'S WORK.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

In December the poultry raiser sees the hatching season in the near distance and must begin to make ready, or make ready to begin, whichever way he likes to put it. For farm and home purposes the first of February is early enough to mate up the breeding stock. In fact many of the best hens will not be through and rested from the molt before that time. In this first week in December, a number of the flock of young hens whose record for the year ending the first of October was given in the PACIFIC RURAL PRESS of October 30th, are in full molt, while a few have not begun to molt and are still laying. Fowls intended for breeders should not be forced for winter layers. They should be given good care and as much range as possible and allowed to come to laying in the natural way and time. Then they will be full of vitality and vigor, and fertility and matchability of the eggs may be counted upon. Before placing such hens in the breeding pens with the males they should be entirely through the molt with the combs beginning to redden. The same rule should be observed with the males. No molting cock should be used for breeding purposes. He should be well-feathered and feeling prime before being put in the pen.

Poultry raisers who make the sale of hatching eggs an important branch of their business need to gather up one or more breeding pens in December, as the demand for hatching eggs begins the last of December. With a large flock of hens enough will have completed the molt to be used in the breeding pens this month. The pick of the vigorous pullets that are fully matured and have been laying some time may also be used for this purpose.

Other poultry such as ducks, turkeys and geese, should be considered. The best of such fowl should be selected for breeding and the balance sold before Christmas as the market will be dull for such stock after the holidays. If one is making a start with any of this class of poultry, the breeding stock should be bought now so that it becomes used to the new quarters before the breeding season begins.

The houses and yards for the breeding stock should be prepared. It is well to give the former a thorough fumigating with sulphur to destroy any disease germs, then whitewash with hot wash containing plenty of dissolved salt. If the yards have been long used for poultry, cover with air-slacked lime and spade under. This may seem like work, but it will save double this amount of work later on, besides assuring you success in the spring hatches. These precautions are especially necessary with the brooders and brooder yards. We have had many complaints from poultry raisers the past season, particularly in Sonoma county where the bulk of poultry is reared, of worms in fowls and chicks. One poultryman writing from there last September said, "Intestinal worms prevail among the flocks in this county to an alarming extent, and while they do not prove so harmful to the mature fowls, the younger birds do not make the proper growth, are poor in flesh and stunted." By using the same yards season after season without purifying by carbolic acid sprays and lime and keeping the ground turned under frequently and mellowed, the soil becomes contaminated and a hotbed of all kinds of vermin and disease germs. Each season after the chicks vacate the brooder yards the later should be purified, spaded and planted to barley. When possible it is best to change the brooder runs every year or two to new ground.

Before the burden of the hatching season is upon him, the poultry raiser should attend to all these points of preparation which make for success in the season's work.

Poultry Notes.

LITTLE LEAKS.—The early and continued rains bring to the poultryman's attention sundry little leaks in his poultry quarters and in his methods. Dirty, ill-drained yards that pass muster in the dry season are all to the bad in wet weather. The fowls pick food and gravel from the filth and drink from the cesspools of standing water, and diphtheria, canker, worms and all such filth diseases are likely to be the result. Make drains to carry off the water and sprinkle lime over puddles which cannot be so disposed of; also sprinkle lime with a covering of sand over the location where the fowls do most congregate. As soon as the soil dries off a bit turn it under and mellow it with the spade. Be careful that no food or green stuff is fed off the slimy ground or boards. With yarded fowls tie the green leaves and cabbage securely and hang up out of the dirt; stick beets and other raw vegetables each on two large nails driven at intervals in the fence or wall. Have clean, shallow boxes with a strip across the middle of the top to feed mash, cut greens, etc., from, and keep them dry and hung up out of the dirt when not in use.

Look through the poultry houses for the little leaks in the roof and walls which cause dampness in the house. If the open side faces the winds and rain, spread taut a shelter of canvas or burlap to keep out the chill wind and rain. In our climate the open side of the poultry house should face north, as wind and rain seldom come from that direction. It is not harsh climate and heavy soil that are the undoing of the health of the flock, but dampness, drafts, ill-ventilation, filth and vermin in the roosting quarters. The fowls may scratch and hunt all day in wind and wet with best results to health and egg-yield if they have a dry, comfortable place where they may rest and preen themselves and roost.

AN OVERDOSE OF SALT.—We note some complaints from stockraising sections of the fowls getting "salted down" by picking up food where salt had been scattered in giving it to the cattle. Fowls will never intentionally eat pure salt, but when it is mixed with other food it is often the case that they get an overdose which soon lays them out. The writer recalls an instance when a child where a flock of greedy half-grown chicks swallowed a lot of rock salt that had been mixed with grease and used to smooth a set of new waffle irons. Our mother, who was always equal to emergencies, quickly melted a can of lard, and we youngsters gathered up the dying chickens scattered about while she administered a tablespoonful or more of warm lard to each. In a short time all were as lively as before the salting. This same treatment is excellent in many other cases, such as poisoning, etc. One of the most noted veterinarians advises all farmers and stockmen to keep a jug of pure unboiled linseed oil always on hand, this to be given with warm water in cases of stock eating poisonous herbage or being bloated from overeating.

ONE POULTRY EDITOR'S "REASON FOR FEELING PROUD."—The pride of being even distantly associated with people of great wealth is a common weakness, and one which we usually try to hide. Not so an Ohio poultry editor, who under the above heading gives his reason for feeling proud, that many of the millionaires are planning to engage in the poultry business on a large scale. He says: "There are numerous rich and prosperous men who are at present engaged in the poultry business; a few among which we might mention are Howard Gould, W. K. Vanderbilt, Levi P. Morton, W. Barry Owens, and Havemyer Bros. Have we not reason, therefore, to feel pround of our company, and above all to feel an exceeding great pride in the fact that we are associated in a business which attracts the kind of men referred to?"

The fact that one millionaire was lifted out of obscurity on the wings of the hen will naturally attract other millionaires to the raising of $10,000 Peggys and $5 eggs. As a matter of fact, capitalists are constantly on the lookout for new avenues of paying investment and sometimes the poultry business is alluring to such. Some of our coast millionaires have at different times taken a hand at the game—and thrown it down again. As a rule the rich man and the hen do not make a satisfactory business combination. This bird is somewhat exacting and demands the personal attention of her owner; her care cannot be delegated to employes. The hen belongs to the working class and to the home. May she never be "cornered" by wealth.

Two solid carloads of eggs that were sent from Tampa, Fla., to take advantage of the almost prohibitive price for eggs in Cuba, were stopped at Knight's Key at the time of the great storm in October, and being blocked from shipment were confiscated by the railroad authorities and turned over to the several thousand workmen who had lost all their supplies. Eggs are now selling at $2 per dozen in Cuba, according to local commission men.

From the above it looks like Cuba would be a good point to engage in egg farming.

That eggs for hatching purposes can be shipped long distances with perfect safety was demonstrated by W. B. Borders of Wichita, Kan., who recently sent to England for 30 Buff Orpington eggs. The eggs arrived in good condition and 26 lively chicks were hatched from them.

Seventy-cent eggs are predicted for Christmas, says the Rome (N. Y.) Sentinel. Just as though man did not have enough to worry him at that time of the year. What with coal bills to pay, Christmas gifts to buy, and Easter hats in the near distance, it would seem as though it was rather rubbing it in to raise the price of eggs just at that time.

WAYSIDE YARDS
PETALUMA, CAL.



High Class and Bred for Egg Production, or Exhibition Purposes

S. C. White Leghorns.

We have the combination—Utility and Fancy—We showed the finest bird in the show of 800 exhibits at Petaluma, 1909, and carried off all Leghorn Prizes.

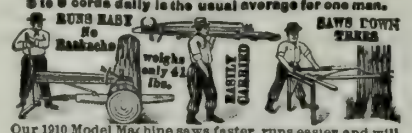
We want the trade of the high class breeders of the Coast.

Write for Prices.

CARL GREGORY, Mgr.

SAWS { ANY WOOD IN ANY POSITION ON ANY GROUND 4 in to 5 ft. Through

1 Man with a Folding Sawing Machine Beats 2 MEN with a Cross-cut Saw 5 to 8 cords daily is the usual average for one man.



Our 1910 Model Machine saws faster, runs easier and will last longer than ever. Adjusted in a minute to suit a 12-year-old boy or strongest man. Ask for catalog No. M25 and low price. First order gets agency
Folding Sawing Mach. Co., 158 E. Harrison St., Chicago, Ill.

CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 321, SAN LUIS OBISPO, CAL.

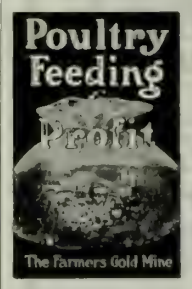
To lay a large number of eggs a hen must be fed a full, rightly balanced ration. Grains alone do not suffice, nor hap-hazard feeding. You can make your own balanced Egg Producing food as good as any, by merely mixing

EGG-MORE

with good ground grain products. And this is the thing to do if you can get grain cheaper than to ship it in. EGG-MORE is not one of those strong tonics, not advisable to be fed regularly, but it is a FOOD, to balance the ration properly, and you can't buy such balancing materials better nor cheaper than in EGG-MORE. Just a little daily does it. Send for Biddy Booklet with many testimonials. Ask others; the number using it is constantly growing. 25 lbs., $1.90; 50 lbs., $3.60; 100 lbs., $7.

If not sold by your dealer we will prepay the freight within 300 miles. Order a sack of sufficient size to give it a good trial, according to the number of fowls you have. Then if not satisfied, you get your money back.

West Coast Mill Co.
Cor. Griffin & Alhambra, LOS ANGELES, CAL.



Free Book
on application to
COULSON POULTRY & STOCK FOOD CO.
Petaluma, Cal.

FARMERS' NAMES
Complete and authentic mailing lists of farmon Pacific Coast. Prices right. Lists guaranteed on money back plan. Any other list you want. Only reliable Coast lists.
R. OPPENHEIM, 268 Market Street, San Francisco, Cal.

Do you want a Chicken Ranch where Chicken Ranches Pay?
IF SO, WRITE
C. R. WINFIELD,
32 Washington St., Argus Block, Petaluma, Cal.



The ARENBERG BROODER HEATER and STOVE

Perfectly simple, safe and cheap. Burns distillate, furnishes steady, free flame, and easy to manage as brooder heater or stove. Write for details.
H. F. ARENBERG, Petaluma, Cal.

Chicken, Fruit And Berry Farms
For Sale.
From one acre up. Improved or un-improved, $100 acre up. One-fifth or less down, balance long time. On the electric line. Rural mail, School, near town. See my ad in Sunday's Examiner. Send stamp for list. Write to Sebastopol. Office: Hessel Station, Between Petaluma and Sebastopol.
CHARLES GLOECKNER.

POULTRY.

BUFF ORPINGTONS—Sullivan's Commonwealth Strain are the heaviest layers of large eggs on the Coast. Winners at State Fair, Alaska Yukon show, Seattle, and all big shows for the past 10 years. Some fine Cockerels now for $5 each. Eggs $3 and $5 per sitting. Send for Prize Record. W. SULLIVAN, Agnew, Santa Clara County, California.

A FEW PURE BRED BRAHMAS, BLACK Minorcas and Rhode Island Red Cockerels for sale. Apply to Vine Ranch, Vina, Cal.

BANTAMS—Golden Seabright and Black-Tailed Japanese. Free Circular. Englewood Orchard, Campbell, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

BREEDERS' SUPPLIES.

JUST OUT Croley's "Little Red Book No. 51." Free. Send postal
GEORGE H. CROLEY, 637 Brannan St., San Francisco. POULTRY SUPPLIES.

The Home Circle.

The Holiday Season.

One more week then "A Merry Christmas" to you. Christmas is the universal holiday—celebrated in every country and in every clime. Santa Claus is not a myth—as we grow older we grow to believe in him more and more, and as we enter into the spirit of Christmas time, we get nearer to true happiness than in any other way.

Christmas is the children's particular holiday, for, after all, it should be especially observed and kept for the little folks. No time in all their lives are they as happy as when they believe in good Saint Nick, and their little hearts are overflowing with joy at sight of the many gifts given to them. Impress upon the baby minds the story of the Christ-child and tell them about the gifts brought to Him by the wise men. Teach them to love all others and to remember the poor children, especially, who perhaps will not receive the many gifts that your own receive. Teach them to be unselfish and thankful for what they receive. We should all learn that "The best part of Christmas is in giving, not in receiving. It is the heart's mood, the soul's attitude, the outflow of generous impulses and unselfish affections toward others."

Have the home bright and cheerful with holly wreaths and bunches of red berries and mistletoe. Let the older children help in the preparation of the Christmas dainties and the making ready of the Christmas tree. One of the decorations you should not fail to have for the tree are the fireless fireworks. They make a beautiful sparkle and are absolutely safe.

Second only in importance to the Christmas tree, is the Christmas dinner, and the artistically decorated dining room and table are great helps in the success of the meal.

Combinations of red and green are most appropriate, and if unable to procure either holly or poinsettias, one can have a very effective decoration by using red bells combined with smilax or any green vine not too heavy in appearance. Red crepe paper cut in strips makes very striking bows and is effective either on the table or on white window curtains.

The dinner in most Western homes will not be very different from what is served Thanksgiving Day with the exception that there must be plum pudding and, in some homes, goose is preferred to turkey. The serving of the meal in courses adds largely to its pleasantness, as the table can be kept looking better and the meal, of necessity, occupies more time, which is healthful as wall as enjoyable.

The following menu might be followed:

Tomato Bisque
Roast Turkey with Dressing
Giblet Gravy
Mashed Potatoes
Asparagus in Cream Sauce
Sweet Potato Croquettes
Olives Celery
Escalloped Oysters
Apple or Cheese Salad
Plum Pudding Sponge Cake
Fruits Nuts Raisins Candy
Coffee

This dinner would be improved by the addition of any dishes of which the family were very fond or looked on in the light of a treat.

There are many suggestions for a center piece that are clever, such as a minature Christmas tree, a Santa Claus with a pack upon his back, Santa Claus' home made of striped stick candy, surmounted with a wreath of holly.

After the dinner is entirely over and as a climax to the meal, serve a bran pie. This is a large pan suitably decorated on the outside and filled with small presents to each of which is attached a ribbon. The pan is then filled with bran so as to conceal the shape of the parcels and each person gets one ribbon to pull and the present at the end is theirs. Try to select mirth-provoking gifts and be sure to have a lemon for one. It is not necessary to have anything expensive as the pleasure is more in the surprise than in the value of the gift. Toy animals, whistles, rattles, wire beetles, and any inexpensive toy will be acceptable.

Social Life and Good Appearance.

There is no gainsaying that the majority of country boys leave the farm from a craving for social life. It is also evident that the kind of work boys do on a farm, the hours it takes to do it and the impossibility of cleaning up early enough in the evening to make visiting possible militates against their taking even the social advantages possible in the country. A city boy comes home from his work, tired perhaps, but dressed in such fashion that after a little rest he can either spend a restful evening in his mother's parlor, meet her's and his sister's friends or call on young ladies of his acquaintance. In the country the work hours are long, after supper it is nearly bed time. If the boy wants to visit he must change clothing and shoes and as this is quite a process he generally would rather not come in the parlor when sister has company.

I would like to ask the PACIFIC RURAL PRESS readers how these things are managed in their neighborhood. This is the way it works out in my home. One of my boys slips overshoes on and overalls and removes them in the wood shed. He is always ready for guests, but the other boy, as good looking and fully as entertaining, thinks this is too much trouble, thus he is not equally popular with the neighborhood young people. This is causing me some anxiety, as the companions my careless boy does find are many times strangers working in the neighborhood. These transients are not always the best in morals and this carelessness as to clothing seems to place the boy on a lower social level. A MOTHER OF BOYS.

CHRISTMAS IN OLDEN TIMES.

Heap on more wood!—the wind is chill;
But, let it whistle as it will,
We'll keep our merry Christmas still.
Each age has deemed the new-born year
The fittest time for festal cheer;
And well our Christmas sires of old
Loved, when the year its course had rolled
And brought blithe Christmas back again,
With all its hospitable train,
With social and religious rite
To honor all the holy night.
On Christmas-eve the bells were rung;
On Christmas-eve the mass was sung.
Then opened wide the baron's hall
To vassal, tenant, serf, and all;
Power laid his rod and rule aside,
And ceremony doffed her pride.
All hailed with uncontrolled delight
And general voice the happy night,
That to the cottage, as to the crown,
Brought tidings of salvation down.
The fire, with well-dried logs supplied,
Went roaring up the chimney wide;
The huge hall table's oaken face,
Scrubbed till it shone, the day of grace,
Bore then upon its massive board
No mark to part the squire and lord.
Then came the merry maskers in,
And carols roared with blithesome din.
If unmelodious was the song,
It was a hearty note, and strong.
England was merry England when
Old Christmas brought his sports again.
'Twas Christmas broached the mightiest ale;
'Twas Christmas told the merriest tale;
A Christmas gambol oft could cheer
The poor man's heart through half the year.

—*Sir Walter Scott.*

Children at Play.

I am teaching school in the country and am very much interested in my work. An article in a woman's magazine recently attracted my attention. Warning was given against giving children too many toys. Probably that warning applies under circumstances in which children are raised under conditions of pampered idleness, but generally in the country the other extreme is all too common. Children do not play enough. Very small children, of course, play, but I have noticed that boys and girls from ten to fourteen do not as a rule play enough. They are of use, can in some measure replace hired help and the temptation to keep them at it to get all the benefit possible from this available labor is often irresistible. The farmer that wouldn't drive a colt too young for fear of injuring him for future usefulness, who allows his young cattle to romp the livelong day will often keep his boy working steadily all day. A horse put to work when too young is likely to become a jaded looking old plug by the time he is grown. Remember the same thing may happen to the boy. Play is just as necessary to a boy's well being as it is to any other young animal. —Just an Old Maid.

Almost as Good.

Little Ikey came up to his father with a very solemn face.

"Is it true, father," he asked, "that marriage is a failure?"

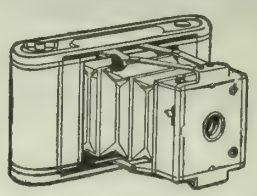
His father surveyed him thoughtfully for a moment.

"Well, Ikey," he finally replied, "if you get a rich wife it's almost as good as a failure."—*Lippincott's.*

Not Wasting Bait.

"George," she said, "before we were married you were always giving me presents. Why don't you ever give me anything now?"

"My dear," replied George, "did you ever hear of a fisherman giving bait to a fish he had caught?" Then the kettle boiled over.



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No pay until cured.
Call or write for testimonials.

FIDELITY RUPTURE CURE
1122 Market St., Opp. 7th, San Francisco.
Rooms 7 and 8. Hours 10 to 5.

THE MARKETS.

San Francisco, Dec. 15, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers.)

WHEAT.

The position of this grain is gradually becoming stronger throughout the country. Northern milling interests are actively in the market, but growers who have not yet sold are holding very closely, and the general movement is accordingly light. Local descriptions of milling grade are hard to get and high in price, and several descriptions show an advance. Local dealers quote as follows:

California Club		$1.95
Sonora	$2.10	@2.30
White Australian	2.00	@2.10
Northern Club		1.95
Northern Bluestem	2.05	@2.10
Russian Red	1.85	@1.87½

BARLEY.

All grades are higher, and the market is firmly held at present quotations. While business is naturally quiet, both feed and shipping barley has been selling in fair quantities at the figures quoted.

Brewing	$1.52½	@1.55
Shipping	1.52½	@1.55
Good to Choice Feed, per ctl.	1.50	@1.52½
Common Feed	1.45	@1.47½

OATS.

With the Northern market cleaning up and advancing, pressure to sell from that quarter is diminishing, and the local market also shows signs of going up. The better grades are still in fair demand here, though the movement is not exceptionally large. Whites are quoted higher. Gray are also advancing, but none are offered here.

Red, feed	$1.65	@1.75
Seed	2.00	@2.15
Black	2.60	@2.90
Gray	Nominal	
White	1.75	@1.80

CORN.

Most descriptions are practically nominal, as there is no movement of any consequence. Supplies are light, with no arrivals for some time. Considerable firmness has developed in the Eastern market. Egyptian is stronger.

California Small Yellow	$1.70	@1.75
California Large Yellow	1.75	@1.77½
Western State Yellow, bulk.		1.63
Mixed, in bulk		1.61
White, in bulk		1.67
Egyptian—White		1.65
Brown		1.62½

RYE.

Scarcely anything of choice quality is offered, and there is very little movement of any grade, as off lots are not wanted. Prices range about the same.

Rye, per ctl.	$1.90	@2.10

BEANS.

The market remains in about the same condition as last week, changes in values being few and unimportant. Conditions locally are normal for the holiday season, with little movement either from growers or to other markets. Most of the growers' stocks have been sold in central California, though some large lots are said to be held in the south. Prices on all descriptions are firmly held, and no further change is likely until after the first of the year.

Bayos, per ctl.	$4.75	@5.25
Blackeyes	3.80	@4.10
Cranberry Beans	4.25	@4.75
Garvanos	2.50	@3.50
Horse Beans	1.75	@2.00
Small Whites	4.75	@5.00
Large Whites	3.25	@3.50
Limas	4.10	@4.25
Pea	4.25	@4.50
Pink	3.70	@3.80
Red	6.00	@7.00
Red Kidneys	5.00	@5.50

SEEDS.

Large offerings of new Utah alfalfa seed are now coming in, weakening the market to some extent, though prices show little decline. The movement has been active for some time. Canary is also a little easier, with large supplies available. The general movement is fair, values on other lines being steadily held. Local dealers ask the following prices:

Alfalfa, per lb.		17@17½c
Broomcorn Seed, per ton	$20.00	@25.00
Brown Mustard, per lb		4 c
Canary	4	@4½c
Flaxseed		4 c
Hemp	3¾	@4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard	Nominal	

FLOUR.

Further advances are reported in the North and South, and the local market is very firm, with higher prices expected, owing to the steady advance in wheat. Most immediate demands have been filled, and buyers are now inclined to hold off.

Cal. Family Extras	$6.40	@6.90
Bakers' Extras	6.00	@6.40
Superfine	5.40	@5.70
Oregon and Washington	5.90	@6.10

HAY.

Arrivals are still light, though a little larger than last week. While there is wide divergence in opinion as to conditions, indications are in many ways favorable to holders. The local market is somewhat stronger than last week, with a slight improvement of prices, both on choice wheat and alfalfa. Hay is scarce in some interior districts, which are now buying heavily of stock in storage, while a lively shipping movement is taking place to the North. Some orders are also reported from Arizona. The strong barley market is regarded as an encouraging feature by the bull interest.

Choice Wheat, per ton	$17.50	@19.50
Other Grade Wheat	13.00	@17.00
Wheat and Oats	13.00	@16.50
Tame Oat	13.00	@17.00
Barley	10.00	@13.50
Wild Oat	10.00	@13.00
Alfalfa	9.50	@12.50
Stock Hay	8.00	@ 9.50
Straw, per bale	50	@ 75c

MILLSTUFFS.

The upward movement in the raw grain for the last few weeks has resulted in another advance in rolled barley, which is in fair demand. Bran, shorts and middlings are offered freely, and with very moderate requirements the market shows little strength. Other lines are quiet and steady at former quotations.

Alfalfa Meal, ton	$22.00@24.00
Bran, ton	27.00@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Cracked Corn	36.00
Middlings	34.00@35.00
Mixer Feeds	29.00
Oil Cake, per ton	37.00@40.00
Rolled Barley	32.00@33.00
Shorts	31.50@33.00

VEGETABLES.

Onions are not especially active locally, but the supply is light, and with all available stock in strong hands prices are firmly maintained, with an advance in view. The heavy frost of the last week has caused a reduction in arrivals of general lines, and since the off-grade stock has been cleaned up the market has been strong. There is a good demand for attractive lots of southern stock, and beans, peas and eggplant are higher. Some bay tomatoes are still offered, prices being higher. Rhubarb is now coming in, selling freely at quotations. Winter garden truck is plentiful and easy.

Onions—New Yellow, per ctl.	$1.00	@1.10
Garlic, per lb		6c
Green Peas, per lb	8	@12½c
String Beans, per lb	8	@12½c
Lima Beans, per lb	8	@10c
Turnips, per sack		50c
Summer Squash, large box	75c	@1.00
Tomatoes, per box	1.25	@1.50
Green Peppers, per lb	4	@6c
Egg Plant, per lb	6	@8c
Rhubarb, per lb	5	@6c

POULTRY.

Poultry has been arriving slowly this week, but prices are rather easy on most lines, though a good demand is expected within the next few days for all descriptions, especially large hens, ducks and geese. While arrivals of dressed turkeys are large at the moment, a heavy demand for large stock is expected next week, and dealers expect high prices next Tuesday, Wednesday and Thursday. A strong New Year market is also anticipated.

Broilers	$ 4.50	@5.00
Small Broilers	4.00	@4.50
Fryers	5.50	@6.00
Hens, extra	8.00	@9.00
Hens, per doz	6.50	@7.50
Small Hens	5.00	@6.00
Old Roosters	4.00	@5.00
Young Roosters	6.50	@7.00
Young Roosters, full grown	7.00	@8.00
Pigeons		1.25
Squabs	3.00	@3.50
Ducks	4.00	@9.00
Geese, per pair	2.50	@3.00
Dressed Turkeys, lb	25	@29c
Live Turkeys, lb	21	@24c

BUTTER.

An easier feeling has developed this week, as arrivals have been fully equal to all demands, and some dealers have had a surplus. The only change is on extras, which are 1½ cents lower. With a fair demand, however, the present quotation is fairly well maintained. Storage stock has been moving freely and is said to be cleaning up.

California (extras), per lb	35½c
Firsts	31 c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

With better weather for production, arrivals have been larger and the shortage of last week has disappeared. With a lively buying movement, however, the market is firm at a decline of 1 cent on firsts and extras. Storage goods are firm, but unchanged.

California (extras), per doz	54 c
Firsts	47 c
Seconds	35 c
Thirds	28 c
California Storage (extras)	30 c

CHEESE.

Prices show a further revision in an upward direction on nearly all grades, both new and storage stock being well cleaned up. Supplies of local stock have been very light, and while the demand is moderate there is some difficulty in taking care of the current business. The following prices are quoted by the San Francisco Dairy Exchange:

Fancy California Flats, per lb.	19 c
Firsts	17½c
New Young Americas, fancy	19 c
Oregon Flats	18 c
Oregon Young Americas	18½c
N. Y., Fancy	19½c
Storage, Fancy Flats	17½c
Young Americas	18½c

POTATOES.

There has been some scarcity in the northern market, and supplies here have been by no means excessive. Choice river stock is very firm, while Oregon potatoes are a little higher. Sweet potatoes have advanced, the cheap offerings being about cleaned up.

Potatoes—River Whites	70c	@$1.00
Salinas Burbanks	$ 1.15	@1.35
Oregon Burbanks	1.00	@1.20
Early Rose		1.50
Sweet Potatoes, ctl.	1.60	@1.70

FRESH FRUITS.

Owing to the limited nature of the offerings, there is little interest in this market at present. Huckleberries are higher, and will soon be out of the market. Cranberries are in fair supply, but strongly held at an advance, as inferior stock has been cleaned up and a strong demand is expected. There are few grapes to be had, and the little stock on the market commands high figures. Pears have been selling off well, and as the supply is diminishing prices have been advanced. Apples are quite firm and choice lots are in good demand, but values are unchanged. Other lines show little feature, persimmons being slightly higher.

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Cranberries, per bbl.	$12.00	@13.00
Huckleberries, per lb	10	@12½c
Grapes, per crate	75c	@1.25
Apples—		
Fancy, per box	1.10	@1.75
Choice	75c	@1.00
Common	40	@65c
Christmas Apples	2.00	@2.25
Pears—		
Winter Nelis	1.75	@2.00
Other varieties	75c	@1.00
Pomegranates, small box	50	@75c
Persimmons	90c	@1.00

CITRUS FRUITS.

Sales have been slow in all lines. Tangerines are arriving in large quantities, bringing lower values, and while prices are still held on navels they are weak, with plentiful supplies and little buying. Fancy lemons are again lower, with excessive offerings, and limes are still cheap.

Oranges—		
Valencias	$ 2.00	@2.50
Tangerines, box	1.50	@1.75
Navels	1.75	@2.50
Choice Lemons	2.50	@3.00
Fancy Lemons	4.00	@4.25
Standard	1.00	@1.50
Limes	4.00	@4.50
Grape Fruit	2.50	@3.00

DRIED FRUITS.

About the only large movement now going on in fruits is the delivery of prunes, principally to Europe, though there is also some shipment to the Eastern market. Little stock is left in first hands, and the bulk of the crop has been moved from the Coast. Other lines are pretty well cleaned up, and the shipping demand has quieted down until after the holidays, though the demand is very fair for this time of year. Values on fruits are unchanged. The raisin situation is attracting considerable attention, and Eastern buyers are holding off pending the adjustment of the Coast market. Most of the stock now held by growers is expected to be moved within a short time, one large sale having been closed recently at prices supposed to be in the neighborhood of 3 cents. Aside from this deal the market has been quiet for some time, growers holding for prices which packers generally have been unwilling to pay. Nothing is now offered under 2½ cents, and most stock is held at 2¾ cents for Muscatels. Sultanas are also quoted ¼ cent higher.

Evaporated Apples, per lb	8	@8½c
Figs, black		2 c
Figs, white		4 c
Apricots	9½	@10 c
Peaches	5	@5½c
Prunes, 4-size basis	2½	@2¾c
Pears	6	@8 c
Raisins—		
Loose Muscatels, in sweatbox	2½	@2¾c
Thompson Seedless		2 c
Seedless Sultanas		1⅝c
London Layers, 3 crown	85	@95 c

NUTS.

The situation is one of extreme firmness, and the market is practically nominal on both almonds and walnuts as far as growers are concerned, all holdings having been closed out. Local packers offer the quoted prices on anything that may be left in good condition. The local market has been active, and even jobbing stocks will be closely cleaned up after the holidays.

Almonds—		
Nonpareils		14½c
IXL		13½c
Ne Plus Ultra		13 c
Drakes		10½c
Languedoc		9½c
Chestnuts, California	8	@12 c
Walnuts—Softshell, No. 1		14 c
Softshell, No. 2		9 c

HONEY.

Most of the stock is now controlled by the trade, but the accumulations move off very slowly, and while choice lots are held for full quotations the lower grades are very weak. Local market prices are quoted.

Comb	8	@15 c
Exeracted, Water White	7	@7½c
Extracted, Amber	5½	@6 c
Old Extracted	4	@4½c

HOPS.

Hops show a somewhat wider range, according to quality, etc., choice offerings being higher. The movement is small, as most of the crop has been moved.

Hops, new crop	18	@24 c

WOOL.

While the market is quiet, occasional sales are reported at about the present range of values. Estimates are being made of the amount of fall clip remaining on hand.

Fall Clip, Northern Free	11	@13 c
Fall Lambs—Northern, per lb.	12	@15 c
Southern	8	@10 c
Fall Clip, Southern (defective)	7½	@8½c

MEAT.

Prices are firmly maintained on dressed meat, the only change being a slight advance in wethers. Arrivals of hogs are still limited, and prices are very firmly held, though conditions do not appear to warrant any further advance. Slight advances are noted in live lambs, sheep and cattle.

Beef: Steers, per lb	7	@7½c
Cows	6	@7 c
Heifers	6	@7 c
Veal	7½	@10½c
Mutton: Wethers	8½	@10½c
Ewes		8½c
Lambs		11½c
Hogs, dressed	9	@12 c
Livestock—		
Steers: No. 1	4¼	@4¾c
No. 2	4	@4¼c
Cows and Heifers: No. 1	3½	@3¾c
No. 2	3	@3¼c
Bulls and Stags	2	@2¼c
Calves: Light		5½c
Medium		5 c
Heavy	4	@4½c
Sheep: Wethers		5½c
Ewes		4½c
Lambs	6	@6¼c
Hogs: Grain fed, 100 to 150 lbs.		7¾c
150 to 250 lbs.		8 c
250 to 325 lbs.		7¾c
Common Hogs, lb.	5	@6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., December 14, 1909.—There is every indication of a rise in the price of oranges that are now in the East and unsold, but evidently the jobber is shy about giving the asking price for fruit that is yet to be shipped from here. It is now too late for cars to arrive at market points in time for Christmas, as in consequence there is but little doing in the packing houses except on orders for near by points, such as Denver, Salt Lake City, Texas, and Arizona points, and up the Coast.

A Redlands packer was sending out a car for Seattle on Monday of this week that he claimed to have sold at $2.10 f. o. b., usual terms. Others say that they have been filling orders at $2.00 f. o. b., but the cash man claims that he cannot get orders for any higher price than $1.80 and very little doing for immediate shipment at that amount.

A car of Riverside oranges of good color and fairly sweet, was sold on Monday for $1.65 cash, and other cars to go at once were ordered on the same basis. Orange county stock is selling at $1.50 cash, but sales are few.

The sizes are very large and the growers are anxious to pick the big fruit, but they are having trouble to find cash buyers who have the same idea as to values that they have. To pick for size means that the cars will have an excess of the big fruit and the jobbers are demanding a discount of 50 cents a box on the 96 size.

Lemons are steady and bring very fine prices at the other end, but the buyers are not doing much buying in California, because they figure that the market is likely to go off before cars could arrive. There is always a wide difference in the prices quoted here and the range today is from $2.00 cash, to $3.00 f. o. b., usual terms per box. The pick is getting heavier all the time and the main crop from California and Sicily is now coming in.

Valencias have all been shipped and nearly all marketed, the Chapman brands from Placentia alone appearing in the auction at Monday's sale in New York City. The Old Mission fancy brand sold at $6.95 a box.

Navels offered in the auctions on Monday sold at from $2.00 to $3.00 a box, those appearing being altogether from Tulare and Butte counties, no southern fruit being in evidence. Lemons sold up to $5.00 a box, and no fancy stock brought less than $4.00 a box.

The shipment for this month have averaged 26 cars of oranges a day so far

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WM. MATHER, Proprietor,

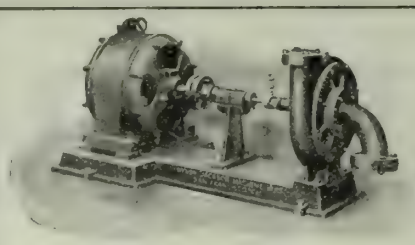
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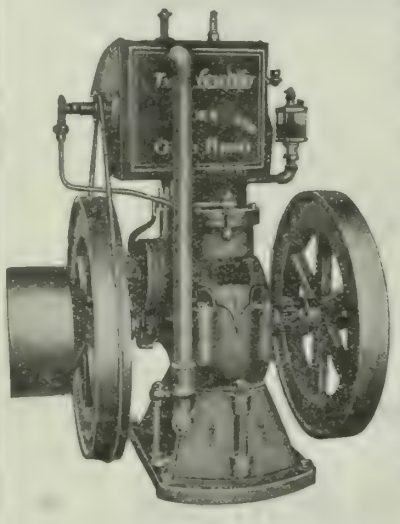


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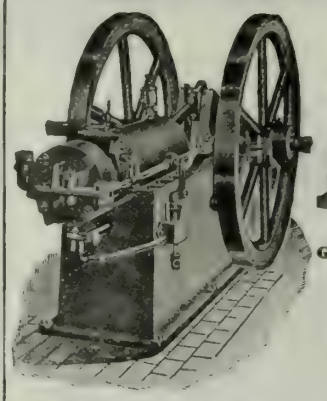
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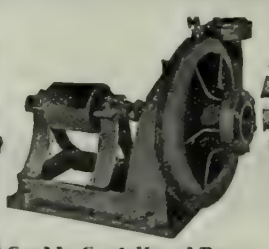
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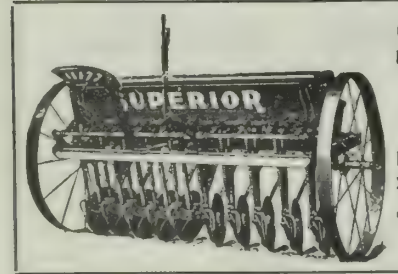


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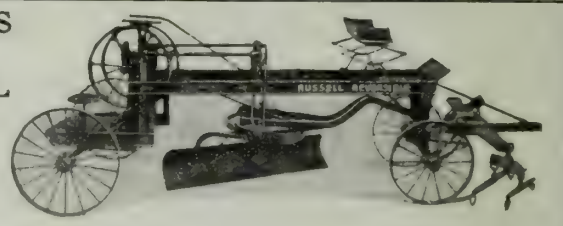
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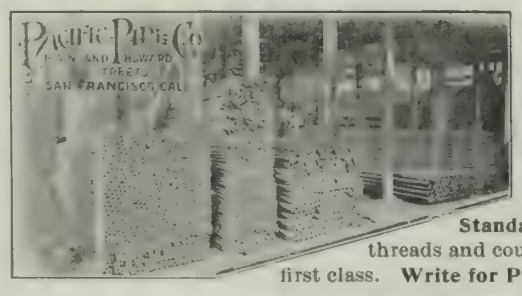
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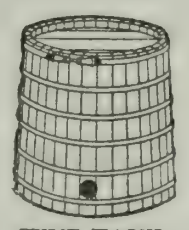


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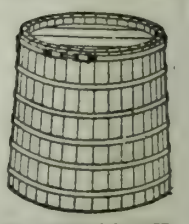
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THE PACIFIC RURAL PRESS
AND CALIFORNIA FRUIT BULLETIN

Vol. LXXVIII. No. 26. SAN FRANCISCO, SATURDAY, DECEMBER 25, 1909. Thirty-ninth Year.

Mule Raising in California.

Written for the PACIFIC RURAL PRESS
By MR. PAUL PARKER.

Opportunity is knocking hard at the doors of the farmers of California today, and many progressive spirits are meeting it half way and are reaping the reward. Opportunity in this case being mules. These superb work animals are scarce and the demand far exceeds the supply. The market here in California for mules is always hungry and there is no reason why, with our natural conditions for raising these hybrids, that we should not be able to supply at least the local demand, instead of having to go to Texas and Missouri for them.

There is no danger of an over supply, because the mines of Alaska, the sugar plantations of Hawaii and the Philippines use up all the mules that can be supplied. In fact, they use up more mules than we can bring from the Southern States, because the life of even these hardy hybrids is very short in these districts. The life of a mule of the Hawaiian plantation is only about two years, and it is not much longer in Alaska and the Philippines. On account of the local demand these countries have not been getting the best mules, yet the price has averaged about $233. This local demand is so strong that a prominent farmer of Merced told the writer that he had averaged five offers a week for the last two months for his mules, with the prices ranging from $200 to $350 apiece. Hundreds of mules are being brought in from the Southern States and many thousand dollars could not only be kept in California, but large amounts brought in if we only raised enough mules to meet the demand. A Kentucky mule raiser who recently brought several carloads of mules into the State said he saw no reason why we did not raise more mules, especially with our mild climate, large alfalfa acreage and fine looking mares.

The labor situation in California has done much to increase the demand for mules, because the laborers which the farmers today are forced to hire will ruin a horse in a very short time by beating and forcing. The mule can be beaten and clubbed, but he will only go so fast, and will not get a bit nervous in the bargain either.

Mules can be raised cheaper than horses, and they are not so liable to diseases. Another thing in their favor is that they go to the market quicker than horses, thus giving a quicker return on the money. Only last week a farmer near Hanford sold a pair of two-year-old mules for $400.

The essential thing in raising mules is to have a good jack, and that is the chief reason why there are so few mules raised in California. The jack which will give large mules weighs from 1100 to 1300 pounds and stands 14.5 to 16 hands high. His chest and back should be broad, his bone flat and broad (not beefy), his head and ears large and he should have extra length and style. A jack with a small foot is worthless, for the adage, "no foot, no horse," applies to mules as well as horses. Another requirement of a jack should be gentleness; a surly or a timid jack usually makes a poor performer.



Poitou Jack, King Napoleon, Owned by J. W. McCord, of Hanford.

Mule buyers favor dark colored animals, so it is best to raise only black, bay or brown mules. The two most popular breeds of jacks, which are right in color and meet the requirements of the California farmer, are the Catalonian and Poitou. They cost anywhere from $500 to $3000, the price being regulated by age, size and begetting qualities. If a jack is young, care should be exercised in using him, as he is easily ruined by too much service. A two-year-old jack should not be served over three times; 25 times is enough for a three-year-old, 40 times for a four-year-old and 50 times for a five-year-old or over.

The mule gets its size and quality from the mare, so mares of a draft type are the best to breed to jacks. Big jacks can increase the size of mules, but they are handicapped if the mare is too small.

Two or three hundred pounds on a brood mare will soon figure into hundreds of dollars if she has but a few mule colts, because of their increased weight. The mule raisers are getting such good prices for the drafty mules that they are making a practice of breeding their jacks to mares who have draft crosses in them. The great weight and propelling power of mules of this type cause them to always top the market on prices.

When the mule colt arrives let it run in the pasture with its mother on every clear day. Teach the little fellow how to eat, so that when he is weaned at his fourth or fifth month the change of diet will have been so gradual that it will not disarrange his digestive system. After the colt is weaned never let him know what real hunger is like, because it is a straight business proposition to meet every demand his system makes for more food to supply his bone and tissue. A mule colt which does not get all the food it needs has its growth stunted and brings a small price on the selling block. A mule is like a human being, in that he likes a change of diet. When he gets a great variety of food he eats more, and consequently puts on more bone and flesh. For this reason land along the foothills makes an ideal place to raise mules, because there are usually many kinds of grasses, and alfalfa is easily raised in such localities. Along with the pasture the young mule should be given hay and a little rolled barley and bran. Treat him right when he is young and he will reward you when he is sold. Just because the young mule eats oak leaves or thistles, do not think that he is relishing the diet, his system is probably calling for more food than you have been supplying.

Until the mule is two years old give him this varied diet, with plenty of exercise and fresh air, and the owner is always sure of a strong market and a good price.

The officers of the United States army are in Marysville buying horses for the cavalry service. They are paying $125 to $150 for horses weighing from 950 to 1100 pounds. No white or grey horses are taken.

Pacific Rural Press

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California Weather Record.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Dec. 21, 1909:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	.04	20.43	14.45	66	34
Red Bluff	T	7.91	8.56	64	32
Sacramento	.26	5.34	5.88	60	34
San Francisco	.07	8.44	6.71	62	41
San Jose	.34	5.51	4.31	66	30
Fresno	.48	6.87	2.94	56	34
Independence	.16	4.52	2.85	38	10
San Luis Obispo	.25	8.89	4.87	72	30
Los Angeles	1.09	6.49	4.00	72	40
San Diego	.30	5.38	2.39	70	36

The Week.

Those who enjoy a cold snap for Christmas are likely to get this year about as good an imitation thereof as California can set up. When we argued last week that the general activity of the elements promised that something would be doing all the season in weather affairs we did not think of copyrighting the theory before publication, and so have probably lost our chance at a ready-made mantle of prophecy, but we are still inclined to emphasize the view and to claim it as the most rational formula for long-distance weather prediction which has yet been advanced. It is certainly better than the theory of the latest unshorn son of o prophet who lives somewhere up in the new State of Siskiyou, and who said that we would fall short of the normal rainfall this year, for we have gone a long way ahead of that already and plenty more coming. But no kind of a prophet can furnish much of a cold snap for California, so the hot-blooded must get all the pleasure they can out of what they can get in that line.

Still there is something real chilly in the paragraphs in our citrus fruit department this week - providing one does not look at the weather report at the head of this column and find out what the minimum temperature really was at the different points named. Of course we do not put our thermometers in cold storage: they have to tell the facts as they come up against them, and even for Christmas cold-snappers we cannot lie about the weather. If a fool orange finds a hole in the heat and gets a chill all by itself, we cannot help it. We cannot save it as they do in Nevada, for the telegraph tells a cold story about. Mr. Ross Lewers, of Franktown, the largest apple grower in the State of Nevada, who is lamenting the loss of apples as a result of big snowstorms. He was lucky enough to escape the frost in the spring, but an early winter snowstorm did great damage to his apple crop; but, despite this he still has in his cellars at Franktown a part of the largest crop of apples his trees ever yielded. When the storm came Mr. Lewers, with all the men he could get, went out to the orchard and shook down enough apples into the snow to fill about 300 boxes, but enough remained on the trees which were frozen to make the loss about 4000 boxes. We cannot save oranges by shaking them down into the snow, because there is no snow, and, besides that, an orange will not keep as warm in a snow bank as an apple will. The orange is like other Californians: it can get a lot of cold comfort out of a pretty high thermometer—and all Californians are likely to get just as cold a Christmas snap this year as they really care for.

Another chilly paragraph can be made out of something which happened up the Coast and which would indicate that farmers are not after all such dead game sports as some of our correspondents who are writing about farmers' wrongs in the game laws might intimate. The story is that the farmers of Skagit, Snohomish and Whatcom counties, in the State of Washington, are feeding tons of wheat and oats about their premises, since the high water and cold spell, in order to save thousands of game birds from starvation and extinction. The upland birds, such as quail and Chinese pheasants, which have been imported into western Washington in the last few years at a heavy expense to the tax payers, were shut off from all food supply when the ground became frozen after the high water, and the farmers soon saw that if aid was not given it would result disastrously. Headed by the local game wardens, the farmers donated many sacks of grain, which were scattered about the abodes of the birds. Now the Chinese or Mongolian pheasant is a mighty bad bird, agriculturally, and can get away with more valuable produce than any wild native poultry, because of its size, reach and speed, and yet the farmers, forgetting that nature is doing a turn in their favor, empty their graneries to keep the pests alive. But that is the way it usually is with farmers: their hearts are almost always bigger than their heads. They would starve themselves to succor a distressed bird which will do its best to starve them next summer. They are so full of emotion that they will even do good that evil may come. They will warm up every frozen viper that falls into their ample bosoms. Will they receive their reward? Yea, verily. This will have to do for our Christmas sermon this year.

But no: here is a note of brotherly love which is its own reward and preaches its own sermon. We have exhorted fruit growers to get together, but we never had such a gleaming example as this. Our readers know that the lemon growers have been getting together and by getting up a whopper petition they secured an injunction preventing the railway companies from charging the higher rate. But lo and behold the injunction helps only those who got together to secure it. All non-petitioners have to pay the increased rate, while those who secured the restraining order are shipping under the old $1 rate, and this brings about queer complications. Before the shipper can be given a freight bill on his lemons some one must run through several hundred names and ascertain if he is on the preferred list of those who pay the old rate, or is to be charged 15 cents additional. And now those who did not have energy enought to get together to kick with the rest are kicking themselves all around the packing houses for not seeing the advantage of co-operation! But this is after all only a light affliction compared with what fruit growers will get if they do not get together for all purposes of their industry. It is only a merry little sorrow to hang on the Christmas tree.

And now in connection with this general effort to get fruit growers together, we are going to do an utterly disgraceful thing. It fills us with shame as we pause on the brink of doing it, but the temptation is too great for our resistance. We are going to print a paragraph from a private letter to the editor without getting the writer's consent because we believe that the writer, Hon. N. P. Chipman, Appellate Judge of the Third District, will pardon the discourtesy on the ground of our belief that such publication is good for the great fruit industry of California, to the advancement of which he has given such deep thought and vigorous action for a quarter of a century or more. In a hasty note to the editor, Judge Chipman writes:

"I desire to commend the humor and good sense you put into your review of Brother Stephen's report on transportation at Watsonville. There is no doubt but that we must have some relief in the matter or cease shipping green fruits to any great extent. At the same time I do not share the extremely pessimistic tone of the views expressed at the convention. I have on former occasions found it necessary to combat the cry of overproduction and I do not know but that I shall have to enter that field again. Diversify more? Yes; but not necessarily cease to plant fruit trees."

Let the reader understand that we take the whole responsibility for printing the foregoing, but we hope and believe, of course, that nothing but good can come of it. We cannot believe that any attempt to sweep back the waves will arrest the progress of a great industry to which California is uniquely adapted. We will go as far as anyone in denouncing evils and striving for redress, but we do not believe that any position which may have the effective of discouraging planting of the right fruit on the right land by the right man or woman can be in any way justified. We do not believe that those who suggest reduction of the industry really desire it at all and the bluff they put up for the purpose of scaring wrongdoers in transportation and real estate transactions, will have no effect upon the recalcitrants, but is likely to discourage honest effort and warranted investment. It is a serious thing to unsettle the calculations of those who are figuring upon the improvement of good lands and embarass the enterprises of those who have been using their capital and energy all the year to get upon sale a stock of trees which really ought to be planted for the good of the planter and of the State. The difficulties of a great product which the world needs and is willing to pay for, to the up-building of California, is not to be met by restoring the industry but by hewing a clear pathway before it. It is no way to get fruit growers together by trying to make them believe that they are a poor lot of industrial imbeciles, the helpless prey of every designing agency. Rather should they be led forward.

And now having taken the liberty of printing Judge Chipman's private note with comments, we are going to commit still another enormity, viz., to print our own private note in reply to his, as follows:

"We are exceedingly glad to again have your approval of our efforts in promoting rational and hopeful views in California development. It has been a constant delight to us during all these years to find that our thinking compelled us more and more strongly to the support of views, which you yourself have commended, and the very fact of your commendation has given us more confidence in them. We hope that you will feel it a public duty to continue your support of the fruit industry. We doubt if there can be any overproduction, considering the distinctive relations which we bear to a vast consuming area, both on this continent and beyond, and if this is a true conception, duty lies not in the line of discouraging production, but in broader and stronger efforts for wider distribution. We have great respect for Mr. Stephen's effort, as we tried to show,

and believe that his force and persistence directed by the environment in which he will find himself in the new league of deciduous fruit growers will prove of great advantage to the State. We shall always be thankful to you for suggestion, or for any contribution which you find leisure to prepare for publication over your own signature."

Now it only remains for us to ask Mr. Stephen's pardon if it seems to him that we have taken unwelcome liberty with his name or his position in this discussion. We have an abiding faith in his ultimate purposes, but we dislike his choice of routes toward their attainment. As we wrote to Judge Chipman we believe his environment will help him in the realization of his purposes, and the Fruit Growers' League, which he will have share in organizing, will be the most potent agency thus far invoked toward ends devoutly to be desired. State Horticultural Commissioner Jeffrey has completed the list of men who will compose the committee of ten fruit growers authorized by resolution at the recent Fruit Growers' Convention at Watsonville to formulate plans for a league or association of growers. The list is as follows: J. P. Dargitz, Acampo; George H. Cutter, Sacramento; R. D. Stephens, Mayhews; Geo. D. Kellogg, Newcastle; C. H. Rodgers, Watsonville; F. B. McKevitt, Vacaville; B. F. Walton, Sutter county; H. A. Fairbanks, Lodi; Howard Kerchival, Lower River district; H. V. Pickstone, Santa Clara county. This committee will outline a plan for the proposed Fruit Growers' League. It will not be called together, however, before the first of the year. One of its duties will be to call a mass meeting of growers within the next 60 days.

Queries and Replies

Planting and Pruning.

To the Editor: In anticipation of replanting trees (died in orchard) would it be advisable to now spread manure at base of said trees; would it facilitate growth of young trees to be planted? My reading and teaching regarding pruning young trees, is to shorten tops; several of our oldest and most successful fruit growers in this vicinity recommend the contrary, viz., not to shorten tops until they arrive at height desired, claiming main stems would thereby be strengthened. They have demonstrated to their satisfaction. Would be pleased to have you pass upon this method. How long must Bordeaux mixture be applied to become effective as against rain? Opinions of experts here differ.—Subscriber, Fowler.

If you are to plant this winter we should not spread the manure now, unless you are willing to rake it away from the place where you dig the hole so as to put the young tree in clear soil, and rake it back after planting if you desire. But why do you leave the dead trees standing so long? They should have been dug out last fall when you had time to get out the old roots so that their decay might not attack the new roots of the young tree. There may be something in replanting among older trees to let the youngster run up as fast as it can to get its share of the light, but if that is what you mean, it is a new idea to us. If you refer to such treatment of young trees planted by themselves we would prefer to get both strength and shape at the same time by building up from below, according to the well approved California method. If Bordeaux has a chance to dry well it will hold on better. How long it takes it to dry well, depends on the weather at the time.

A Word from Siskiyou.

To the Editor: In your article on "California Vegetables, in Garden and Field," you quote Sisson as in Shasta county. It is not. You do not mention Siskiyou county, in any way, ever. Why is it? It is certainly a very large and prosperous county. It is one of the leading counties in some respects. Have you no one here to make reports or what is it? With respect, and hoping you will not get us mixed up with Shasta county again.—Mrs. Solon H. Williams, Mayten, Siskiyou county.

Good for you! Thank you for the correction. We are apt to forget that Mt. Shasta is in your county. We will never do it again. The reason why more about Siskiyou county does not get into print is that your people are too modest about what they are doing. We notice that some people are calling for a new State to be called Siskiyou. They will not get a new State, but they will come nearer getting the recognition which the district deserves.

Points on Semi-tropicals.

To the Editor: I would like to know whether the "Avocado" and the "Feijoa" fruits spoken about in your issue of December 4, are grown from seed, if so, where the seed or plants can be obtained. It the Marsh's seedless the best California variety of pomelo; do you think they would take well if budded on old seedling or blood orange trees? Also, when budding upon old orange trees, can the buds be taken from the scion at the time they are being budded, or must they be taken at some previous time when the tree is as near dormant as possible?—Subscriber, Dinuba.

Both the plants are grown from the seed, but you would get results much more easily and quickly by buying plants from the nurserymen. Write to our advertisers for them. Which will be the best pomelo for California is still to be demonstrated. Enough has not been done with this fruit to make it sure. If you get scions of several varieties to bud in, you will soon have a chance to judge for yourself, and then you can work over more trees if you find it profitable. Pomeloes can be readily budded or grafted into orange trees of any variety. You can always find dormant buds on orange trees when you wish to do budding. Scions do not need to be cut and stored, in fact, it is better not to do so. In working into old bark you need a large plate of bark, taken from a mature branch of the kind you desire, and use a wax band, wrapping more carefully than you do with deciduous trees for the bud may have to remain longer dormant and must not dry out.

Milomaize and Kafir.

To the Editor: Please give me what information you can regarding Milomaize. What are its feeding qualities? Would it be likely to be a success on the sandy soil of south San Joaquin county?—Subscriber, Ripon.

Milomaize is a sorghum very much like Kafir corn, and of practically the same feeding value, which is nearly that of Indian corn. It will certainly do well with you: the amount of growth being proportionate to the amount of moisture in the soil. It must be planted after frost danger, like Indian corn, and in about the same way. It likes dry heat better than Indian corn, and that is the reason why the sorghums are grown so largely all over the plains of your valley.

Fertilizers for Hay.

To the Editor: We have some adobe mesa land which has been used for raising barley hay for many years. Last year it produced not much over one ton of hay per acre. What would you recommend as fertilizer for such land? Can cover crops be used successfully for maintaining the fertility and humus in hay land without losing a crop of hay? If necessary to lose a crop, how often would such a cover crop need to be planted in order to maintain the fertility of the soil? In selecting a cover crop plant, would you choose burr clover which is a native here in preference to vetch; the proper bacteria for which is not present in the soil? Is there any other hay that, in your opinion, would do better on our soil? Our average rainfall is about 13 inches.—Subscriber, Simi, Cal.

You do not have water enough to double crop. It needs about all you get to make a crop of hay, therefore, you cannot get also a legume crop in the same year. If you can get a growth of burr clover and vetches and pasture the crop with the native plants which also grow, you will have a bigger hay crop the next year—if the rainfall is up to the average. If you want more hay and no break in the annual crop of it, you must use a "complete fertilizer" containing nitrogen, phosphoric acid and potash, and any of our fertilizer advertisers can give you good points along that line.

The Land Roller.

To the Editor: Is it a good plan to roll grain, and if so, how long after sowing should one wait before rolling. Also kindly answer the same question as to alfalfa.—M. F., Redding.

The roller is used for several purposes. If it is used to close a light soil around a seed, the roller should follow seeding at once or you may not get moisture enough in close contact to sprout the seed of grain or alfalfa. If it is used to help the plant in a dry time, after the crop is up, grain or alfalfa may be rolled to advantage after the plant is several inches high. This restores capillarity which brings the lower moisture up within reach of the plant. If the roller is used to crush clods and smooth the surface it should be used when the ground is quite dry. The roller is used much less than formerly because better work can be done with a harrow and clod-masher which rubs more and presses less. On a heavy soil a roller is most likely to do harm and on a heavy soil when wet it will do more harm than anything which can get over a field.

Re-seeding with Alfalfa.

To the Editor: I wish to plow an alfalfa field that is now a poor stand; re-sow at once to alfalfa without making any further attempt to kill the old plants. Do you think I will have difficulty in getting the young plants to start among the sprouting old roots as would be the case if the seed was only disked in the old stubble? Your advice in the matter will be greatly appreciated. —Subscriber, Modesto.

You certainly do not need to make any special effort to kill the old plants. If they send up new shoots from below the furrow slice, so much the better. Your greatest danger is that the old root crowns that are cut off will make the soil dry out too fast when they are covered in. We should harrow lightly, with and not across the furrows, or use a straight disk across the furrows to crowd down trash and settle the ground around it. Such re-sowing should be done as early as is safe from hard frost because the coarse stuff is less likely to do harm by drying the soil.

Christmas Berries and Taxes.

To the Editor: Will you kindly let me know the name of the red Christmas berries? I asked different parties who attend the high school the name of the red berries, and I only get the answer: "I don't know." I have paid already an amount of high school taxes that would pay the subscription to the PACIFIC RURAL PRESS for 147 years, and six months. Now I have to find out by you what is the name of Christmas berries.—C. Baumgart, Martinez.

You must find consolation in the fact that we shall not have our high schools in such shape much longer. The Christmas berry, or toyon, is, botanically speaking, Heteromeles arbutifolia. This name has stood among California botanists for a long time, though if you were writing to Europe you might put the name Photinia in a parenthesis, because some authorities over there place the plant in that genus.

Hardiness of Cereals.

To the Editor: Which, wheat, barley, or red oats, stands excessive moisture best?—R. F., San Jose.

So far as our observation goes, barley would stand most, but can easily get too much.

Horticulture.

THE LATEST DEVELOPMENT IN FIG CULTURE.

By Walter T. Swingle and G. P. Rixford at the Fruit Growers' Convention at Watsonville.

(Continued From Page 401 of Last Issue.)

It was supposed that the fig wasp was first sent to the new world from Algiers by one of the writers in 1899, but the discovery of the insect on the Gates and the Lathrop trees, proves that the first introduction antedates that of 1899 by more than 30 years. A question of much interest in connection with the Gates and Lathrop trees is, how did they become infested with the Blastophaga. W. B. West probably imported more fig trees than any other man in the State. In 1865, two years before the Gates tree was planted, he imported 22 varieties from the south of Europe by way of Panama, the first overland railroad not then having been completed. As it was possible only for the insect to be brought over in the caprifig itself, it is reasonable to suppose that the trees imported by Mr. West carried mamme figs containing the insect and that it was established in the Stockton nursery before the trees were distributed. As all these old trees are of the same variety and most of them are known to have come from that nursery, it is a reasonable conclusion that to W. B. West belongs the credit, though probably unknown to him, of having first introduced the Blastophaga into America. That caprifigs on trees or cuttings could retain their vitality long enough to make this possible has been proven by one of the writers who took cuttings with mamme caprifigs attached from trees in the Maslin orchard last December and planted them in his yard in San Francisco. In May following the wasps were alive and about ready to issue, but a spell of warm weather in June dried up the figs and killed the insects. This shows that even on unrooted cuttings it is possible to keep the insect alive for six months. This introduction by Mr. West was undoubtedly accidental. The late Mr. Fred West, cashier of the Stockton Savings Bank was at the time of this importation a partner of his brother in the nursery business. He said to one of the writers, just before his death, less than three months ago: "If we imported the capri tree and the Blastophaga, it was purely accidental, as we knew nothing about either the capri tree or the insect, but thought we were sending out a choice variety of the Smyrna fig."

Cuttings and Caprifigs Available from the Loomis Orchard.—At the Maslin seedling fig orchard at Loomis, Placer county, which is under lease to the U. S. Department of Agriculture, are several very desirable capri, as well as a number of choice trees of the Smyrna type. These capri trees have now been sufficiently studied to enable us to select a half dozen or more of the very best. They are vigorous trees producing mamme and mammoni crops in sufficient abundance, and above all enormous profichi crops of large figs, abundantly infested with Blastophaga and having plenty of pollen. The resources of this orchard, both in caprifigs and cuttings, are placed at the disposal of all who are interested in fig culture. Cuttings from the best trees without cost and caprifigs at the bare cost of gathering and shipping will be supplied when requested. Anyone desiring either the fruit or the cuttings has only to send his name to the writers at 1813 Pierce street, San Francisco, and he will receive blank applications and circulars giving the conditions of the distribution. Last Winter nearly ten thousand cuttings and seedling trees, and last Spring several hundred boxes of mamme and profichi caprifigs were distributed. This Winter and next Spring further distributions of the most desirable kinds will be made.

Planting Capri Trees.—Every grower should aim to have an independent supply of fertilizing material of his own. This can be done only by planting a number of varieties of the best capri trees proportionate to the number of Smyrna trees in his orchard. If he has old trees of any variety he deems undesirable for any cause, let him insert capri grafts of the best kinds and by this means supply himself much sooner than by waiting for young trees to come into bearing. Smyrna trees will show fruit as early as two and three years and which, if caprified, will come to perfection. It is recommended that capri trees at the rate of two to each acre of Smyrna trees be planted by themselves in one corner of the orchard, or if there is a knoll or spot reasonably free from frost, put them there. They may be planted as near as 20 feet apart and if sheltered by a windbreak to keep off cold Winter winds, all the better. A number of growers may combine and plant a tract to capri trees in a sheltered spot even at some distance from their orchards, if thereby they can secure protection from the hardest frosts and also obtain earlier profichi caprifigs in readiness for the first Smyrna figs that reach a receptive condition. There is no danger of an oversupply of caprifigs, for there will always be a demand for the surplus from growers who have from some cause an inadequate supply. In the fig districts of Asia Minor, where fig growing has been a great industry for thousands of years, caprifigs are a regular article of trade in the markets.

The reason for planting capri trees apart from the Smyrna trees is that they more effectually fertilize each other and that a more even distribution of the caprifigs may be made by hand among the Smyrna trees. The question is often asked: Why not plant the capris among the Smyrna trees and let nature take her course? In Asia Minor it is firmly believed that over-pollination is the cause of the splitting of figs. The writers do not believe that this is the sole cause, if a cause at all, of the trouble, for reasons that will be given further along. It is not desirable that more than one or two Blastopagas should enter each Smyrna fig. At Loomis where at times the insects are seen hovering over the trees like swarms of gnats, it is not unusual for a dozen to enter a single fig. One of the writers has counted as many as 25 wasps in one fig and another struggling mass of 15 at the entrance trying to get in. Capri trees planted at considerable distances from each other in the orchard receive very little help from other capri trees in carrying the insect from crop to crop, and when the tree is of a variety that carries no mamme crop, its profichi crop is likely to be a failure. It may be noted that the more accessible the figs to be caprified are to the Blastophaga, the more of them will be entered. In some instances we know that the wasp has fertilized trees some miles away, perhaps carried by the wind, but not in sufficient numbers to produce a crop.

The Splitting of Figs.—The past season is reported everywhere to have been an ideal one until the September rains came. These were followed by cool damp weather with considerable splitting and souring of figs. It is the sentiment of many growers that splitting is caused by cool damp weather and not by over-pollination nor excessive irrigation. One of the writers has seen trees growing on bank of an irrigating ditch, in which water was flowing a good part of the year and the fruit on these trees split no more than on trees in other parts of the orchard which were irrigated only twice during the season. One grower, however, speaking of the large size of the figs on these trees said he would rather have some splits than small fruit. One large Smyrna fig orchard planted on ground so moist that a drainage canal is being constructed through it, showed very few split figs. Certain trees and some varieties, the White Adriatic far instance, split worse than others. In the Maslin orchard are trees with fruit that split more or less every year, while others, equally surrounded by capri trees and swarms of Blastophaga, show no splitting at all. Location seems to have something to do with it, as in Fresno county in those orchards near the foothills the trouble seems to be less prevalent than out in the valley. The past season in most localities has been the worst in several years, still it is not a very serious matter. It is noticeable that of the Lob Ingir fig many split specimens close up in drying and still make good figs. This fig contains so much sugar that, unlike the White Adriatic, very few sour even split. It is at present difficult to account for this trouble in many cases and the subject should have further study.

Curing Figs.—It is well known that when the Smyrna fig is perfectly ripe and nearly dry it falls to the ground. It is likely that most growers will find it less troublesome and about equally profitable to sell the product to the packing houses as soon as sufficiently dried, rather than attempt to gather around him the necessary labor and appliances to put his fruit into elaborate packages in order to secure the highest price.

A few suggestions, some of which represent the experience of the growers who are putting up the best figs now on the market, may not be out of place at this time and may be of service to the inexperienced. One of the most important details, though troublesome, is to gather the fruit from the ground very often, in fact as often as every other day. This will in a great measure prevent the entrance of beetles that lay their eggs and make wormy figs. Another important consideration is not to dry the figs too much. If too dry the seller not only suffers by loss of weight, but also injures the quality, as overdried fruit must be processed before it can be packed. When the figs have become sufficiently cured they are still pliable, yielding to a slight pressure of the fingers. In very warm weather the smaller figs are sufficiently dried when they fall from the tree. The larger will require exposure to the sun on drying trays for two or three days. After the figs are sufficiently dried they are rinsed in clean water to remove any dust or dirt that may have adhered to them and are then exposed to the sun long enough to remove the surplus moisture. After grading as to size they are put into sweat-boxes and are pressed down into a solid mass where they remain a week or ten days to undergo a sweat. This treatment is a very important part of the curing process. The overdried fruit absorbs moisture from the underdried, softens the skin and is a decided benefit to the whole. In this condition the figs go to the packer.

In order to kill germs or the eggs of insects that may have been deposited in the figs while exposed under the trees or on the drying trays, some packers expose the fruit to hot steam for a few minutes, while others immerse it in boiling brine, made with three ounces of salt to a gallon of water, for two or three minutes. After this heating process the figs are soft and pliable and are then split open from stem to apex and spread out in layers and pressed into bricks of a pound or half pound in weight and are then either wrapped in waxed paper, and the bricks packed into 25-pound boxes, or are first put into fancy cartons and then packed into boxes of various sizes.

It may here be mentioned that certain varieties of trees produce figs that may be called self-sealed, the eye being stopped by a hardened syrup or pellucid gum that effectually prevents the entrance of filth beetles and other vermin, and thus assures figs that will not get wormy without the scalding process. Cuttings of this variety will be available from the Department distribution mentioned above.

Conclusion.—While the production of the finest figs requires some attention to details, such as the care of the capri trees and caprification, not necessary in growing other fruits, there is nothing in the work not easily mastered by laborers of average intelligence; while the fig tree possesses compensating advantages. The crop is never lost by late Spring frosts, the tree requires little pruning, no spraying and no thinning of fruit, which means a saving of labor fully equal to that required in caprification. The prospective fig grower need not, therefore, be deterred from entering upon the industry for fear of troublesome details, while he can be assured that when his trees are five or six years old and in suitable soil and climate, they will bring him a gross income of about a hundred dollars per acre at present prices, with a steady increase for a generation to come.

THE WONDERBERRY.

To the Editor: Much has been written about the Wonderberry. We tried it out this season, it has now been fruiting over four months. The little bushes are full of ripe fruit as well as all stages of growth up to young flowers. If it is all hardy we shall have fruit for at least three months more. Now as these berries come at a season when there are no others, we think this new addition is not to be despised. The fruit when picked must be fully ripe, and perfect, it makes a pie almost as good as huckleberry, but tasting more like the Eastern black elderberry. This elderberry is not good unless fully ripe. To make almost any kind of pie a little salt must be used, with the Wonderberry, some lemon juice must also be added, say the juice of half a lemon to each pie. A berry bush that will bear seven months of the year,

easy of cultivation, prolific bearer, and occupy but a few feet of ground, is not so bad. The Wonderberry has had the misfortune of many of Mr. Burbank's other items, it has been overloaded with advertising praise. The only drawback I can see with the Wonderberry is confusing other California related plants (Solanums) with it. Much care will need be exercised that this does not happen else the Wonderberry may be misjudged.

J. A. SANFORD.

Stockton.

Citrus Fruits.

CULTURAL NOTES.

Written for the PACIFIC RURAL PRESS
By MR. EDGAR WRIGHT, of Los Angeles.

In a recent article in this paper I mentioned a meeting of the Fraternal Fertilizer Faddists in a Redlands packing house. I remember that considerable was said in regard to the use of nitrate of soda and that it had but very few friends at this gathering, some not using it at all, and others only where they wanted to force a quick growth. One grower stated that nitrate in quantity stimulated the tree like an intoxicant did a man or an animal, and that when the effects had worked off that there was a consequent re-action, a return swing of the pendulum, and in consequence no good was done the plant. I could hardly believe this to be true for I know that many people do use nitrates and I have seen them extensively advertised as being very beneficial and it seemed to me that they were standard plant foods.

The whist player says that when in doubt it is best to play trumps, and so I concluded to play the best one I had, and asked someone who knew, for I was very much in doubt. So this week I called on my friend, Snowden, he of long glass tubes, retorts (not sassy ones) mysterious looking liquids (not for drinking purposes), and a genial disposition, in short, the agricultural chemist who would rather call an innocent mite by the name of "Tetranychus" than just plain bug. I asked the professor if it was possible to make a plant or a tree grow too fast by applying nitrate of soda, and he answered by asking me another question that I was afraid to answer for fear I might be wrong. He said, "Can a chicken, a pig or a calf be made to grow too fast?" and while I hesitated he said, "No," and so I said "no," also, and he continued: "Neither can a plant be made to grow too fast when the proper amount of intelligence is used in the application. If it were possible to make the mistake of feeding the animals mentioned on all proteids, albuminiods or carbohydrates, some people would have chickens, pigs and calves all flesh and with no bones so that they would not be unable to walk or even stand up. In such a case would it be right to say that none of these three items of food should ever be used because they made the animals grow too fast? I think not, and you will, of course, understand that I am citing an extreme case, but it is a fact that a use of nothing but the elements mentioned would produce these results, yet, fortunately for all concerned, the owner and the hired man, as well as the animals, lime and other necessary compounds go along with the properties above mentioned and it costs something to separate them. For instance it is more profitable to feed the whole stalks of sugar cane or corn than to separate the sugar and feed that alone.

"So, also, with the feeding of plants, save that a wise discrimination must be used upon an object even more helpless than an animal. Try to feed a chicken or a pig upon something they do not like, and they could not be made to eat it, but whatever is given the plant it must assimilate. However, nature has placed at man's disposal the elements that the plant needs and it only remains for man to give it the right one. All nitrogen entering into the plant is taken up as nitrate excepting, perhaps, a small amount that may enter as ammonium compounds and, with this exception, all nitrogen offered to the plants must become a nitrate before they can receive it. It, therefore, goes without saying that the best form in which to offer nitrogen is as a nitrate.

"In the same way that the animal must have lime, as well as the flesh-producing nutriments, so must the plant have a balanced ration or its growth will be unbalanced. Give the plant all the nitrate of soda you will, within certain wide limits, and also adequate supplies of the other requisites, and it cannot be made to grow too fast. The difficulties encountered are largely mechanical and can be obviated by intelligent practice. If a peach sprig was grafted on wild plum stock and given a ration that would be adequate under normal circumstances, the growth of the peach stock would be too heavy for the strength of the union and it would break off. If judgment had been used and a graft made on stock of equal growth one would not run away from the other.

"Frequently it happens in California that a tree will put on too much fruit, that is, it is too much for the bearing surface. This certainly is not the fault of the tree, and the remedy lays not in producing less fruit, but in growing more tree and the way to do that is to put on the nitrate of soda. But at the same time that the nitrates are forming wood, it is necessary to supply a sufficiency of potash and phosphoric acid to mature the wood formed through the energy of the nitrates. Further, lime and humus must be used at the same time, for without them the plants assimulate the nitrates without the ability to assimilate the potash and phosphoric acid, or as the superficial observer would say, 'the plant or tree has grown too fast.' Remember that the larger the growth of the tree, the greater the fruit-bearing capacity in the following and subsequent years. Do not be afraid of making your trees grow."

As I write this on Friday evening I see that the weather report sent out by the Los Angeles Government Forcaster, Mr. A. B. Wellaber, says, "fair with frost Saturday morning if the wind lulls." Saturday morning, two weeks ago, the 4th inst., old Jack paid a visit to the citrus groves in the vicinity of Riverside and Redlands. This week I rode in an automobile from Riverside, through Highgrove to Redlands and Highland, and could see where the tender growth had been nipped on nearly every tree. I do not believe that there has been much damage done, but it is almost impossible to tell just what the result has been at this writing so we will have to suspend judgment for another week or 10 days. I met a friend at Redlands who was just starting out on a tour of inspection in his automobile. He invited me to go with him, but at that time I was otherwise engaged. I since wrote and asked him about the results of his investigations, and he answered me, the following being the whole of his letter verbatim: "Friend Wright: Replying to your favor of yesterday, can only say that I am not an adept at telling lies." Now, what did he mean by that? You have a guess, and so have I.

I do not think that the growers in the belt that was hit the worst this time were at all prepared for severe weather, that they did not have their orchards properly protected by smudging outfits, while the section that was hit the hardest last year, and which has usually suffered the worst when there was any frost at all, were touched but very little.

Outside of the visible effects of the frost on the young growth of the citrus trees, it is hard to tell as to whether there has been any real damage. This year the unusually warm weather in November brought out much new growth on the trees and this was all killed, giving the orchards the appearance of having received a very bad freeze. I cannot think, from what I saw, that the result has been at all bad, but I am not prepared to make a final statement as yet. It takes time for any damage to show on an orange, and I am sure that it will be another week or 10 days before we can tell much about it.

Much of the frosted fruit has been marketed in the past. If shipped immediately it might be eaten without being detected. If not picked and shipped at once the frozen oranges "dry out," the cells becoming devoid of juice. A shipper of California oranges who was at one time traveling in Canada was talking with a bright young woman who said that she was willing to give the California orange grower and shipper more credit for smartness than for honesty, that she had bought oranges that were utterly devoid of juice, and that she knew the Californians had some method of extracting the juice without otherwise harming the orange.

An orange without juice is easily detected without cutting, by its light weight. Those that have started to dry out can be located only by cutting, which will show the dry cells. Some affected oranges will show it by the "rash" that appears on the outside and which is a sure indication when it does appear, but as it does not show up on a very affected orange, it is not a reliable test, except that when it is found on one orange it is well to look for more frosted stock from the same orchard. One of the best tests to be used right after a frost is to divide the orange into sections, after peeling, then break a section in two and quickly carry to the nose. If there has been frost the odor of fermentation can be detected. If a sound and juicy orange is cut in halves the juice will "well up" and run over the side, even when it is held on the level; it will not do this in a frozen orange. None of these tests are very reliable under three weeks after the cold snap except the fermentation and that of the rash on the skin, which appears at once, particularly if the sun came out strong after the morning of the cold.

It is a pity that this kind of stock has to be shipped. Much of it brings less than cost of delivery in the East, but the grower insists in many cases that this chance be taken. Moreover, in many cases, this kind of fruit was packed under good brands. I even saw cases last season where the widely advertised Sunkist label was being placed on frosted oranges.

Forestry.

CONSERVATION AND FORESTRY.

The National Conservation Commission has just made public the first of its schedules on which the inventory of the country's natural resources is being conducted. Only a few of the schedules have, as yet, been given out, but between the lines of these it is plainly evident the National Conservation Commission intends to hunt down waste in all its varied forms and to devise some means to prevent it. This is apparent in the general schedules as to each of the four sections of the commission—waters, forests, lands, and minerals.

For instance, the schedule relating to lands inquires into waste of soil by erosion, which is the washing away of the land. That schedule also suggests waste through "bad agricultural methods." The lands scheduled likewise goes into waste in the carrying capacity of the public range in the West. The section of waters is inquiring into how much land capable of irrigation is wasted by not being irrigated. More important still is its suggestive inquiries tending to show that we are wasting our waterways to an alarming extent by not using them as we should. Perhaps the greatest form of waste brought out in the entire schedule is that relating to water power. Two of the official inquiries are as follows: "Are existing developed water powers put to their full use?" "To what extent can coal be saved by the substitution of water power?"

Under the head of flood waters, the commission inquires, "To what extent are flood waters wasted?"

The minerals section of the commission is seeking to find out "the nature and extent of waste in the mining, extraction and use of mineral products," and "methods of preventing or lessening this waste."

That forest conservation must largely take the form of saving wastes in manufacture seems to be the conviction of the Conservation Commission. The commission is busy conducting a census by correspondence to find the common wastes in wood-using industries. Queries have been sent to 800 manufacturers of cooperage stock for the purpose of getting a line on the waste of wood in the making of barrels and casks.

Similar wastes occur in turning the logs into headings and in the manufacture of barrel hoops. The Forest Service is trying to find just how important such wastes are, with the object of suggesting, if possible, some way of cutting down the drains upon the forests which mean no gain to any one, but loss to all. The returns from the inquiries will form part of the report of the Conservation Commission, when the work of taking the preliminary inventory of our natural resources is completed.

The National Conservation Commission is to take up reports of the various Government bureaus which are now at work on this inventory for general discussion at its meeting, in this city, Tuesday, December 1.

California Vegetables in Garden and Field

By E. J. WICKSON, of the University of California.

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Second: Soil firming. This is another act which aids the seed in other ways, but is primarily for moisture furnishing. A seed thrown into a loose surface layer may germinate and perish for lack of moisture and soil-contact or it may lie unquickened until a footstep or a shower compacts the earth about it. It may thus lie half a year in California. Many amateurs are much too kind in their intent and too cruel in their method, by making the surface as loose as possible and then gently placing the seed in the loose layer. It is better to jump on it with both feet. Whether it be done by direct tramping or by tramping a narrow board placed upon the sown row, or tramped down with a block with a long handle, or by using the garden or field roller, or by flat slaps with the back of the planting hoe, it matters not; it is only essential that the firming of the inclosing layer should be given unless immediate water settling of the ground is anticipated. And this firming is conditioned in degree upon soil and season just as depth of covering is, viz.: light soil or late in season, heaviest firming; heavier soil or early in season, lighter firming. The reason for firming is the restoration of capillarity to the loose layer, consequently adequate moisture supply to the germinating seed. But when this capillarity has served its purpose and the root has penetrated the permanently moist layers below, this capillarity must be destroyed by cultivation and the surface layer again loosened so that it will not transmit moisture. Therefore, as prescribed in the chapter on Cultivation, the hoe or cultivator must be started as soon as the young plants can be seen, and in some larger seeds where the firmed layer has been crusted by a shower a light harrowing or raking may be desirable to release the shoots from the too compact covering which has come over them.

Third: Soil opening. The converse of firming the soil about the seed is drying of the surface soil when unexpectedly heavy rains have come and the water does not percolate rapidly enough to bring the surface layer into good condition for growth. In such an event seed can often be saved from rotting by the light raking or harrowing or cutting with a disc, to allow the air to assist drainage in relieving the surface layer of its excess. The wisdom of this course is always conditioned upon the character of the soil. A sticky soil would be more harmed than the seed would be helped by it.

Fourth: Mulching. The use of a light mulch of chaff or corral-scrapings or rotten straw or other fine, loose material is of value in garden practice of it does not occasion too great cost or labor to procure or prepare it. The larger the seed the thicker the layer may safely be, and with the mulch, shallower planting, and probably quicker germination, is possible. The mulch lessens evaporation from the surface and thus gives the seed a surer supply; it also prevents puddling of the soil surface by pelting rain drops and keeps the particles both moist and loose for the thrust of the shoot. A mulch also makes it much safer to sprinkle the bed if rains delay. In garden practice it can hardly be too highly commended. On heavy soils sawdust or sand can be used for this purpose if they are the most available materials.

Fifth: Irrigation. Starting seeds by irrigation on soil that has good capillarity and lateral percolation (or "seeps well" as the common phase is) releases one from several of the injunctions just laid down. The covering should be shallow, as the moisture will rise to the surface; no firming needs to be done, for the water will settle the soil, and when the moisture is ample, stopping the supply will quickly allow the escape of the surplus. It may sometimes be desirable to use a light mulch to protect the surface from baking and give the seedlings a few days' more growth before it is necessary to stir the surface. Seed starting in this way with the raised beds and permanent ditches and the ridge irrigation system, all of which are described in the chapter on Irrigation, is very satisfactory. The application of it to various vegetables will be given in the treatment of each. Where the seeds are to be started by the furrow system on land that will draw water well laterally, the seed can be sown in shallow trenches, leaving the seeds barely covered. Then irrigate by turning water into shallow irrigation trenches made some twelve or fifteen feet apart. Let the water soak through and completely moisten the surface until it has spread across all the seed trenches, and until the little clods are broken down and dissolved. The seeds are thus well covered and enabled to sprout and come up before the soil is dried out. Subsequent cultivation levels the ground, giving the seedlings sufficient depth of covering and new furrows are plowed for later irrigations. This is only one of many ways by which seeds can be started by irrigation.

GROWTH FROM SEED UNDER COVER.

This broad title is used to include about all that is done in California except under the sky cover. In the chapters on the different vegetables, which will follow, there will be mentioned special propagating methods employed with each, but in this place a few protecting and promoting arrangements will be described for the benefit of beginners in garden work.

Seed Boxes.—Seed boxes are the simplest arrangement for starting seedlings for subsequent planting out and in most amateur gardening in this climate they will comprise about all that is necessary in the way of construction, because, as will be seen later, it is very easy to give them a little bottom heat if the grower desires, but they can be largely used without any. The chief advantages of starting seedlings in boxes instead of the open ground are the ease which the seed boxes can be carried under protection from cold, beating rains or frosts, or protected from hot, drying winds or too intense sun heat, and the convenience with which moisture conditions can be regulated by covering and light sprinkling.

There are no particular dimensions to be observed in making seed boxes, except that they should not be too large to be easily lifted and carried with their contents. The cases which inclose two five-gallon cans of coal oil, sawed in two lengthwise so as to make two wide, shallow boxes, serve an excellent purpose. It is more convenient to have all the boxes of the same size than to use odd sizes, in case it may be desired to group the boxes in a hot-bed or otherwise for heat and covering. Be sure that the bottom has ample openings for drainage—either cracks or bored holes. The soil-layer in the boxes should not exceed three inches in depth. In ordinary amateur practice a good soil for these boxes can be made by taking good rich garden soil as a basis. Add sand and, if possible, the light mold from under an old straw stack, leaf mold, finely powdered rotted manure, or something similar, until you have a rich, friable soil. No definite rule can be given for mixing, except that the prepared soil should hold moisture well, have no tendency to cake, and never crack in the sun.

Fill the boxes, and, with a small board, press the soil closely and evenly, so that it will retain moisture. The seeds should then be sown quickly and evenly over the surface or in lines, and pressed down by a smooth board into the soil, so that the seed, be it large or small, will form a level surface with the soil. This being done, the same prepared soil should be sifted evenly over the top, just enough to cover the seed. Again press this layer of soil which has covered the seeds gently with the smooth board.

It is a great help to the seed to have the surface again covered with a light material that would hold moisture, such as dry moss, or powdered vegetable matter of any kind which is light and will hold moisture. This should be rubbed through the sieve over the seed boxes, just thick enough to cover the soil (not more than one-sixteenth of an inch). It is very beneficial in the germination of the seed, as with such a top-dressing one watering with a fine rose watering-pot will keep the soil moist enough usually until the seeds come up. It is a great mistake to be continually watering seeds after they have been sown. The rule in all these things is never to water until the surface indicates that the soil is dry.

A Cold Frame.—The arrangement which comes next to the seed box in simplicity is the cold frame. It is simply for the purpose of concentrating sun heat and protection from low temperatures and heavy rain storms. It is a convenient receptacle for the seed boxes already described, or it may be put over seeds sown in the ground—the soil being prepared to receive the seed in about the same way already described for filling the boxes. The frame is made of inch boards, the front board about twelve inches wide, the back board or boards eighteen inches wide and the sides sloping from eighteen to twelve inches to meet the widths of the front and back boards. The frame is usually made three feet from front to rear (for convenience in working from the front, but can be of any length desired). This frame is covered with glazed sash or cloth frames or lath frames or first one then another, according to the amount of protection and heat or of shade desirable. The arrangement is called a "cold frame" because no provision is made for bottom-heat. There are many modifications of the cold frame; lath or slat houses or lath covers for beds with raised edging boards, etc., are all on the cold frame principle, and in this climate, where so little increment of heat is required and where shade is often desirable, the arrangement serves an excellent purpose.

(To be Continued.)

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S. W. Marshall Company, Inc.
Box 652, Fresno, Cal.

EUCALYPTUS with ROOTS Send for Circular.
HENRY SHAW, Santa Cruz, Cal.

THE APPLICATION OF MANURE.

To the Editor: I would like to be enlightened on the following point: How to apply manure or fertilizer on land in order to obtain the quickest and best results. In the mass of learned and scientific literature published by the Agricultural Department at Washington, D. C., it only specifically directs that you apply or spread the same on the ground, which to the uniniated is valueless and meaningless.

In my case the only manure available is chicken droppings. I need it for the two-fold purpose of manuring or fertilizing an apple orchard and a vegetable garden, the latter mainly for raising "green stuff" and vegetables for my poultry.

Although I was warned by neighboring farmers not to use chicken manure too liberally on the ground, as it would burn the plants or vegetables, I have nevertheless spread it on the ground, just as I cleaned it up daily from the chicken house, about an inch deep, then plowed it under (and in dry weather thoroughly irrigated it) and followed this by several cultivations with the cultivator to thoroughly incorporate it with the soil. Result: Kale six feet high, cabbage so large and luxuriant in two months that it is impossible to cultivate same without breaking the leaves, though it is planted at the distances indicated and recommended by the Department of Agriculture; the same or similar effects applies on other vegetation. So much for practical advice from practical farmers. So far as manuring the vegetable garden goes, I am satisfied by practical experiment that the mere spreading or application of chicken manure, vaguely as recommended by the Washington experts, and as dumped on the ground and allowed to remain on the surface by some of my neighbors, may "burn" the vegetation, but not so, so far as I have been able to discover, when properly incorporated in the soil as I have explained.

I merely give you the foregoing to show you how confusing it is for one inexperienced in the "art" or "science" of farming to get at the most rudimentary facts from the two sources quoted—practical farmers and agricultural experts.

Now, what I want to find out is whether chicken manure is preferable to commercial fertilizers for my apple orchard, and, if so, how to apply same to the trees, as I cannot afford to experiment with these as I have done in the case of vegetables.

I have started to apply the droppings, just as I gather them each day, to the apple trees by digging a shallow trench, say four to six inches deep and about the width of an ordinary shovel, in a circle about two and one-half or three feet, according to size and age of tree, from its trunk, in which I dump about four to six three-gallon bucketfuls of the chicken manure, unfermented, and cover same with dirt removed from trench.

The question is, will this practice be beneficial to the trees. If not, how would you spread or apply the droppings? Would a greater or lesser amount be proper?

With respect to the application of lime to this soil, in the neighborhood of Burbank's experimental grounds, with which you are familiar, I understand, does it need lime, and, if so, how much and how applied? W. H. F.

Sebastopol.

[The caution against the use of poultry manure is directed, not against the manure, but against the excessive use of it. Your experience shows that it is safe and desirable if wisely distributed and the total amount is not in excess. Chicken manure contains all kinds of plant food which the plant can use, and there is nothing to be obtained from commercial fertilizer beyond that. Your method of application around trees is to be governed by the same principle. It is all right, so long as you do not get too much of it in one place. Theoretically it would be better to scatter it evenly over the whole surface and plow it, because the amount of labor you do in digging those trenches must be considerable. Light loam, such as you speak of in your district, very seldom needs lime. Heavier clay loams and adobes are greatly improved by it.—EDITOR.]

SPINELESS CACTUS.

To the Editor: I would like to get some information regarding the culture of the "spineless cactus." When, where and how should it be planted. Where can I get seeds or plants, and which. If there are any articles on it in previous issues of the RURAL PRESS please send them to me. READER.

Grass Valley.

[We have printed several articles by Mr. Burbank on his new cactus varieties, but we have no copies now available. If you address Mr. Burbank at Santa Rosa your letter will be referred to parties who are introducing the plants. We have no particular knowledge of them, nor do we consider their value fully demonstrated. In our view, they are still interesting subjects for trial and formation of individual opinion of their suitability for the conditions under which they are grown.—EDITOR.]

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for the particular planter. The right kinds for this Coast; 17 years experience here enables us to do it.

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MORE FRUIT

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BETTER FRUIT

securing more money from your orchard, with but trifling exertion and small expense. The secret is simply learning to use the right kind of

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Send for our free book "The Farmer's Friend; 1910," now ready for distribution, which tells you all about your fertilizer problems and how to solve them.

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We have a fine stock of all commercial varieties. Strictly first class, TRUE to NAME. Give us a chance to quote you prices. We can interest you. Send for Catalogue.

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and other varieties of walnut trees grafted on California black walnut root.

Grafted Pecans.

Complete stock of fruit trees, plants, ornamentals, Eucalyptus, etc. Berry plants of all kinds our specialty.

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Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

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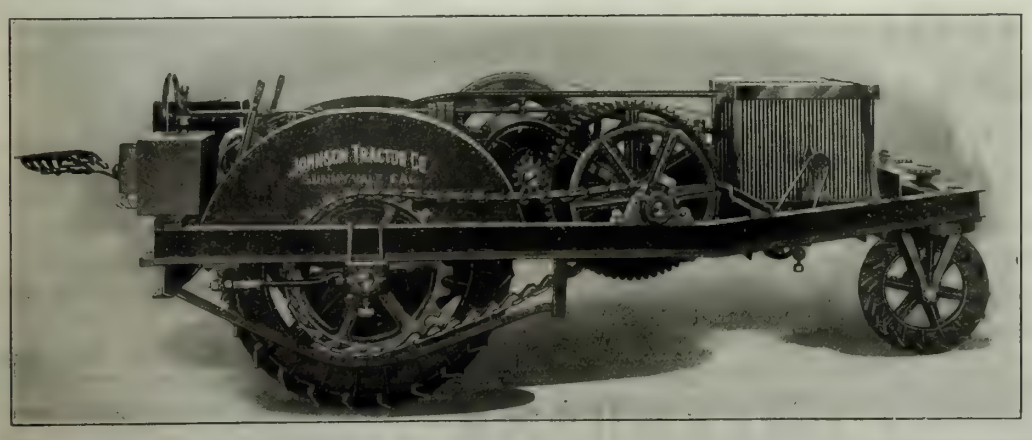
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In actual tests this tractor has plowed over an acre per hour at the above cost for fuel, pulling four furrows 7 inches deep.

It is built especially for orchard plowing and cultivation and will work your land much cheaper than horses.

For further information send for catalog R.

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COUNTY HORTICULTURAL COMMISSIONERS.

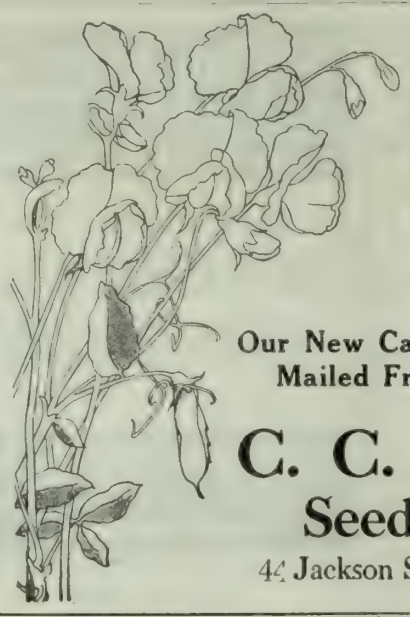
To the Editor: The State Commissioner of Horticulture wishes to impress upon the fruit growers, and others interested in horticulture in various California counties, the necessity for a goodly number of candidates to take the examination for County Horticultural Commissioner, which is soon to be held in your county seat. While the salary is not large, it will compensate a man for some time spent in preparation, $6 per day and the necessary traveling expenses incurred in the performance of his duties, is the amount prescribed by law. This means $1800 per year, and is sufficient to compensate a good man for the work. The examination requirements are not exacting or technical, and any good fruit grower thoroughly up on methods of cultivation, with a good knowledge of insect pests and diseases of his county, can easily pass, providing he is thoroughly versed in the horticultural laws of the State and county.

We have for distribution to prospective candidates, copies of these laws, together with pamphlets on insect pests, diseases, beneficial insects, etc., that may be had by applying to this office. Any one who intends to become a commissioner, and, therefore, must take this examination, and also those who wish to be appointed inspectors under the commissioner, a position carrying a salary of $3.50 per day, should procure these and prepare to take said examination, the only restrictions being that the candidates be citizens of the county and not connected in any way with the nursery business.

Printed notices will be posted in each county, giving date and conditions of such examinations, 30 days prior to the holding of the examination; the newspapers also will, probably, publish this notice, with dates and place where it is to be held.

This letter is written with the object of giving publicity to this matter, as far as possible, so that all may have an opportunity to take the examination if they so desire, or to at least take an active interest in seeing that well qualified men do take the examination, thus assuring the county a good commissioner. In the past some dissatisfaction has been expressed by growers on account of unfamiliarity with the proceedings. We hope that the fruit growers in the different counties will agitate this question that a more efficient service may be given by this important branch of the fruit industry than under the old regime.

O. E. BREMNER.
Secretary State Commission of Horticulture, Sacramento.



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Seeds - Plants - Trees
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Superb—Everbearing Strawberries.

Giant Himalayas Blackberries,
the greatest of croppers. Other small fruit.

Reliable Garden and Flower Seeds
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Don't fail to ask for our catalogue. Everything for the Farm and Garden.

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Gold Ridge Nursery
H. R. JOHNS, Proprietor.
COMPLETE ASSORTMENT OF
Fruit and Ornamental Trees, Shrubs, Etc.
Trees grown on high sandy land without irrigation.
Write for new catalog and prices.
SEBASTOPOL, CAL.

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We are prepared to supply your wants in large or small quantity for fall or spring planting, the stock is A No. 1. Secure your stock early.

ORANGE AND LEMON TREES.

Our citrus trees are, without doubt, the finest trees on the market. We can supply them in both one and two year buds, in any quantity desired.

We are also large growers of **Palms, Roses, Fruit Trees,** and other stock.

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Growers and Importers of all kinds of
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For sale by all the large grocers, or
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We grow a large stock of first class Fruit and Ornamental Trees, Walnuts, Grape Vines, Eucalyptus, Orange, Lemons, Roses, Berry Plants, etc.

ESTABLISHED 1864.

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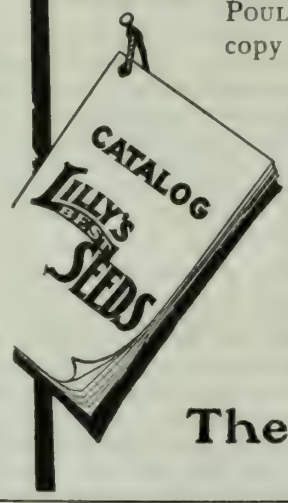
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Also PALMS, DRACENA, ROSES, ERICAS, CAMELLIAS, AZALEAS, RHODODENDRON, FRUIT TREES and BERRY BUSHES.

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RELIABLE GROWERS OF DECIDUOUS TREES AND VINES
WE ARE GROWING THE
Largest Stock of Peach Trees in the State
Wholesale Orders Solicited.
Personal attention given to orders from planters.
Let us figure on your needs now.
MAIN OFFICE, - - - - FRESNO, CAL.

The Buying of Citrus Trees
IS A SIMPLE PROBLEM IN ECONOMICS.

You cannot extract sunbeams from cucumbers nor blood from stones, nor good crops of fine oranges and lemons from inferior trees. A poor tree is an expensive experiment entailing only vexation of spirit and a dwindling pocket book. Then why experiment with stock of doubtful quality? Why not get the best and be sure of the future? For 20 years we have been supplying the people who grow good citrus fruits with their trees in every citrus growing section of the world, and stand ready to serve you equally well. Why not write us and let us become better acquainted?

The economics of successful orange and lemon growing is tersely explained in our book, entitled "The Citrus Fruits: Historically, Horticulturally and Commercially," a copy of which is yours for the sum of 25 cents.

SAN DIMAS CITRUS NURSERIES,
R. M. TEAGUE, Prop. San Dimas, California.

SEED GRAIN

Recleaned Red Oats
Bluestem Wheat
Pure White Australian Wheat.
Choice Common and Chevalier Barley

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Powdered Caustic Soda and Pure Potash
Best Tree Wash.
T. W JACKSON & CO., Temporary Address,
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THE SWEET POTATO AS A SIDE-STEPPER.

"I am tired of this Wizard of Horticulture business, a title given to Luther Burbank, of Santa Rosa," remarked Charley Marsh, of Parlier.

"I have already perfected a pumpkin large enough to make dressing rooms for the Coast beach bathing resorts. I also produced a sugar beet big enough to make coffee and tea cocktails for six months.

"My latest introduction in the horticultural line consists of a sweet potato which has the Indian Canoe cucumber, introduced by I. H. Thomas, the Widow's Friend of Visalia, put in the down and out class.

"A few months back County Surveyor McKay surveyed a road along side of my ranch and drove stakes to outline the route of the proposed road.

"A few days ago his crew arrived to make the aforesaid road according to his previous plans. All well and good. My potatoes did not do a thing to the original survey.

"When the men started to work to carry on the map plans, lo! and behold the road, surveying stakes, and all, was shoved over 50 feet into my neighbor's property.

"Never saw such sweet potatoes in my life!

"They are as large as whales.

"The railroad tracks cross my property, which I objected to in the first place inasmuch as they did not pay me my price for their rightaway. Leave it to me to make them move without having to carry on a correspondence, as bulky as our State department would execute in a treaty between themselves and Japan.

"Me, for planting this new breed of sweet potatoes along side of their roadbed. In three months' time the other man will have the railroad on his land and no court in this or any other land can convict a bed of sweet potatoes.

"Talk about earthquakes, cyclones and the rest of the other elements mixing things, well, my sweet potatoes do the work without law suits, wages, and windy talk. I certainly have the corporations at my mercy and they'll have to buy me off." —*Charles A. Chambers in Fresno Herald.*

The only two really "Immune" well tested walnuts: heavy bearers: bloom late: mature early: grafted trees only.

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Anywhere
Cal.

Good FRUIT TREES are Money Makers

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Our stock comprises the best profitable commercial varieties of

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Rex Lime and Sulphur Solution is a guaranteed article, properly prepared, free from sediment, and as cheap, if not cheaper, than the farmer can make a mixture himself.

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Dorothy Eckford. Pure white.
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The above 8 Cracker Jack Sweet Peas sent postpaid for 25 cents.

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USED EXCLUSIVELY BY CALIFORNIA REX SPRAY COMPANY, AND MANY OTHERS.
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FOR SALE

500 Cal. Blk. Walnuts, 6 to 8 ft .....@ .15
200 Selected Pecans, 2 to 4 ft .....@ .15
75 S. Ruby Pomegranate 1 year,.....@ .10
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700 Gros Colman, 1 year rooted vine..@ .05
500 Almeria, 1 year rooted vine.....@ .10
Several thousand Almeria and Gros Colman cuttings. Price on application.

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Western Seed for Western Planters

Grass, Vegetable and Field Seeds.

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SEED GRAIN BLACK and RED OATS,
WHEAT, BARLEY, BEAN SCREENINGS, etc.
for poultry and stock for sale at lowest market rates.
BRAY BROTHERS, 220 CLAY ST., SAN FRANCISCO, CAL.
Buyers of Grain and Beans.
Members Merchants Exchange.
Established in 1855. Correspondence invited

AGRICULTURAL REVIEW.

Horticultural Notes.

A. H. Barth, of Windsor, is planting a large tract of land to prunes.

The board of supervisors of Tulare recently appointed A. G. Schultz, of Porterville, horticultural commissioner.

Horticultural Commissioner Meserve, of Los Angeles county, has appointed an additional inspector, J. R. Hodges.

Three thousand, two hundred car loads of apples were shipped out of the Pajaro valley this year, each car holding about 700 boxes.

Bagley Brothers on their Dry Creek ranch are pulling up their vineyard which is effected by Phylloxera and will plant Gravenstein apples instead.

The dreaded citrus white fly, which has infested northern orange groves, has been wiped out, and there is no danger of it getting into the southern groves.

D. E. Ward, of Parlier, reports the record yield of grapes from his vineyard. From three acres of Muscatel vines, 28 years old, he harvested 13 tons.

The Helms apple orchard near Ashland this year picked 4500 boxes of Newton Pippins from six acres. These boxes were sold for $1.75 net, of a total of $7875.

It is understood that J. L. Duncan, B. F. Walton, and three other fruit growers around Yuba City, have sold their 1910 crop of Tuscan cling peaches to an Oakland cannery at $30 per ton.

The Colorado National Apple Exposition is to be held in Denver from January 3 to 8. Entries are open to all apple sections in the United States and Canada. It is expected that over 10,000 boxes will be displayed.

A car load of Emperor grapes from the Wahtoke district recently sold in Chicago for $2200. This is the record price received for late fruit this year, although it is not as high as was received last year by Dr. Hare, who realized over $2800 from a car load.

The Gold Ridge Orchard Co. has been organized in Sebastopol with a capitalization of $100,000. They intend planting 100 acres of Gravensteins immediately. The principal shareholders are G. P. McNear, F. H. Denman, G. B. Murphy, H. E. Gossage, D. H. Seppo, C. E. Hotle, and H. M. Lebaron.

The San Joaquin Table Grape Association met last week at Lodi. A. S. Lassell, who represented the association in the East, presented a report of his work. He said that the chief cause of the low market of table grapes was caused by crowding the larger cities with too many grapes, and also that the grapes should be packed in better order.

H. E. Van Deman, of Washington, D. C., who presided as chief judge of the National Apple Show in Spokane in November last, says that Chicago is the only show place for exploiting American apples, as a thousand people would see them there where only one would see them on the Pacific Coast.

State Horticultural Commissioner Jeffrey has given out the names of the committee of ten representive fruit growers which he was authorized to appoint by a resolution at the recent Fruit Growers' Convention at Watsonville. This committee is to take steps towards forming an association which will cement the interests of the various fruit growers, get better rates for their products from the railroads, and look after legislation favorable to the fruit industry. The list is as follows: J. P. Dargitz, Acampo; Geo. H. Cutter, Sacramento; R. D. Stephens, Mayhews; Geo. D. Kellogg, Newcastle; C. H. Rogers, Watsonville; F. B. McKevitt, Vacaville; B. F. Walton, Sutter county; H. A. Fairbanks, Lodi; Howard Kerchival, Lower River district; H. U. Pickstone, Santa Clara county. The committee is to meet December 30.

General Agriculture.

The first car load of California celery for the season was shipped East last week.

The sleet which has held Louisiana and Mississippi in its grip for the last week has killed the cotton boll weevil.

W. H. Allen, of Oxnard, has been named as bee inspector for Ventura county, to serve one year from January 1, 1910.

The honey crop around Gazelle was very large this season. Edison & Foulks Co. have shipped out over 12 tons of high-grade honey this year.

The grain farmers around Reedley are in high spirits over the recent rains as it has soaked the ground and the green feed is already coming up.

Arthur C. Lewis is utilizing the Hot Springs, near Klamath Falls, for growing lettuce and radishes, so that he has summer vegetables the year round.

The alfalfa mill which was burned near Proberta, Tenama county, last year, is to be rebuilt. Work will commence immediately on the old foundations.

The Forest Service is going to plant many acres of land around Fallon, Nevada, to forest trees such as Black Locust, Carolina Popular, and Russian Olive.

The destructive little black field mice which last summer did so much damage in Nevada, destroying nearly all the alfalfa crops, have returned and are again eating up all the crops.

Two-thirds of Reclamation District No. 730, near Woodland, is already plowed and sowed to wheat, sugar beets and alfalfa, and the rest of the land is expected to be finished in about two weeks.

The farmers, fruit growers and stockmen around Auburn are complaining of the unusual amount of moisture in the ground. Not for years has so much rain fallen during December in Placer county.

The last consignment of beans from the upper Sacramento river was brought down last week. The consignment consisted of 1000 sacks and was purchased by Ennis Brown Co., of Sacramento.

Henry R. Levy, of Oakland, representing a syndicate organized to invest in eucalyptus lands, has appointed I. Haines, of Woodland, to find suitable land for eucalyptus growing in Yolo, Sacramento, and Colusa counties.

The Santa Fe railroad company have donated $25,000 to demonstrating the practicability of dry farming in the wastes of New Mexico. Prof. J. D. Tinsey, of the New Mexico Agricultural Col-



Ideal Water Cooled Gasoline Engines.

Sizes 1½ to 9 h. p.—all vertical type—Speed 350 to 500—base of engine is heavy and cast hollow, carrying fuel—Speed adjusted while engine is running; Simple in construction; Distillate or gasoline work equally as well.

We offer you this engine, assuring you of satisfaction.

LANSING WHEELBARROW COMPANY
787 Folsom St., San Francisco, Cal.

ENCINAL NURSERIES
F. C. WILLSON, Proprietor.
Sunnyvale, Santa Clara Co., Cal.

SPECIALTY WALNUTS—
"WILLSON'S WONDER"
"ACME"
AND
"FRANQUETTE"

Send for booklet with halftone cuts and descriptive matter.

PLANT NOW

Just Received
Holland Bulbs
New Importation
Hyacinths
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COMPLETELY DESTROYS
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Sweet stock, rough lemon stock. We have the largest and finest block of seedlings in the State. NAVELS, VALENCIAS, EUREKA LEMONS. Phones: Main 949, Home 2520.
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lege, has resigned his position with this institution to take charge of the work.

A new creamery was recently opened at Dalhart, Texas, and the first 40 pounds of butter was sold at a rate of 50 cents per pound.

The tomato crop around Fullerton this year has been very large and profitable. The average price this year has been from $25 to $45 per ton, which, compared with $5 per ton of two years ago, is quite a gain.

Experiments are being made at Oroville with the pulp from the olive mills as a fuel. So far this has been a waste product but those in charge of this work hope to utilize this waste as a heat producer.

The students of the high school and grammar schools at Williams, near Colusa, will combine farming with their other studies. During the recess they will sow and cultivate various crops on the school grounds.

The Hamilton Sugar Co., at Hamilton City, are scouring the market for mules, as they need some 300 head this coming spring to put their land in condition for beets. This same demand is found in other sections of the State.

Tehama county is going back to cereal production. For years this county was one of the largest grain producing sections in the State, but the soil became exhausted and the land was devoted to grazing purposes. The land is now rested up and with the high price of grain, farmers going into the business should make money.

The Eastern dairy, near Perris, reports that during the month of November, 10 pounds of butter were made from 20 cows, eight of which had been milked for more than 11 months. This butter brought $242.50, on an average of $12.42 per cow.

The Spreckles sugar factory, near Salinas, finished its run last Saturday. Over $4,095,000 worth of sugar was made. Even a larger output is expected next year, as many of the farmers intend putting in beets, because the Spreckles people have promised to pay freight on all beets delivered at the factory.

The production of wheat in California is getting smaller and smaller. In 1889 2,000,000 tons of wheat were produced and last year only 175,000 tons. The normal consumption of wheat in this State is about 400,000 tons, so that we have to import over one-half of our wheat to supply local demand.

The California & Oregon Grain & Elevator Co. was recently incorporated. This company will handle grain in bulk by means of elevators and ships. It expects to effect a great saving in transportation charges by establishing elevators at San Pedro and at Oregon and Washington ports where ships can be loaded and unloaded in three or four hours.



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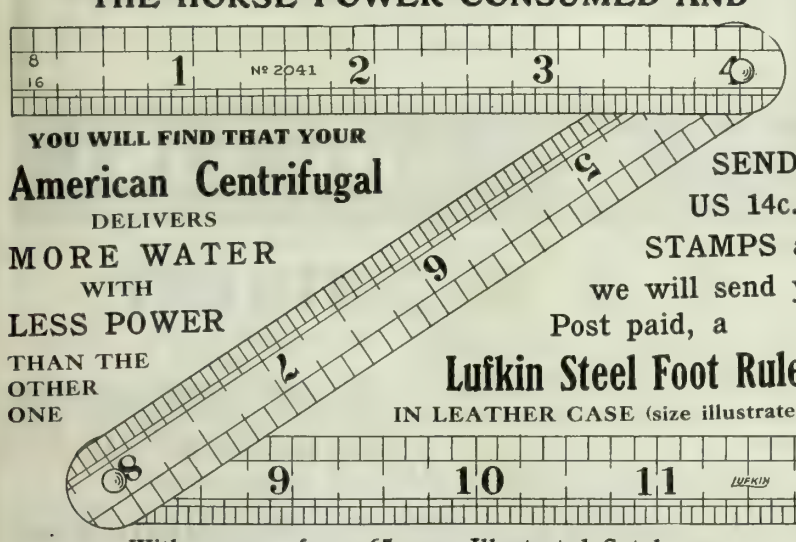
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TO MEASURE THE WATER DISCHARGED AND THE HORSE POWER CONSUMED AND



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American Centrifugal
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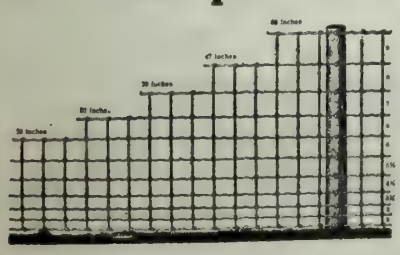
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From an experimental plot thirty by thirty feet we cut, from June to October, inclusive, 5661 pounds or 37 pounds daily. Being a biannual and very hardy the winter yield, while not as heavy, will be found satisfactory. Seed and expert instruction how to plant and grow for $1.
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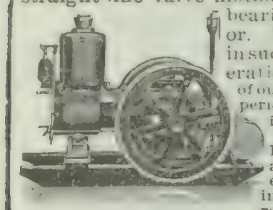
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Write for our 1910 seed catalogue. It is a valuable manual of the garden, ranch, and nursery. One hundred and forty-four pages full of valuable information.
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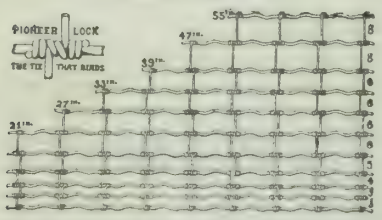
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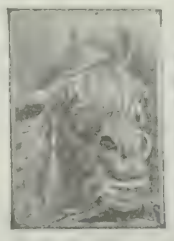
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FOR
Horses, Cattle, Hogs, Sheep, etc.



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Daniels' colic cure is SURE, SAFE and QUICK!

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Live Stock and Dairy.

Prepared for PACIFIC RURAL PRESS
By PAUL P. PARKER.

HOW BUTTER PRICES ARE REGULATED.

By W. H. ROUSSEL, member of San Francisco Wholesale Dairy Produce Exchange.

At the meetings of our exchange we have endeavored to establish a staple market and up to the present time believe that we have done so. The members of the exchange are controlled by rules which do not permit the possibility of any member selling a grade of goods under that called for. The exchange opens with a call on "extras" (on butter)—following down the line of the different grades for bids, offers or sales—the closing bid or offer to sell is what establishes the market quotation for that day on all dairy products. The severe fluctuations which take place on different dates, are due to the scarcity of the product in this market and as the market is only made for the one day, stock which is on hand naturally should control the value of same. Scarcity is caused in many instances by the failure of shippers to ship in their goods. I find that in some territories when the market declines, owing to free arrival of goods, shippers will hold back their shipments until they see an advance which invariably takes place owing to the scarcity, and then the free arrival of the accumulated goods on the part of the shippers cause a sharp decline. It is well for the shippers to become familiar with the fact that if they desire to have a steady market at this season of the year, it will be necessary for them to get their goods into the marketing centers regularly, and the more often the better, as it is impossible for the merchants in the dairy produce line to regulate the market without a supply of goods.

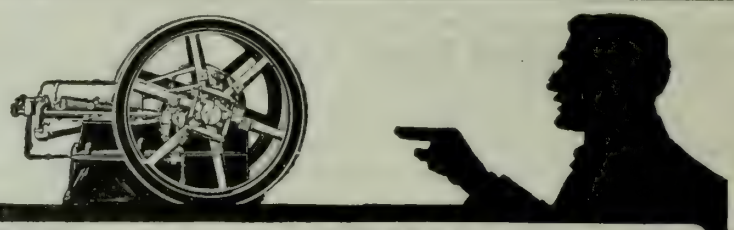
Our exchange not only establishes the market, but also establishes the grade of goods, as well as the weight. For instance, butter that will run more than 2% short of full weight, can not have any bearing upon the quotation established, and when butter is sold as "extras," it must be of quality and sufficient percentage to score 93. All other grades have their respective scores. It is likewise the case with eggs. Any grade of eggs, other than that of strictly fresh, can not be sold or included in fresh "extras," and all eggs weighing 22 ounces or under, per dozen, can not be included in "extras."

We have what we term an "informal call" for the purpose of enabling the receivers of short weight butter to dispose of the same for whatever grade they represent—but these goods must be sold under the same rulings as to grade and quality. Also the exchange is prepared to adjust any differences arising between a shipper and any member of our exchange—the idea of the exchange being, in this particular, to bring about a more harmonious relation between the shipper and the receiver.

Our secretary is instructed to answer all communications received from parties interested pertaining to the manner in which the San Francisco market and quotations are established. So if any reader of the PACIFIC RURAL PRESS would like any further information in this matter a letter to the secretary, W. D. McArthur, would bring out the desired information.

GRAPES FOR HOGS.

There are many thousand tons of grapes at the present time going to waste over the State of California. Many vineyardists have never picked a grape from



This powerful I.H.C. Engine will reclaim your waste land

IT is one of the great family of I.H.C. engines which is bringing unheard-of farm prosperity where all was a barren waste a few years ago.

Thousands of farmers are using these simple, powerful engines for irrigating their lands, and they have no other source of water supply. The engines pump water where it is needed. They pump water in quantities. They do it economically.

Have you a water problem to solve? Why not look into the matter and see what one of these engines will do for you?

What I. H. C. Gasoline Engines Mean to Irrigators

First—In hundreds of cases they avoid the necessity of going away up-stream and building long, expensive ditches.

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The I. H. C. line includes an engine for every section and every problem—all sizes for all farm uses—vertical, horizontal—both stationary and portable; engines on skids; sawing, pumping and spraying outfits. Also I. H. C. gasoline tractors—first-prize-gold-medal winners—the best all-'round farm tractor by test.

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Call on the International local agent for catalogue and full particulars, or address the nearest branch house.

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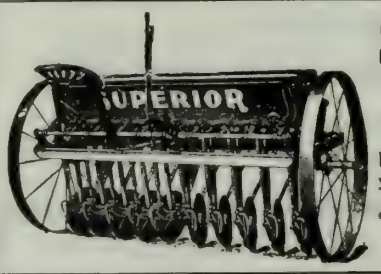
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For Successfully Treating the Afflictions of the HORSE and other Domestic Animals.

FOR FAMILY USES IT HAS NO EQUAL.
Sore Throat, Rheumatism, Sprains, Neuralgia, Cuts, Sores, Swellings, Lameness, Stiff Joints, Poisonous Bites, Cramps, Diarrhoea, etc.

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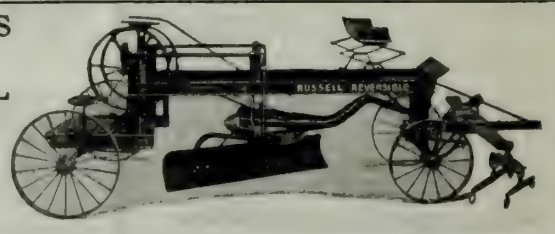
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The best equipped drill offered today. Sold by us for years. Let us tell you about it or ask your dealer to order one.

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All Sizes
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Simplex, Reversible, Elevating.

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Made from California Redwood or Selected Washington Douglas Yellow Fir.

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Daily between San Francisco, New Orleans and East, via Los Angeles and El Paso.

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One hundred mile ride along the ocean shores of the Pacific. Through Southern California orange groves—rice, cotton and sugar fields of Texas and Louisiana. Picturesque bayous—the Teche—Land of Evangeline.

Oil burning locomotives.
No soot. No cinders.

Through drawing-room sleepers, berths, sections, drawing-rooms, dining, parlor and observation car service. Steam heated and electric lighted throughout.

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The man who makes a purely vegetable compound for the cure of Constipation, Stomach Trouble, Liver and Kidney Disorders, Sick Headache, Skin Disease and Rheumatism. If not cured or benefited money refunded. All ailments arising from impure blood. Reliable agents wanted to introduce Perkins National Herbs famous guaranteed family medicine. 50 cents and $1 boxes sent postpaid on receipt of price. Free sample, address

532 Monadnock Bdg., San Francisco, Cal.

their vines due to the low price of grapes. All these grapes can be utilized without picking a grape, with the possible exception of those grapes in the tops of the taller vines which have to cut in order that the hogs can get at them.

These grapes should be utilized before the rains rot them, and while there is such a demand for finishing food for hogs. Although hogs are selling at a very high price, barley and corn are too expensive to feed them. Mr. Wright, a prominent butcher of Woodland, who has been killing grape fed hogs, told the writer that next to barley and corn, grapes was the best food for hogs. It gives them a hard finish that is much prized by butchers. Another advantage of grape fed hogs is that they have very little belly, some of the Turlock butchers claim that the waste on grape fed hogs is only 17%.

Grapes fed in this way are worth $10 per ton and they make a profit out of something that is practically a loss. A farmer near Stockton said that his hogs gained 2½ pounds a day in a vineyard that had been picked over.

Where the hogs are allowed to rustle in a vineyard they do better than when they are fed in a pen as they are not so liable to gorge themselves. The hogs can be herded in these vineyards where there are no fences with very little labor, and with no damage to the vines.

It behooves every vineyardist who has not picked his grapes to get in touch wit some one with hogs, as there is money in the proposition for all parties concerned. Farmers having hogs which they wish to feed grapes can get the names of the vineyardist with unpicked grapes by writing to the Chambers of Commerce of all the counties between Sacramento and Kern county.

WHAT PRACTICAL STOCKMEN ARE DOING.

Overstocking the range is a common practice in all cattle countries and it is a temptation which few can resist, especially in the spring time when the hills are covered with grass. Oscar Willpert, a successful stockman near Niles, is very careful in this regard and never overstocks his range. As a result his cattle do not have to graze very close and some of the grasses can go to seed. Also there is enough old grass left to protect the young shoots from the cold and wind when they come up in the spring. By this method he always has plenty of feed for his stock so that he never has to finish them on hay before selling.

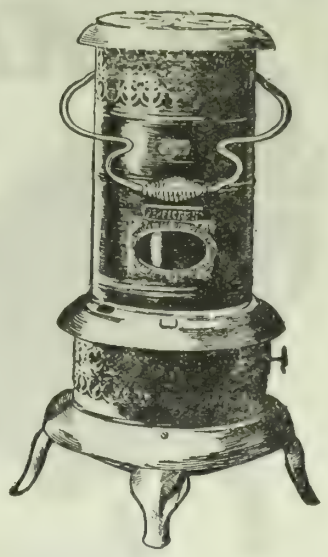
Mr. Willpert always buys the best bulls he can get, as he knows the value of having a good sire to head the herd. As his land is hilly he prefers Herefords, because they fatten quicker and graze better than any other breed under the conditions he has to offer.

In order to prevent his cattle from getting wild, the heifers about to have their first calves are brought into the corrals. The young calves thus gets accustomed to being handled and are much easier taken care of when they get older. The old cows he allows to calf out on the range as they will bring their calves down to the corrals. When the calf gets about nine months old he brands, weans and breaks it to a rope so that he can handle it much easier when ready for the butcher.

LARGE CATTLE IMPORTATIONS FROM MEXICO.

The effects of the cutting up of the large stock ranchs over the West is seen in the scarcity of beef throughout this section and the importation of large numbers from Mexico to meet the demand. From 2000 to 4000 cattle a day are being brought through El Paso from points in Chihuahua to be fattened in California, Colorado, and Kansas.

Collector of Customs O'Keefe, for the


Oil Heat
Without Smoke

No matter how sensitive your olfactory nerves may be, or under what working conditions you encounter the

PERFECTION Oil Heater
(Equipped with Smokeless Device)

you'll not detect the slightest odor of smoke.

The Perfection Oil Heater neither smokes nor diffuses odor. The new

Automatic Smokeless Device

positively prevents both. Repeated tests during its incipiency and development, innumerable trials after it had been pronounced perfect by the inventor, demonstrated its utility and sure effectiveness.

The wick cannot be turned up beyond the point of its greatest effectiveness. It locks automatically and thus secures the greatest heat-yielding flame without a sign of smoke or smell. Removed in an instant for cleaning.

Solid brass font holds 4 quarts of oil—sufficient to give out a glowing heat for 9 hours—solid brass wick carriers—damper top—cool handle—oil indicator.

Heater beautifully finished in nickel or Japan in a variety of styles.

Every Dealer Everywhere. If Not At Yours, Write for Descriptive Circular to the Nearest Agency of the

STANDARD OIL COMPANY
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Mr. BEE-MAN:
WE HANDLE
BEEWARE
AS WELL AS
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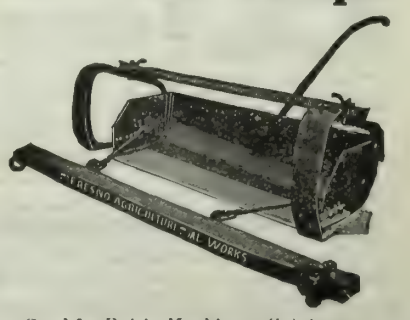

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CHARLES GLOECKNER.

Nogales district, said that 20,000 cattle were imported from Sonora during the month of November, and he estimates that ten times the amount brought in last year will be imported this season. The duties on the cattle imported through Nogales in November will amount to $50,000, and the duties on cattle through El Paso will even be larger.

Stockmen familiar with the depleted conditions of the ranges in the West predict that in two years cattle will be placed on the free list, as the price of meat will soon get out of reach of the consumers.

LIVE STOCK NOTES.

John Vierra, a dairyman near Lemoore, has 490 acres, 300 of which are in alfalfa. Mr. Vierra milked 180 cows. His receipts were $1260 from the milk and his hogs brought $750, besides this he sold hay and corn.

Virgil Patterson, a Holtville rancher, shipped several car loads of fat hogs to Los Angeles last week.

M. Bassett, of Hanford, shipped one of his prize winning boars to Mrs. Agnes Brenmerly, of Yolo county.

Percy Dennis and Edwin Callis have returned from El Paso with 1200 head of cattle. These cattle were bought by the Hobsun brothers, of Oxnard, to be fattened on their ranch there.

The bureau of animal industry of the United States Department of Agriculture have taken off the quarantine for Texas tick on the cattle, and certain portions in Texas, Oklahoma, Arkansas, Tennessee, South Carolina, and Virginia. Over 80,000 square miles of this territory has been freed from ticks since 1906.

At the auction of live stock on the Wright Place, near Corcoran, from $150 to $200 was paid for yearling colts, and old mares sold equally well. The stock were all good quality, but not fancy breed.

Abe Caufman, of Seligman, recently shipped 10 carloads of cattle to the Los Angeles market.

The Trout Creek Cattle Company was recently formed to raise cattle. The company bought the Goold ranch of 400 acres near Livermore. The men interested in the company are: C. G. Goold, T. B. Russell, F. F. Allen, R. R. Reid, and J. J. Thompskinson.

When alfalfa hay is fed hogs it should not be fed on the ground as the leaves will be knocked off, and the best part of the plant will be tramped in the ground. The leaves of alfalfa are rich in protein and make valuable food for hogs. The only way is to put the alfalfa in troughs or scatter it on wooden floors where the leaves can be picked up easily with the stems.

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GROWING FARM SHEEP.

Those who are considering our frequent suggestions that we ought to be doing more with sheep on farms (with due attention to the dog problem), may be interested in what Mr. Henry T. West says about it in the Denver Field and Farm of Colorado experience:

The equipment for sheep raising on a farm out in this western country is very simple. First is a good meadow and pasture of any desirable combination that will produce a firm, close sod and a variety of feed, those grasses which have the longest growing season being most desirable for pasturage. Second is good fencing of any style of woven wire or smooth wire and strong construction—sufficiently close not only to turn sheep but to stop the youngest lamb and keep out dogs. Such fencing should not only enclose the entire ranch, but should subdivide it into a sufficient number of fields to provide for the shifting of the sheep for the purpose of irrigating and changing to fresh feed and also to provide for the dividing of the flock into small bunches at lambing time. Each pasture should have a large shed for protection against the sun in hot weather, or one shed should be built at the common corners of the fields so that it could be closed or opened to any particular field. Such shedding need not be expensive and need not be rainproof, for they would never be needed for protection from storms unless at lambing time. They should be open on the sides and could be of pole and straw construction which would involve no expense except the necessary labor. Third is a winter feed yard with shedding more nearly weatherproof and a number of small feed yards so that the lambs intended for mutton could be fed in bunches of not more than 200 to 300. The ewes should be fed separately and could be fed all over the farm wherever the manure was most needed. The winter feed yard should be portable and the ground used for grain or cultivated crops during the summer, especially sugar beets. A good sod will maintain eight ewes with their increase for each acre. I believe this to be ample where the entire place is pastured. Where part of the place is pastured and part used for the production of hay for the winter forage I believe that 10 ewes to the acre for that part used for the pasture will not overstock it for the reason that the meadow after the hay is off will be available for pasture at a time when most needed by reason of the growth and consequent greater consumption by the lambs. Four hundred pounds of hay will winter a ewe fat, estimating the feeding season to be 133 days. If grain is fed to the ewes a correspondingly less amount of hay would be necessary. After the pastures begin to fail an average of two pounds of hay and one pound of grain daily for 60 days will put a ranch-raised lamb in perfect condition for market. When on full feed it will still get much of its living from the fields.

[Obviously with our milder winter climate in the valleys the shedding arrangements might be considerably modified.—EDITOR.]

MARKETING FARM VEAL.

A Portland firm of butchers give, through the Pacific Homestead, some hints to farmers about the wrong way they dress or butcher veal for the market: "We are actuated to write on account of a very recent occurrence. On September 10th we received a veal weighing 108 pounds from Mr. M. J. Brown, of Gaston, Oregon, which was fat and round or full in meat. For such veal we have been getting 11 and 11½ cents a pound, but we were mighty glad to find a buyer that paid us 5 cents a pound for this veal. Now, you will ask what was the reason; and this is the point we wish every man who goes to butcher veal should read: The calf became heated before it was killed, like for instance being brought in from the pasture; this running is what heats it. If this be the case, just leave the calf stand an hour and it will cool off. Next, after killing and dressing, hang each veal up by the hind legs, well spread out over one whole night. This will cool and drain off all the blood if the air can reach all the parts on the inside. In the morning, take it from its hanging place and ship it. If these directions are followed you will never have the disappointment of a loss like Mr. Brown had. Do the same with hogs and beef. Leave the whole liver, kidneys, and sweet breads in each veal."

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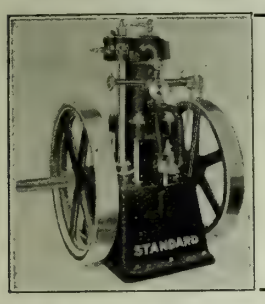
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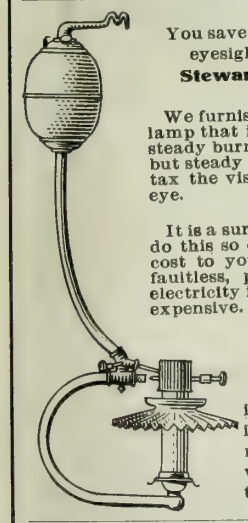


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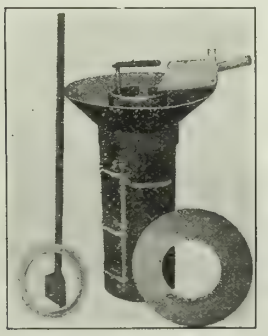
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The Poultry Yard.

PETALUMA AND THE POULTRY SHOW.

Written for the PACIFIC RURAL PRESS
By M. RUSSELL JAMES.

Petaluma suggests poultry, and though its citizens protest that there are no feathers flying in the air of that thriving town, the fact remains that Petaluma owes its fame to the Hen. And Petaluma is not ungrateful. The display in the poultry show held there last week was no larger than in the other Coast shows, but the attendance was simply great, and, during the afternoons and evenings, there was what the society editor would call a "crush." The Petaluma Chamber of Commerce, the bankers, the merchants, and the business men generally gave the enterprise their warm and solid support. The taste and comfort in the arrangement of the hall and the general satisfaction attested to the efficient management of the show, whose officers are all practical poultrymen as well as fanciers. The fine display made by the Petaluma Incubator Co., and the Cypher's Co., and the parlor fitted up by the Sonoma Valley Music Co., added to both the appearance of the hall and the attractions of the show.

The Petaluma bird, otherwise the White Leghorn hen, took time from her busy season to show herself. Freed from the grime of business and dressed in her snowy feathers with red and yellow trimmings, she could compete for the beauty prize with any bird in the show. Carl Gregory of "Wayside" made the largest display in White Leghorns, and captured more prizes and specials than we have space to enumerate. Among them the $50 challenge cup won by E. F. Baldwin last year, and the trophy for the best bird in the show—and that's "going some" for the White Leghorn as well as for Mr. Gregory. Another point this breeder made which counts for more than feathers with those who know poultry, was that his stock especially showed good care and training.

V. Huntley, who won the prize for the largest number of entries and showed many different breeds, had an excellent display in White Leghorns. He has been working for years to attain fine head points in his strain of Leghorns, and he surely is "getting there." The earlobes which are so difficult to manage in the Leghorn cock are almost perfect on his fowls. He showed a May hatched cockerel (which somehow escaped the attention of the judge), that struck the writer as just about as near perfect for its age as birds of that class come. Even Frank Lane Sewell could not improve on its earlobes. We expect to hear from that bird next season. Max Duttbern was another breeder that made a good showing in White Leghorns.

In Buff Leghorns and Blue Andalusians V. Huntley took all awards and showed some fine specimens of each breed. Mrs. N. Walls received all awards in Mottled Anconas.

Minorcas, in both black and white, were a large and fine display. There are many breeders of Minorcas in Sonoma county, and we found that some of the Leghorn farms were closing into Minorcas, considering this breed better suited to their purpose when both the egg yield and market fowl are reckoned with. In Black Minorcas J. P. McDonough took the blue right straight through on the same string of birds shown in Oakland. V. Huntley, D. Dangers, W. A. Yeamans, and Mrs. S. Cassiday all won on this breed.

White Minorcas was a strong class where two large breeders of this variety, H. C. Scrutton and C. H. Vaughan, contested every point. To gain any prize in this class meant much in such hot competition with the grade of birds shown. Messrs. Scruttron and Vaughan were pretty evenly matched and cleaned up about everything in sight, but James Greig got away with a first on cock, and D. Dangers with a third on pen. Mr. Scrutton won the White Minorca Club prize for best birds exhibited by members of the club.

White Wyandottes were up in quality. J. L. Dinwiddie entered 14 birds in this class and captured six prizes. A. L. Jenkins, A. C. Wren and J. Stanfield were winners in this class.

There was a fine display of Silver Laced and Silver Penciled Wyandottes, which is something unusual in our shows. These were the first two varieties originated of this breed, and in general useful qualities they have not been improved upon. Mrs. G. Grindell took all awards in the Silver Penciled.

The famous string of Barred Plymouth Rocks from the poultry farm of Moore & Mann were there and as usual captured about everything in their class. Besides all but one of the blue ribbons they won the $50 challenge cup presented by the Petaluma banks for the best pair of Barred Rocks. J. G. Gunn and G. D. Lubbin won in this class.

In Buff Orpingtons there was some lively competition but the Sullivan Buffs walked off with most of the prizes, 15 birds winning 14 regular prizes—and the champion cock, Gold Dust, was home attending to family duties. The Sullivans also won special prize for best display in Buff Orpingtons and the gold special for best display in entire English class. Dr. Chipman, H. Anderson, and R. E. Kingman were winners in this class.

In White Orpington a Sonoma county breeder, Mrs. Swaysgood, got a first on hen in competition with the fine imported birds of W. H. Ingram.

In White Plymouth Rocks with such breeders competing as Carl Gregory, V. Huntley, Wallace Rutherford, and Mrs. D. A. Robertson, one may know there were some mighty fine birds and hot competition, but the Robertson birds came out ahead and in addition to 10 regular prizes, won the special for best pullet in the entire show, and special for best collection of White Plymouth Rocks.

The exhibit of Cornish Indian Games were all imported birds. One of the pullets took first prize at Liverpool, England, this year. This breed is a wonderful table fowl, and the weight is out of all proportion to the size of the fowl. The breast of a yearling hen is like the broad side of a ham, the breast bone being entirely hid in solid flesh. Richard Keatinge, of Palo Alto, is the owner and exhibitor of these notable birds.

The Hamburgs, in four varieties, were another notable exhibit. These are of the Pheasant strain, originated and bred by C. J. Seigfried, of Alameda. Expert Eastern judges pronounce these birds the finest Hamburgs in America. For the last 15 years this strain has won all the prizes in their class on this Coast.

The ornamental class throughout was large and represented by high-class birds. In Bantams, Mrs. Bessie Campbell won the cash prize for best display.

Jack Lee had an exhibit of live capons of different breeds. He also showed Faverolles. This breed was produced in France a few years ago by a cross of the Dark Brahma, Houdan and Dorking, but some of us who were children a good while back may see in them a surprising similarity to the "muffies" or "muffie-chops" among the home fowls of those days. The children of that time were partial to those bearded biddies, particularly when they sported both beards and topknots.

Rhode Island Reds, Houdans, and a number of other popular breeds were well represented, also a full line of waterfowl and turkeys. The pigeons though not out in such numbers as at Oakland, were

pronounced by the judge, R. V. Moore, to be unsurpassed by anything in their class shown in California in the last 17 years.

In our limited space we cannot note all exhibits and points of interest, much less do justice to any. It was a good show and well conducted. Perhaps one of the best things about it to the strange visitor was the prevading air of friendliness—and this, bye the bye, extends to the town itself. The stranger feels at home in Petaluma. To see the hundreds of country teams wedged together about the railings of the public square is good for the eyes of the city dweller, and brings him in touch with the great farming community—the source of all wealth and greatness.

The Outside Show.

Even more interesting than were the exhibits of the show are the fowls on the thousand hills of the outlying district whose cackle is heard around the world. Perhaps we struck the sunny side of Petaluma, but nowhere did we hear a "kick" against the hen. Everywhere the tone in regard to this industry was better than optimistic, it was confidant, assured. In the 35 miles of country through which the electric line to Santa Rosa passes one sees the colony houses of the hens scattered over the billowy hills and rolling valley lands. Some of them are rough and unpainted but many of them take on the tone of the poultry owners' pretty cottages with red roofs and white walls. By the way, how many worn-out denizens of cities are renewing their strength and "nerves" in these same pretty cottages—getting "back to nature" and in touch with the electrical currents of life? And this brings us to the noted Dangers' poultry farm on the electric line five miles from Petaluma. For 40 years the head of a large wholesale house in San Francisco, Mr. D. Dangers three years ago retired from that business and invested many dollars in a model poultry farm. Unlike many such large ventures in poultry there is good common sense as well as dollars behind this enterprise, and after a talk with Mrs. Dangers we recognized to whose common sense its success is largely due. Mrs. Dangers is not pining for the luxuries of city life to which she has been accustomed for so many years. Her enthusiasm for the new life and work is inspiring. "For so many years," she said, "my husband spent his time at the wharf and I at home. I could have no part in his business cares. Now I can help him and can feel that I am doing some of the world's work. That is so much better than to sit with idle hands. I enjoy it all. No, the many people who come to see the farm are not tiresome. I meet so many pleasant people and I am able to help some of them in their starting with poultry, and then they often help me with ideas about the work. We help each other which is the right way in life." She mentioned some of her city friends who have located on poultry farms near her. "And they are all so satisfied," she said, "and so surprised that the hen could make so many dollars. There is a tract of land divided in 5 and 10 acre farms near Sebastopol," she continued, "where the settlers are engaged in raising poultry and fruit, and they are all so glad and prosperous. The Lord made the land for different uses, some for stock raising, some for farming and fruit, but He made this valley for poultry. No, there is no secret for success in the business. It is 'gumption' one must have."

At another time we shall give the readers of the PACIFIC RURAL PRESS a description of some of the buildings and methods which make this plant notable. The farm has a capacity for 12,000 fowls with 6800 at the present time. Mrs. Dangers remarked in this connection: "We are now just ready to begin business.".

The Dangers' poultry farm is only one among many such large farms. Before us is a list of some dozen, no one of wnich falls below 3000 fowls. But these immense plants are not the poultry business of Petaluma. They are but the hilltops upon which the eye of the casual observer rests. The valleys are made up of thousands of little homes each supported by a few hundred hens, and these aggregate the great bulk of the poultry industry of Petaluma.

One cannot even touch upon the subject of the poultry industry in Petaluma without mentioning the man who is behind its success and fame, who struggled hard for years with the problems of artificial incubation, and still harder with the prejudice against it, and who traveled the length of the valley of discouragement but is now permanently located on the hilltop of success. It is hardly necessary to mention names for everybody knows this man is Lyman C. Byce, of the Petaluma Incubator Company. The best part of Mr. Byce's greatness is the fact that he is the friend of every poultry raiser and, being a practical poultryman himself, has by kindly advice and interest helped thousands to success in this industry.

Show Notes.

CHANGING THE COLORS.—There was quite a shake-up of ribbons among the birds just from the Oakland show. Naturally, the haughty bird that wore the blue at Oakland was "riled" when he saw his colors on a neighbor bird upon whom he had looked down, while he himself must per force wear the red.

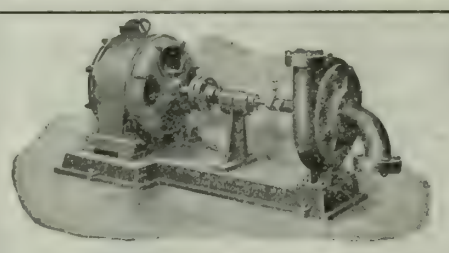
The following note from Mrs. W. S. Sullivan of the Buff Orpington yards at Agnew, shows the joys—and dollars—that come to the successful fancier who "makes good." "While at Petaluma I got an order from a man, to whom I sold 300 dollar eggs of our exhibition stock while at Seattle, for an exhibition string of birds to be shipped to Washington for the northern shows. This man is determined to have the very best stock and has been looking over the high-priced birds of the East, but has decided that we can't be equalled in Buff Orpingtons."

The firm of Mr. and Mrs. Carl Gregory is another example of an ideal partnership in the poultry business. Like Mrs. Sullivan, Mrs. Gregory is an enthusiast in the work, and by no means a silent partner in the business. The Gregory winnings on a number of different breeds attest to their high standing as fanciers, but the backbone of their business is some 1000 White Leghorns that lay the market egg. Mr. Gregory explained that with the market egg for the safe foundation of the business the fancy may be engaged in to advantage and the tedium and drudgery of the common work relieved. "Unlike the Eastern fanciers," he said, "we have but a small strip of territory to draw on. We sell no stock the other side of the Rockies, while much of our own trade goes East. When one has big money to pay out for fowls there is more eclat in sending it East even when better stock may be had at home."

It is not generally known that the head of the large fruit and fancy poultry business of Moore & Mann is a woman. Mrs. Moore, like Mrs. Dangers, can well afford to fold her hands or indulge in the pursuit of fashion and pleasure supposed to be dear to the feminine heart, but life has for both a deeper meaning, and though each is unknown to the other they both expressed exactly the same sentiments about being useful and helpful in the community and by example, advice and sympathy, making the path a bit easier for others, and at the same time broadening their own outlook and interest in life.

One of the most interesting features of the show was the demonstration of expert methods of trussing and boning fowls given by Mr. V. Huntley, of the Experiment Station. His skill in relieving the fowl of its bones without spoiling its appearance or shape is amazing. He stuffs a boned turkey with a boned chicken which in its turn is stuffed with a boned pigeon filled with hard boiled eggs, and at the completion of this work of art the turkey is in perfect form for roasting, after which the whole creation may be sliced like a boned ham.

Mr. Hogan, of "Hoganized" fame, who has studied the hen for some 50 odd years, says there are several causes of failure in the poultry business any one of which may trip up the would-be poultryman; for instance, the person may not have a head of the correct formation for the business, or the selecteu line of the business may not be suited to the person, but most disastrous of oll is the hen not having the correct formation for the branch of business chosen. Thus, there are three branches of the poultry business—market eggs, table fowls, and fancy poultry. Whoever gets either the branches or the hens misplaced shall surely come to grief. Mr. Hogan can diagnose both your head and your hen and tell wnat each is good for—whether the poultry yard or the pot. Seriously, a number of fanciers, among whom are the Sullivans, who have used his system of selecting the layers, are entnusiastic in its commendation.



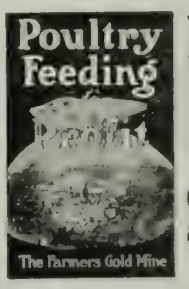
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on application to
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To lay a large number of eggs a hen must be fed a full, rightly balanced ration. Grains alone do not suffice, nor hap-hazard feeding. You can make your own balanced Egg Producing food as good as any, by merely mixing

EGG-MORE

with good ground grain products. And this is the thing to do if you can get grain cheaper than to ship it in. EGG-MORE is not one of those strong tonics, not advisable to be fed regularly, but it is a FOOD, to balance the ration properly, and you can't buy such balancing materials better nor cheaper than in EGG-MORE. Just a little daily does it. Send for Biddy Booklet with many testimonials. Ask others; the number using it is constantly growing. 25 lbs., $1.90; 50 lbs., $3.60; 100 lbs., $7.

If not sold by your dealer we will prepay the freight within 300 miles. Order a sack of sufficient size to give it a good trial, according to the number of fowls you have. Then if not satisfied, you get your money back.

West Coast Mill Co.
Cor. Griffin & Alhambra, LOS ANGELES, CAL.

WAYSIDE YARDS
PETALUMA, CAL.



High Class and Bred for Egg Production, or Exhibition Purposes

S. C. **White Leghorns.**

We have the combination—Utility and Fancy—We showed the finest bird in the show of 800 exhibits at Petaluma, 1909, and carried off all Leghorn Prizes.

We want the trade of the high class breeders of the Coast.

Write for Prices.

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POULTRY.

BUFF ORPINGTONS—Sullivan's Commonwealth Strain are the heaviest layers of large eggs on the Coast. Winners at State Fair, Alaska Yukon show, Seattle, and all big shows for the past 10 years. Some fine Cockerels now for $5 each. Eggs $3 and $5 per sitting. Send for Prize Record. **W. SULLIVAN,** Agnew, Santa Clara County, California.

A FEW PURE BRED BRAHMAS, BLACK Minorcas and Rhode Island Red Cockerels for sale. Apply to Vine Ranch, Vina, Cal.

BANTAMS—Golden Seabright and Black-Tailed Japanese. Free Circular. Englewood Orchard, Campbell, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

WHITE LEGHORNS—Ideal Layers. Write for Circular to C. B. Carington, Box 705 Hayward, California.

BREEDERS' SUPPLIES.

JUST OUT Croley's "Little Red Book No. 51." Free. Send postal
GEORGE H. CROLEY, 637 Brannan St., San Francisco. **POULTRY SUPPLIES.**

The Home Circle.

The Two Little Stockings.

Two little stockings hung side by side,
Close to the fireplace, broad and wide.
"Two?" said Saint Nick, as down he came,
Loaded with toys and many a game.
"Ho, ho!" said he, with a laugh of fun,
"I'll have no cheating, my pretty one.
I know who lives in this house, my dear,
There's only one little girl lives here."
So he crept up close to the chimney-place
And measured a sock with a sober face.
Just then a wee little note fell out
And fluttered low, like a bird about.
"Aha! what's this?" said he, in surprise,
As he pushed his speck up close to his eyes,
And read the address, in a child's rough plan,
"Dear Saint Nicholas," so it began;
"The other stocking you see on the wall
I have hung for a child named Clara Hall.
She's a poor little girl, but very good,
So I thought perhaps you kindly would
Fill up her stocking, too, to-night,
And help to make her Christmas bright.
If you've not enough for both stockings there,
Please put all in Clara's, I shall not care."
Saint Nicholas brushed a tear from his eye,
And "God bless you, darling," he said, with a sigh,
Then, softly he blew through the chimney high,
A note like a bird's as it soars on high,
When down came two of the funniest mortals
That ever were seen this side of earth's portals.
"Hurry up," said Saint Nick, "and nicely prepare
All a little girl wants where money is rare."
Then, oh, what a scene there was in that room!
Away went the elves, and down from the gloom
Of the sooty old chimney comes tumbling low
A child's whole wardrobe, from head to toe.
How Santa Claus laughed, as he gathered them in,
And fastened each one to the sock with a pin;
Right to the toe he hung a blue dress.
"She'll think it came from the sky, I guess,"
Said Saint Nicholas, smoothing the folds of blue
And tying the hood to the stocking, too.
When all the warm clothes were fastened on,
And both little socks were filled and done,
Then Santa tucked a toy here and there.
And hurried away to the frosty air,
Saying, "God pity the poor, and bless the dear child
Who pities them, too, on this night so wild."
The wind caught the words and bore them on high,
Till they died away in the midnight sky;
While Saint Nicholas flew through the icy air,
Bringing "peace and good-will" with him everywhere.

—*Selected.*

Virginia Seeks Flowers Name.

There is a lively discussion in Virginia over the adoption of a State flower. The daisy has been proposed, and it is both affirmed and denied that this flower was first brought South by Northern soldiers during the civil war. The goldenrod is already the chosen flower of Alabama, Kentucky, Maryland and Nebraska. The chrysanthemum is popular in Massachusetts. Arkansas and Michigan have adopted the apple blossom, Louisiana and Mississippi the magnolia, Washington and West Virginia the rhododendron, Iowa and North Dakota the wild rose.

California has the poppy, Colorado the columbine, Connecticut the mountain laurel, Delaware the peach blossom, Idaho the syringa, Indiana chooses corn, Kansas the sunflower, Maine the pine cone, Minnesota the moccasin, Montana bitter root, New York the rose, Ohio the red carnation, Oklahoma the mistletoe, Oregon the grape, Rhode Island the violet, South Dakota "pasque," Texas the blue bonnet, Utah the Sego lily, Vermont red clover, Tennessee the daisy.

This question has been settled in Great Britain, where
Scotland has the thistle, England the rose,
Everybody knows where the shamrock grows.

Poultice for Boils.

A Reedley subscriber, Mr. W. J. B., sends us the following recipe for curing boils or pain, which will be well to remember. He says: "I would like to give a remedy which is different than the poultices you published in your issue of November 27. I have had about 150 boils in my time, and some pains in my back, from exposure and damp weather in the Middle West. I tried all kinds of poultices and plasters, all in vain, until I tried fat pork. It cured my backache, then I tried it on some boils, and it proved to be the best poultice for me. To make a pork poultice, take a thin slice of salt pork and sew it to a cloth and fasten it to the part affected with boil or pain, let it stay ten hours and then replace with a fresh one. About three poultices will cure any pain. Don't believe me, but try it, and let me know if the results are not satisfactory.

We are pleased to have the above to give to our readers and ask others to send us their simple remedies that this department may become more valuable.

Foiled.

A man met a doctor he knew one morning, and, being one type of grafter, he thought to work him for a free prescription. After some small talk he asked, quite incidentally:

"Doctor, what would you give for a sore throat?"

"Nothing," replied the doctor promptly, for he knew his man; "I don't want a sore throat."—*Philadelphia Record.*

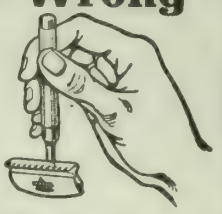
Christmas in Norway.

One of the prettiest of Christmas customs is the practise, in Norway, of giving a Christmas dinner to the birds. On Christmas morning every gateway, gable or barn door is decorated with a sheaf of corn, fixed upon the top of a tall pole, from which it is intended that the birds should make their Christmas dinner.

You Can't Hold This Safety Razor Wrong



The blade meets the face at just the right angle for a clean, comfortable shave. Hold the



KEEN KUTTER
Safety Razor

so that it will shave *at all* and it MUST shave exactly right. It is the one *Safety* Razor that will give a fine, cool, close shave entirely free from regrets. Keen Kutter blades have the famous Keen Kutter temper and quality—hard enough to hold their edge—thick enough to prevent vibration and jumping over the beard. Satisfaction or money back.

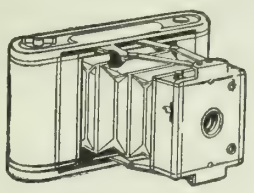
E. C. SIMMONS KEEN KUTTER TRADE ST. LOUIS MARK U.S.A.

12 Norwegian Steel Blades in every kit.
No. K-1—Silver Plated in genuine Black Leather Case, $3.50
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Sunset Route

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First Cabin, $77.75; Round Trip $144.40.
Second Cabin, $65.75.
Second Class Rail and Steerage, $61.45.

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Flood Building,
Market Street Ferry Depot,
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Broadway and Thirteenth Sts., Oakland.

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Earn $65 to $100 a month.

Public school graduates can prepare for teaching in about twelve to fifteen months; high school graduates, in about six months. Let us tell you how it can be done.

WESTERN NORMAL
STOCKTON, CAL.
Humphreys, Peart & Bessac, Proprietors.

YOUNG MEN WANTED

We wish to confer immediately with a large number of young men and women who have a common school education, who are physically fit and whose records are good; only those desiring to enter the telegraph service need apply. We teach telegraphy in all its branches—Railroad, Commercial and Wireless.

Our Wireless Department offers you an opportunity of quick advancement. Write for circulars.

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CHEAP LAND 160 acres $200, get title under homestead law in 14 mos. Good. 160 acres $1600, payments. Ideal for grapes, walnuts, apples, crops, grazing. Fine soil, timber, rainfall. Box, 821, SAN LUIS OBISPO, CAL.

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Complete and authentic mailing lists of farmon Pacific Coast. Prices right. Lists guaranteed on money back plan. Any other list you want. Only reliable Coast lists.
R. OPPENHEIM, 268 Market Street, San Francisco, Cal.

THE MARKETS.

San Francisco, December 22, 1909.
(Unless otherwise noted, quotations represent prices paid to the growers).

WHEAT.

Heavy shipments are coming in from the north to California mills, as the supply of local grades is very low, and what remains is held at extremely high figures. The northern market is still advancing, and while there is little export business, there is considerable buying for domestic account. Some descriptions are a little higher here, in sympathy with northern conditions.

California Club	$2.00	@2.10
Sonora	$2.10	@2.30
White Australian	2.05	@2.15
Northern Club	2.00	@2.05
Northern Bluestem	2.05	@2.15
Russian Red	1.90	1.92½

BARLEY.

According to official estimate of the Merchants' Exchange, the supply in the State, December 1, was far in excess of that at the same time last year, and much larger than was expected. This report has had a very depressing effect on the market, though quotations for feed have not fallen below the level of a few weeks ago, and the movement continues about as before.

Brewing	$1.47½	@1.50
Shipping		1.47½
Good to Choice Feed, per ctl.	1.42½	@1.47½
Common Feed	1.35	@1.40

OATS.

While supplies in the State are larger than a year ago, the northern market is quite strong and conditions here show no very marked change. Some descriptions are a little lower, and white oats are easy. Red feed is firm, but quiet. Local prices range about as follows:

Red, feed	$1.67½	@1.80
Seed	2.00	@2.10
Black	2.50	@2.80
Gray		Nominal
White	1.70	@1.75

CORN.

While Western grades are quoted a little higher, the figures are practically nominal as far as the local market is concerned, as buyers are taking little interest and arrivals are small.

California Small Yellow	$1.70	@1.75
California Large Yellow	1.75	@1.80
Western State Yellow, bulk		1.67½
Mixed, in bulk		1.65
White, in bulk		1.70
Egyptian—White		1.65
Brown		1.62½

RYE.

The only offerings at present consist of Eastern stock, which is not in much demand. Some holders, however, are asking a little higher prices.

Rye, per ctl.	$1.90	@2.00

BEANS.

There is very little of interest in this market at present, owing to the holiday season, and both shipments and arrivals are light. Most of the crop has been shipped from the country. Prices in general are firmly held, and show no decided change, though the range is narrower on several descriptions. Large Whites are higher, and limas show a slight decline, but otherwise there is no change worthy of comment.

Bayos, per ctl.	$5.10	@5.25
Blackeyes	4.00	@4.10
Cranberry Beans	4.40	@4.60
Garvanos	2.50	@3.50
Horse Beans	1.75	@2.00
Small Whites	4.75	@5.00
Large Whites	3.50	@3.60
Limas	4.10	@4.20
Pea	4.25	@4.50
Pink	3.70	@3.80
Red	6.50	@7.00
Red Kidneys	5.00	@5.10

SEEDS.

The demand has fallen off somewhat this week, and the local market shows little feature. Alfalfa is still inclined to weakness, but shows no further change in value, and other lines stand as before.

Alfalfa, per lb.		17@17½c
Broomcorn Seed, per ton	$20.00	@ 25.00
Brown Mustard, per lb		4 c
Canary	4	@ 4½c
Flaxseed		4 c
Hemp	3¾	@ 4¼c
Millet		3 c
Timothy		6 c
Yellow Mustard		Nominal

FLOUR.

Stocks on hand in the State are estimated by the Merchants' Exchange as much lower than a year ago, and with wheat still advancing the market is in an exceedingly firm position, with further advances likely at any time, though quotations have not been changed this week. Trading is on a rather moderate scale, and buyers are now inclined to hold off.

Cal. Family Extras	$6.40	@6.90
Bakers' Extras	6.00	@6.40
Superfine	5.40	@5.70
Oregon and Washington	5.90	@6.10

HAY.

Arrivals are still moderate, being about the same as last week. The feeling among local dealers is rather more optimistic, though the local demand continues small. The demand is principally for the choicer grades, though alfalfa is firm and shows some advance. Wild oat hay is also a little stronger. Quite a strong market is reported for choice wheat hay during the remainder of the season, as there is a considerable shipping movement from this market, with liberal inquiries from Oregon and Washington.

Choice Wheat, per ton	$17.50	@19.50
Other Grade Wheat	13.00	@17.00
Wheat and Oats	13.00	@16.50
Tame Oat	13.00	@17.00
Barley	10.00	@13.50
Wild Oat	10.00	@13.50
Alfalfa	9.50	@13.00
Stock Hay	8.00	@ 9.50
Straw, per bale	50	@ 75c

MILLSTUFFS.

The leading lines are unchanged, bran remaining weak, and rolled barley also somewhat easier. Cracked corn and oil cake are stronger, while mixed feeds show considerable range.

Alfalfa Meal, ton	$22.00@24.00
Bran, ton	27.00@29.00
Broom Corn Feed, per ctl.	Nominal
Cocoanut Cake or Meal at Mills	25.00@26.00
Cracked Corn	37.00@38.00
Middlings	34.00@35.00
Mixed Feeds	28.00@33.00
Oil Cake, per ton	39.50@41.00
Rolled Barley	32.00@33.00
Shorts	31.50@33.00

VEGETABLES.

Supplies of onions are being steadily reduced, and the market is in a strong position, with further advances expected. Turnips are higher than last week. Rhubarb is in better demand, with stronger prices. Celery is moving freely, but supplies are ample. Nearly all southern lines are in limited supply and show a sharp advance in prices, following serious frost damage to the crops. The present range of prices tends to limit the demand, but so far there has been no difficulty in disposing of all arrivals of attractive appearance.

Onions—New Yellow, per ctl.	$1.00@	1.10
Garlic, per lb.		6c
Green Peas, per lb.	8@	10c
String Beans, per lb.	8@	12½c
Turnips, per sack		75c
Summer Squash, large box	1.25@	1.75
Tomatoes, per box	1.00@	1.50
Green Peppers, per lb.	5@	8c
Egg Plant, per lb.	6@	9c
Rhubarb, per lb.	5@	7c
Celery, per doz.	25@	30c

POULTRY.

Arrivals of Eastern chickens have so far been light, but the demand has been moderate, and the only improvement in prices is on roosters, large young stock being quite firm. The greatest interest centers in turkeys. Arrivals have been quite liberal, while buyers show a disposition to hold off. Live stock still brings the same prices as last week, and dressed turkeys are selling up to 30c. for fancy large stock.

Broilers	$ 4.00@	5.00
Small Broilers	3.00@	4.00
Fryers	5.50@	6.00
Hens, extra	8.00@	9.00
Hens, per doz.	6.50@	7.50
Small Hens	5.00@	6.00
Old Roosters	4.00@	5.00
Young Roosters	6.50@	7.50
Young Roosters, full grown	8.00@	9.00
Pigeons		1.50
Squabs	3.00@	3.50
Ducks	4.00@	9.00
Geese, per pair	2.50@	3.00
Dressed Turkeys, lb.	25@	30c
Live Turkeys, lb.	21@	24c

BUTTER.

Arrivals have been quite liberal this week, and while prices have been maintained at the former level, there is some tendency to easiness. The demand has been of about average proportions, leaving little surplus in some quarters. The following prices are quoted by the San Francisco Dairy Exchange.

California (extras), per lb.	35½c
Firsts	31 c
Seconds	29 c
California Storage (extras)	30 c
Eastern Storage Ladles	25½c

EGGS.

While the receipts have been larger than last week, few extras have been coming in, and this condition is likely to continue for several days. This grade is quite scarce, and has been marked up three cents, while firsts are lower and still weak. Storage stock remains very firm, with a two cent advance.

California (extras), per doz.	57 c
Firsts	45 c
California Storage (extras)	32 c

CHEESE.

While the movement is moderate and arrivals larger, local grades are still scarce and firm. Fancy flats were too high, and have dropped ½ a cent, while firsts are higher. Other grades are unchanged.

Fancy California Flats, per lb.	18½c
Firsts	18 c
New Young Americas, fancy	19 c
Oregon Flats	18 c
Oregon Young Americas	18½c
N. Y., Fancy	19½c
Storage, Fancy Flats	17½c
Young Americas	18½c

POTATOES.

Supplies of Oregon stock are about cleaned up, but arrivals from the river district have been quite heavy. There is a strong and active demand, and the market remains very firm, with higher prices for both river and Salinas stock. Sweet potatoes are more plentiful and lower.

Potatoes—River Whites	75c@	$1.05
Salinas Burbanks	$ 1.25@	1.40
Oregon Burbanks	1.00@	1.20
Early Rose		1.50
Sweet Potatoes, ctl.	1.25@	1.50

FRESH FRUITS.

Everything in the market is offered freely this week, in expectation of a heavy holiday movement. Buying has been fairly large, sending prices upward in some lines, though demands have hardly been up to expectations. Apples are plentiful, but fancy lots and Christmas apples are stronger. Huckleberries are about out. Cranberries are moving freely, but with easier prices, especially on the early variety. The only grapes in demand are verdel, which are quoted about as before. Pears are plentiful, but firm. Pomegranates and persimmons are quiet, the latter showing a wider range.

Cranberries, per bbl.	$ 9.00@	12.00
Grapes, per crate	40c@	1.25
Apples—		
Fancy, per box	1.25@	1.75
Choice	75c@	1.00
Common	40@	65c
Christmas Apples	1.75@	2.25
Pears—		
Winter Nelis	1.75@	2.00
Other varieties	75c@	1.25
Pomegranates, small box	50@	75c
Persimmons	75c@	1.25

CITRUS FRUITS.

Valencia oranges are practically cleaned up. Tangerines are again lower, with heavy supplies and only moderate demand. Navels are very plentiful, and while the better offerings have been moving off more rapidly, prices show little strength. Grape fruit is steady, and lemons and limes are quiet at the former low prices.

Oranges—		
Tangerines	1.25@	1.50
Navels	1.75@	2.50
Choice Lemons	2.50@	3.00
Fancy Lemons	4.00@	4.25
Standard	1.00@	1.50
Limes	4.00@	4.50
Grape Fruit	2.50@	3.00

DRIED FRUITS.

The market has quieted down considerably in the last week or two, owing to the holiday season, but a resumption of business on a fair scale is expected after the first of the year in those lines in which any large quantity is still offering. An unusually active consumptive demand is reported throughout the East, especially for raisins, and the jobbing trade is buying in small lots for immediate needs. Prunes are extremely strong, with an advance in prices in some quarters, and supplies remaining in growers' hands are rapidly diminishing. Other fruits, for the most part, are almost entirely cleaned up, figs being closely held. Notwithstanding the failure to obtain results with the raisin pool, the outlook is considered better, with a stronger Eastern inquiry. Prices now quoted are little more than nominal, as growers are holding for more and little business is reported. Eastern stocks are very small, and as soon as values are fairly well established a liberal buying movement is expected.

Evaporated Apples, per lb.	8	@	8½c
Figs, black			2 c
Figs, white			4 c
Apricots	9½	@	10 c
Peaches	5	@	5½c
Prunes, 4-size basis			2¾c
Pears	6	@	8 c
Raisins—			
Loose Muscatels, in sweatbox	2½	@	2¾c
Thompson Seedless			2 c
Seedless Sultanas			1 5/8c
London Layers, 3 crown	85	@	95 c

NUTS.

The local market is extremely strong, and rapidly cleaning up, with a large demand both for shelled and unshelled stock for the holiday trade. Prices are unchanged, quotations being on the local market.

Almonds—			
Nonpareils			14½c
IXL			13½c
Ne Plus Ultra			13 c
Drakes			10½c
Languedoc			9½c
Chestnuts, California	8	@	12 c
Walnuts—Softshell, No. 1			14 c
Softshell, No. 2			9 c

HONEY.

Most offerings in the country have been moved. In this market, choice lots are steadily held, but lower grades are dull and weak. There has been a fair shipping movement to the north.

Comb	8	@	15 c
Exeracted, Water White	7	@	7½c
Extracted, Amber	5½	@	6 c
Old Extracted	4	@	4½c

HOPS.

It is estimated that over two-thirds of the Oregon crop has been sold, and the market shows renewed activity in that quarter. This market is quiet, with limited offerings, and the range of prices stands as before.

Hops, new crop	18	@	24 c

California clips are quiet, but a few sales are being effected at present, values remaining about as formerly quoted.

WOOL.

Fall Clip, Northern Free	11	@	13 c
Fall Lambs—Northern, per lb.	12	@	15 c
Southern	8	@	10 c
Fall Clip, Southern (defective)	7½	@	8½c

MEAT.

The market has been rather quiet for the last few days, dressed beef and veal being a little easier, though mutton is quite firm. Hogs are in fairly good demand, and while supplies are also fair, both live and dressed stock are higher.

Beef: Steers, per lb.	7	@	7½c
Cows	6	@	6½c
Heifers	6	@	6½c
Veal	7½	@	9½c
Mutton: Wethers	8½	@	10 c
Ewes			8½c
Lambs	11½	@	12 c
Hogs, dressed	9½	@	12½c
Livestock—			
Steers: No. 1	4¼	@	4¾c
No. 2	4	@	4¼c
Cows and Heifers: No. 1	3½	@	3¾c
No. 2	3	@	3¼c
Bulls and Stags	2	@	2¼c
Calves: Light			5½c
Medium			5 c
Heavy	4	@	4½c
Sheep: Wethers	5½	@	5½c
Ewes	4½	@	4¾c
Lambs	6	@	6¼c
Hogs: Grain fed, 100 to 150 lbs.			7¾c
Hogs: Grain fed, 100 to 150 lbs.	7¾	@	8 c
150 to 250 lbs.	8	@	8¼c
Common Hogs, lb.	5	@	6 c

Boars, 50 per cent; stags, 30 to 40 per cent, and sows, 10 to 20 per cent off from above quotations.

Special Citrus Market Report.

Los Angeles, Cal., Dec. 21.—The orange market in the East is higher at this time than since the season opened. The buyers have found that there is not the amount of California navels on hand that there has been at this time in years past. In consequence prices have gone up and will go higher before the holidays are over. Any shipper who now has fruit rolling unsold is in luck, for $5 a box will be a small price before the week is over, according to the idea of some of the shippers.

This condition does not affect the fruit now in California, for no one knows what conditions East will be by the time this fruit could reach there. Quotations are now no different than they have been for the past two weeks, except that almost no one is asking for them.

California lemons are selling for fine prices and are selling in the far East, New York City paying upward of $5 a box at auction. All the other auction points are also very high and the shipper with lemons to sell is in clover. Very little fruit is being sold in California, but is rolled to auction or sold on tracks at market points.

High winds on Saturday, the 18th of December, prevailed over almost all of the citrus section of southern California, in some places worse than in others, and in the worst sections at least 10 per cent of the fruit that was on the tree is now on the ground. This fruit may be shipped, but it is to be hoped not.

Shipments to date are 300 cars less than to same time last year. There are available for sale within the next 30 days 39,000 boxes of Sicily lemons, as against 40,000 at this time last season and 26,000 in 1907.

PUBLISHER'S DEPARTMENT.

The new book, "Trees of California," by Prof. W. L. Jepson, of the University of California, is just from the press, and is now on sale at $2.50 per copy. The book is handsomely bound in buckram, contains 228 pages, is elegantly illustrated, and well printed. To those interested in the botany of the native trees of California this book will prove of great value, and we trust the author will be repaid for his labor by an appreciative public. For sale at the PACIFIC RURAL PRESS office or sent by mail on receipt of price.

The annual edition of the California Fruit Grower, which was issued last week from their offices in San Francisco, was well up to, if not above, the standard. This edition contains 90 pages and cover filled full of valuable data concerning fruit shipments for the past year, as well as announcements of brokers. We congratulate Mr. Rowley upon the success made with the edition.

The California Hydraulic Machinery & Supply Co., of San Francisco, is offering comparatively free in the PACIFIC RURAL PRESS today an attractive feature in the way of a foot rule of finished steel, a genuine Lufkin rule. Such a feature ought to appeal to every horticulturist or irrigationist, as the rule is a neat and useful article. The management of the California Hydraulic Machinery & Supply Co. ranks with the foremost engineers of the Coast, and whatever they promise to do, will be carried out to the letter.

New catalogues and price lists have just been issued by the Leonard Coates Nursery Co., of Morganhill, and the California Nursery Co., of Niles. Both are free for the asking. Write to the companies.

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